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**A discourse analysis of medical solution: Telemedicine idea
translation**

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A discourse analysis of medical solution: Telemedicine idea translation

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Abstract

Telemedicine is not confined to patient care but provides solutions to the challenges and issues that our society is facing. However, the phenomenon of telemedicine and its translation vary because of differences in rules and regulations, multifaceted networks, and initiatives taken by actors considering time and space. Through answering our research question '*How telemedicine has been translated in EU, Sweden, and some hospitals in Gothenburg City*', we depicted the original picture which the previous thesis could not do. We use mixers of theories from change management in organizational studies, translation, and CoP because all of those are crucial for understanding how the idea gets into practice in a coherent way. We utilized discourse analysis (which uses written or oral texts to understand features and meanings) to study plenty of literature that help us get a very resourceful thought on the EU and Sweden along with two very fruitful interviews to get the latest thinking about telemedicine idea in Gothenburg. We found the EU, as a governing body, considers telemedicine in all of its 34 countries and therefore, the telemedicine idea covers common areas of this region with the external network in thought and versatile translation to make it practice. While Sweden has regional reflections from government bodies to a countrywide network including international aspects in telemedicine practice, some hospitals in Gothenburg region are individualistic with a countrywide inspection. In translation of idea, the same idea can be read in different ways and change should be a continuous (not planned) process with idea formation in an unknown object or modification of the known object. Then the idea that travels in time and space materializes through a network of the project and the resultant idea is institutionalized by various rules, regulations, policies, and guidelines, etc. The translated idea becomes a practice in CoP, social constellations, but the time and space effect and the management approach have significant aftermath in practice. Finally, through our query on how telemedicine has been translated, we showed the meaningful way to understand a phenomenon and its practice that enrich both theoretical works by showing uses of those in combination and in practice by focusing on the complexities.

Key words: Telemedicine, Change, Translation, Communities of Practice (CoP), Travel of ideas, idea materialization, institutionalization

INTRODUCTION

For the last two decades, patient treatment techniques have experienced a lot of changes. We have seen new treatment methods being introduced and implemented widely for the quick and safe diagnosis and recovery of patients. Telemedicine is actually seen to be one of such recent treatment methods (Salerno, 2018).

Telemedicine or remotely run medicine is certainly not a new concept (COCIR, 2010), being an important component of eHealth, telemedicine gained huge fame and recognition around the globe for the last twenty years including Sweden (Nicolini, 2010).

More specifically, telemedicine signifies medicine at a distance utilizing telecommunication and information technologies. The phenomenon of telemedicine as mentioned before, is not new (Reid, 1996), for a long time this incredible phenomenon has been around. For the first time it was mentioned in 1925 (Salerno, 2018), besides, its applications were in proper utilization at the end of the 1950s, however, as a matter of fact, in the 1990s, industrialized countries have witnessed a considerable increase in telemedicine application. Indeed, the recent advancements in the field of telemedicine is because of previous years' remarkable developments in Internet, computer, telecommunications as well as information technologies (Barrett and Brecht, 1998).

As far as the definition of telemedicine is concerned, important to note that, there is no specific definition of telemedicine, however, according to the World Health Organization, telemedicine is described as: *“The delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers, all in the interests of advancing the health of individuals and their communities”* (2010:11).

Additionally, the phenomenon of telemedicine is further defined as the implementation of telecommunication together with information technology in order to help in diagnosis, treatment and of course offering patients health care from a distance (Salerno, 2018).

Based on previous definitions of telemedicine, patient care was considered as the main activity of telemedicine, while for some other early definitions, medical care was thought to be the mere activity and explanation for telemedicine. But, in 1978, the scope and hence the definition of the telemedicine became broader (Bashshur et al., 2000).

It is seen that telemedicine provides solutions to the challenges and issues that our society is facing such as; 1st “the ageing of the population”, 2nd, the rising demand and requirement for patients to render active role in controlling their own health, 3rd, the need for controlling the costs of healthcare while offering patients advance quality care and 4th, the shortage of competent and qualified staff (COCIR, 2010).

Moreover, Sweden in the 1990s began focusing on telemedicine as a tool for fulfilling the demands for health requirements as well as bringing down medical care expenses. Presently, by the passage of every day, the popularity of telemedicine is rising and since 2016, the availability of primary health care doctors through video with the help of smartphones are booming in the particular country (Flaga-Gieruszynska et al., 2020).

Important to mention that, there is no noteworthy research of “translation of telemedicine” that covers such wide regions as we did in the EU, Sweden, and some hospitals in Gothenburg in our research and also no mentionable research is done using the theoretical approach, Scandinavian Institutionalism, to express all aspects of change and non-human and human relation. Further, according to PAHO (2016), telemedicine covers all aspects of products or services; however, though there is numerous research on specific services such as teleconferencing or other criteria for specific diseases, those do not cover the complete idea of telemedicine.

Through this paper we investigate how the idea of telemedicine has been translated. For this, we presume a change management approach. In addition to that, we also contribute to organizational studies by utilizing the translation process to comprehend what is the telemedicine phenomenon in the EU, Sweden and some hospitals in Gothenburg City, and how telemedicine has been translated in those contexts. Further, we also used the Communities of Practice (CoP) perspective.

The aim of this research paper is to understand the translation of telemedicine from management perspective in addition to realizing it from empirical evidence. For this purpose, we tried to focus on how the telemedicine idea is seen by the EU, Sweden and some hospitals in Gothenburg and also how telemedicine solution differs in those places. Next, to understand how materialized idea is institutionalized, we critically analyzed rules, regulations, guidelines and different organizational steps taken by all of them. But to realize why practice is not similar to all, we concentrated on other reasons such as management style, time and space.

Research question;

How has telemedicine been translated in the EU, Sweden and some hospitals in Gothenburg City?

Structure of the report

This report is structured as: first the section of the theoretical framework is presented, encompassing theories of change management, translation as well as Communities of Practice (CoP) vital for analyzing out collected data. Second, comes the methodology part of the report which defines the research process, the case, limitation and ethical aspects in relation to this particular study. Next, segments related to the report's empirical findings and discussion are presented and eventually conclusions along with recommendations for further study are illustrated.

THEORETICAL FRAMEWORK

Previous literature: Previous literature such as PAHO (2016) describes ‘change management’ as a systematic process in three steps for telemedicine and also Kho et al. (2020) described a systematic scoping review of CM practices; however, we used ‘materialization of idea’ by (Czarniawska & Georges, 1995) who convey that materialized idea can overcome any resistance (e.g., machinery) but a set of ideas cannot be materialized by planned change and also idea materialization can happen regardless of organization and time. In Petersson (2011), the paper

suggests technology (idea) should be considered from a spatial perspective but our ‘travel metaphor’ by (Czarniawska & Georges, 1995) has considerations for both time and space. Considering time and space, we avoided ‘diffusion theory’ used in a thesis such as Magnus Stromgren (2003) because the reverse is also true and so, we used translation concept. In translation, several kinds of research were done by using ANT theory (such as Rincon et al., 2022) including seminal work by Nicolini (2010) and also ‘knowledge management perspective’ by Paul (2006) but ANT is problematic in IT-based change, mentions Sunyoung (2007). Gharardi (2010) illustrates telecardiology from a practice-based approach and Nicolini (2011) conveys the relationship of knowing and practice by the idea of the site; however, we used CoP to show how the idea is translated into practice.

To explain and understand ‘*how telemedicine has been translated*’, we contemplated theories within organizational studies starting the theoretical section with accounts for change management followed by the translation process using theoretical approach, Scandinavian Institutionalism’ to understand the implementation process of translation, and finally ‘Communities of Practice’ (CoP) to understand how telemedicine idea has been translated into practice within an organization. We used discourse analysis to identify networks and also to understand telemedicine idea and practice.

Organizational Change:

‘Concentration on Change’ is important mainly for two reasons such as physicalist term of ‘theory of perception’ that only moving things are visible and terms of language for ‘describing social phenomena’ that reveal that in a stable situation, people take their realities for granted, being unable to express their construction to themselves or others. But during change, people begin to question the previously taken for granted, and hence old practices are destroyed for new construction inviting the questioning and deconstruction of the previous social order. In organization study, change abounds with ideas of continuous change undertaking the thought of constant construction of the social world even after projecting a strong illusion of stability. Unfortunately, there are no coherent descriptions or unified explanations of ‘organizational change’ even with lots of observations, and various accounts of different actors (Czarniawska & Sevón, 2005). Chia (2014) agrees with the ‘process outlook’ that describes organizations are stabilized patterns of relations that forge out of an underlying sea of ceaseless change but distinguishes between owned and unowned processes of change by adding ‘letting happen to take the precedence over the active intervention of change’ that always already present in every organization. Based on implied metaphors of organizing, analytic frameworks, ideal organizations, intervention theories, and roles for change agents, Weick and Quinn (1999) said continuous change accounts for the insignificance of revolutions to shatter non-existence things and also added that ‘episodic change’ needs inertia and are thought to be necessary for unable organizations while continuous change acts to alertness and inability of organizations to remain stable. They further included that change is not an intermittent interruption of periods of convergence, rather it is an ongoing mixture of reactive and proactive modifications. Continuous adoption and editing of ideas bypass the apparatus of planned change in organizations that follow the ‘idea of translation’ (the controlling image is idea travels by Czarniawska & Joerges 1996) because it impacts through a combination of fit with purposes at hand, institutional salience, and

chance, Weick and Quinn (1999) illustrated. Health care practitioners and researchers, according to Kho et al (2020), think of significant organizational and practice changes for successful telemedicine service. As described by Stroetmann et al. (2010), new requirements demand the capacity of organizations and professionals to understand the systematic nature of ICT-enabled support for integrated care that is both technology and process innovation. Better implementation of telemedicine solutions cannot be possible without measures to help promote and enable active change management at all system levels (ibid). Present-day studies of organizational change are badly affected by meta-narrative stories attempting to introduce a lasting order in one sweep and therefore preference is growing for 'little narratives' (with partial interpretation) that in combination help to understand. However, these types of narratives are yet so fragmented that they cannot be put in another theoretical collage, and also these fragments mainly come from two directions that are 'Institutionalism (old, new, Scandinavian) and Constructionism in Studies of Science and Technology (both hard and soft aspects) (Czarniawska & Sevón, 2005).

According to Czarniawska and Sevón (2005), The phenomenon of organizational change has turned to theories treating the construction and deconstruction of institutions as the most fruitful way of conceptualizing social order and one such theory is 'new institutionalism'. New institutionalism made changes in old institutionalism by presenting ideas as results of actions, not as actions' antecedents, by focusing upon the process of rule development (institutionalization), and by including the theory of conflict. Both convey the message that organizational action heeds the logic of appropriateness (not logic of consequentiality or rational choice), meaning actors' classification of situation and identity decides the actions. Further, these approaches count rules and identities as taken for granted in a normal attitude while emphasizing the central role of norms and socialization processes, rule and role conflict and therefore, institutions are considered as collections of stable rules and roles, and corresponding sets of meanings and interpretations. In addition, both principles judge stability as a norm, not the change, and thus avoid the aspect that people convince each other (not only by mistake) by changing their opinions, beliefs, and ways of acting. 'Scandinavian institutionalism' addresses the ambiguity of 'change' by including 'change and stability' together as the organizational norm (paradoxicality of organizational life) in the same way as the logic of appropriateness is complementary to the logic of consequentiality. However, many concepts are required to describe the organizational change in the past to emphasize the 'construction of meaning' and this purpose necessitates 'studies of science and technology' and 'translation'. The studies of science and technology considers "hard" aspects of organizing such as machines, technologies, buildings and reveals that objects, facts, symbols are socially constructed (human knowledge is social and things exist even though not observed) (ibid). In the meantime, Scandinavian Institutionalism considers translation from change management ideas and models and defines translation as the process where traveling ideas across time and space adapt to the local context and therefore this approach is a better explanation along with translation compared to ANT and Knowledge Management, according to Wæraas and Nielsen, (2016). In that vein, Diedrich and Guzman (2015) mention, hard (e.g., machine) and soft (symbol, metaphor) aspects along with human and non-human actors best express the organizational development or change, and both 'Scandinavian Institutionalism' and 'Studies of Science and Technology' cover all those aspects to understand change, according to Czarniawska

and Sevón (2005), and therefore, significant in understanding how telemedicine has been translated.

Translating ideas into organizational practice:

Organizational change can be presented as a story of ideas turning into actions in ever new localities to answer the questions of how local action emerges, and become institutionalized on a more global scale that ‘received models of change’ cannot do. Two dominating images of organizational change are, planned innovation and environmental adaptation, critical of each other and are not perfect and therefore ‘image of materialization of ideas’ is proposing familiar images of organizational change. Turning ideas into substances might take ‘planned change’ but the materialization of ideas takes general or unplanned change which organization studies do not tell. Materialized ideas can overcome any resistance especially as a form of machinery but planned changes never materialize as a set of ideas. Same ideas can be materialized in similar organizations around the same time and this mechanism can be called ‘Fashion’ in the alternative conceptualization of change named ‘travel of ideas’ and also, the same idea can be read by different people (who also energize idea) in different ways. With the ‘travel of ideas’ concept, answers can be found (not possible in the traditional way) such as reasons for change, why ideas staying for a long time materialize in organizational action suddenly, causes of leaders’ taking and implementing certain ideas at a given time, why environment changes in a given way, sources of unintended consequences, etc... Ideas are images in the form of pictures or sounds and they can be materialized, tuned into objects or actions, such as pictures can be painted or written (e.g. stage setting), sounds can be recorded or written down (musical score), and many more. Their materialization is the reason for the change in the form of appearance of unknown objects, appearance change of known objects, and transformation of practice, etc. (Czarniawska & Georges, 1995).

Acts of repeated communication are the way to apply the ideas with answers such as ideas travel or move involving both time and space (that need metaphor). In organizational studies, space plays a minor role and so we used ‘travel metaphor’; however, time is also important because time is sequentiality (plot of every narrative), and sequentiality implies causality and basic glue to hold together a narrative. Further, the notion of time and space needs localized time and globalized time that are connected to two dichotomies related to cultural universals/particulars, and macro/micro. In reality, there are only micro actors (no macro) who create a network with other micro actors, and also ‘global’ (not an extra entity) is a hugely extended network of localities. ‘Translocal’ is an accurate form to solve the dichotomies because it says that global and local (sequence of moments spent in a unique place) is a continuum, not a form of irreducible dichotomies (ibid). When tracing the ideas along the course of local time/space, it is found that by becoming quasi-objects, ideas transgress the barriers of local time to enter translocal paths and then become disembedded. Next, it lands in various localities where it becomes re-embedded, materialized in actions, and institutionalized after a successful journey but revitalized only to occasion anew the generation of ideas (Czarniawska & Georges, 1996).

Idea objects moving in space and time are traditionally discussed in terms of ‘diffusion’, the immaterial in material terms, which informs that ideas move from ‘more satiated’ to ‘less satiated’ environments, meaning the law of inertia applies to ideas; however, the reverse is more frequent adding new physical metaphors to defend. Physical metaphors can be substituted, not added, with

a contrasting model called ‘translation’, by Latour, which helps to reconcile the fact that a text can be ‘object-like’ but can be read in differing ways along with answering the questions about the energy needed for traveling (People, as users or creators, energize an idea whenever they translate for them or others) (ibid). Diedrich and Guzman (2015) mention translation approach reduces emerging conflicting issues between human and machines, allows recognition of the different identities humans and non-humans take, and helps consider taken-for-granted assumptions about people and machines. Nicolini (2010) made a case from the field of telemedicine where he used ‘sociology of translation’ that integrates the classical rational thinking and view of innovation. He showcased the translations’ capacity to explain sensitive contextual conditions and to pay attention to political, conflictual, and institutional aspects of innovation. Also, Wedlin, & Sahlin (2017) mentioned that translation is both process of movement and transformation, it is not used for linguistic sense, meaning things change as they are moved and ideas (subject to translation) impact other ideas and organizations involved. Translation interprets displacement, drift, invention, mediation, creation of a new link and modifies those who translated and which is translated and for this reason, this concept is so attractive. In it, the relationship of humans, ideas and objects are well defined along with what exists and what is created and to understand ‘organizational change’, all of those are needed (Czarniawska & Georges, 1995).

Parallel concepts of change, relationship, and translation in other Change Management Studies: Thomas and Hardy (2011) mention organizations are communicative interactions of members to constitute change emerging from iterative negotiations, involving multiple organizational members, not to divide (to get inputs from a wide range of organizational members) into the dualism of power and resistance or change agents implementing change and recipients responding to change. Associations and relationships in the translation are created through the movement of the entity in space and time and therefore any translation is the output of the active work of heterogeneous intermediaries and mediators (e.g. humans, images, texts and inscriptions, laws and regulations, stories, disciplined bodies, contracts, money, etc..), describes Nicolini (2010). Czarniawska and Georges (1996) mention that in the translation process, an idea is supplied with an image of action, then a plan of action, and finally, when it becomes deeds, true materialization occurs by human actors, material artifacts. In translation, a vague initial idea is shaped and transformed by human and non-human elements (who believe and carry) forming a network (Diedrich & Guzman, 2015). According to Czarniawska and Georges (1996), if a translation gets success, it will become taken-for-granted practice, in turn, a stable network or institutionalization. Before ideas become taken-for-granted in the translation process, exploration of actants, human and non-human continues as long as struggles, mediations and negotiations are in process; however, once a network is in place, no efforts are needed, described in Diedrich and Guzman (2015). The simplest way of translation by objectifying ideas is to turn them into linguistic artifacts (as for levels, metaphors, platitudes) and is to use them repeatedly, meaning the idea gets institutionalized in a natural way (Czarniawska & Georges, 1996).

Power as a grasping internal aspect of translation in a physicalist concept: Change is produced in the chemistry of power and resistance in a web of relations that can be renegotiated and also organizational change should not be conceptualized as top-down and episodic, describes Thomas and Hardy (2011). However, Kotter (1995) thinks major change is impossible without the active

intervention of the head of the organization and a sense of urgency within managerial ranks, inspiring the top-down approach. But Chia (2014) was critical of planned change that is top-down, large scale, system-wide initiatives when he emphasized the emergent perspective that is a bottom-up approach to change with viewpoints that the outcome is the result of the cumulative and unsystematic partial measures taken over some time to learn to cope with the urgent need or demand of the organizational situation. For him, change is a continuous, open-ended, and iterative process (not a one-off isolated event) that needs incrementally aligning and realigning organizational priorities with an ever-changing environment. In this emergent change, organizational actors respond to the demands appropriately and meaningfully to overcome ambiguous and ever-changing organizational circumstances through their everyday practical coping actions. Owned process of change has no identifiable agents and change is viewed as happening to an entity disregarding what is tirelessly occurring and changing (not seen by the eye) in its own right while the unowned change process (micro change) is continually produced and reproduced and theoretical application is that underneath the change, no things change (Chia, 2014). According to Czarniawska and Georges (1995), carefully designed programs of change cause unintended consequences and unexpected results because the materialization of the technical idea is the source of chain-reaction that is unplanned, unpredictable, and undesired, resulting in planned changes not becoming materialized but materialized changes conquer everything, especially in the form of complicated machinery. Diedrich and Guzman (2015) mention it is indeterminable the actions from the beginning and throughout the process because actions can be many things involving a network of people, machines, objects, and other actors taking part in the translation. Instead of planned change, in Czarniawska and Georges (1995), translation takes into consideration both arising contingencies and attempted control that are created by actors to materialize ideas by the participation of many people even though a person or group makes the discovery. A collective translation process, fashion, releases individual choice and also, ideas are property of a community rather than of a single person because they are communicated images, intersubjective creations. The idea can be materialized into collective action when more and more people translate the idea for their use and also the enacted idea persuades people to join in to formally make a decision. Idea travels as a quasi-object after being locally translated into action but before this, signals are sent to the wider community to solidify and legitimize the idea-become material (ibid). The new organizational form called 'Community of Practice' (CoP) in Wenger and Snyder (2000), galvanizes change to foster new approaches to problems by a group of people. CoP is complementary to the sociology of translation because combined they show practice with tangible materials and change over time (Fox, 2000). Sustained practice, written in Pyrko, Dörfler and Eden (2019), can be translated by the formulation of CoP (describes learning, meaning, and identity within a community). Organizational learning necessitates relations among CoP, translation, and other relevant issues (Fox, 2000).

CoP and change through translation:

New organizational form, Communities of practice (CoP), performs knowledge sharing, learning, and change in a communicative, collaborative way from inside and outside the organization of business units or outside of those (Wenger & Snyder, 2000; Esnault, Zeiliger & Vermeulin, 2006; Fox, 2000; Schmitz Weiss & Domingo, 2010; Pyrko et al., 2019; Rennstam & Kärreman, 2020).

Czarniawska and Georges (1995) describe that idea signals to communities to materialize in the translation process and Esnault et al. (2006) mention CoP undertakes several translation processes for idea exchange. Learning as an ongoing translation in organizational change is done by communities of practice, not individually (Fox, 2000). Sustained practice is the result of a translation by CoP that focuses on learning, meaning, and identity to cue for action that produces tacit knowledge necessary to counter unexpected events, mentions Pyrko, Dörfler, and Eden (2017). For them, each CoP has three elements such as joint activities to get things done, unique sets of topics or problems, and concepts and artifacts that are adopted or co-produced.

Relations among CoP, change and organizational responsibility (power): Schmitz Weiss and Domingo (2010) elaborate CoP (theory to acknowledge the social process of change) as a social group where knowledge and learning are intertwined in individual works but have initiatives in a collective context, yielding the combined efforts, conflicts and initiatives. CoP works in knowledge-intensive organizations for implementing change by both conceivers and executors by sharing both contextual and formal knowledge to develop strategy by a translation that involves the use of knowledge (to convert formal control into content) workable within CoP (Wenger & Snyder, 2000; Rennstam & Kärreman, 2020). The CoP can be formed (membership is self-selected) in response to changes both inside or outside the organization by organizing themselves such as set their agenda or establishing their leadership. That said, CoP benefit from cultivation for which managers need to (interfere) identify potential CoP for enhancing the company's strategic capabilities, provide the infrastructure to support, enable members to apply expertise effectively, intervene when CoP run up against obstacles, and use non-traditional methods to assess the value (the best way is to listen to members), etc., (ibid). But CoP, according to Rennstam and Kärreman (2020), is best understood by members rather than by managers (who have limited knowledge of the community's work) because it shares both contextual and formal knowledge, develops processes and methods (well understood by members). Also, for CoP, the term 'managed' cannot be used but 'cultivated' which means not setting up CoP but developing one's own learning by conscious effort, by thinking together (managers cannot impose this) (Pyrko et al., 2017).

CoP as a unified understanding of innovation, learning, and working: Individuals construct and develop a community of practice when they construct and develop their identities for performing the activity, and also innovation comes through changes in community values and views. Communities are noncanonical, fluid, and out of restrictive boundaries of the organization and therefore, working practice and learning can be understood from emerging communities. Communities of practice foster learning but they continuously develop a rich, fluid, noncanonical world view for bridging the gap between an organization's static canonical view and the challenge of changing practice, leading to confronting change and ultimately, innovation (Brown & Duguid, 1991). It can become an important concept to understand how telemedicine has been translated. Brown and Duguid (1991) also mention the process of forming a story to understand machines communally because this understanding is not possible from the canonical documents and this idea is similar to the translation process for change by human and non-human actors ((Czarniawska & Joerges, 1996; Diedrich & Guzman, 2015). Similarly, Esnault et al. (2006) mention that CoP, as a valuable place for sharing and creating knowledge, needs to be cultivated to yield its full value and for this, only tools that are interoperable, flexible, ubiquitous, and

specific collaborative can support. They further cite the ‘Participatory design approach’ (the process of negotiation-human and nonhuman- of usefulness) for developing such tools and enabling their use in CoP. Design strategies for aligning the interests of the network can be done through processes of translation that Czarniawska and Jeorges (1996) also illustrate. CoP shares information about other communities through interconnectedness that helps understand the experiences of other noncanonical communities; however, for this purpose, relevant communities should treat information as a commodity and power relationship for ‘information travel’ (Brown & Duguid, 1991). Complex relationships among activities, knowledge, and performance can be understood by listening to members’ stories that are a good source of information travel, hints Wenger and Snyder (2000). So, both in theory and practice, it is beneficial to understand working, learning, and innovating as composition and thus counting workers, learners, and innovators as a synergistic collaboration rather than a conflicting separation (Brown & Duguid, 1991).

We want to understand ‘how telemedicine has been translated’ with combined theories and it is possible (based on the above constructed framework) by theories of change in organizational studies, translation, and CoP in combination because all of those can explain similar or different practices.

METHODOLOGY OF THE STUDY

The following section presents the methodology of the report beginning with the research design, followed by the setting of the case study, data collection methods as well as data analysis and eventually a segment covering ethical reflections and limitations of the particular report is displayed.

Research design

The research question of our paper is answered through a qualitative research study with the purpose to realize how this change can take place. In addition to the qualitative approach, we have also used an exploratory approach in order to offer a meaningful and accurate picture on how the telemedicine phenomenon has been translated in the EU, Sweden and some hospitals in Gothenburg city. Based on previous literature (Silverman, 2017), a qualitative research approach is relevant as we want to get in-depth information illustrating *how* a certain phenomenon (telemedicine) has been translated in EU, Sweden and some hospitals in Gothenburg. For the empirical findings of our paper, we have utilized discourse analysis which is considered to be a common qualitative research technique used to “study written or spoken language in relation to its social context” (Luo,2022).

The fundamental idea of discourse analysis according to Davies, Harré (1997), and Wetherell (1998) can be that we use language to make interpretations of our social world; this means that language cannot be comprehended as a “neutral” as well as “transparent medium”, but “constitutive”.

Setting of the case study

Telemedicine phenomenon in EU: Telemedicine started in ancient times but the invention of electricity, the radio, television, and the internet has made its evolution successful. In recent years,

data analytics, artificial intelligence, and the healthcare internet changed healthcare provisions by disrupting traditional medical because there is an increase in connected wearables and health-related applications (European Commission, 2018; Shirzadfar & Lotfi, 2017). It (as a provider of healthcare services) can be defined as a way of over-distance interaction (between patient-doctor, and doctor-doctor) through the use of ICT instead of traditional face-to-face communication. Definition of Shaws is that telemedicine uses distance separation by using telecommunications technology to perform medical diagnostic, monitoring, and therapeutic purposes (European Commission, 2018). According to European Commission, telemedicine (as a provision of healthcare services) is the usage of ICT to connect health professionals and patients (or two health professionals) located in different positions by involving secure transmission of medical data and information (through text, sound, images or other forms) needed for the prevention, diagnosis, treatment, and follow-up of patients. Commission mentions ‘health professionals’ according to Article 3/f of Directive of 2011/24/EU [2] where a health professional is defined as a doctor of medicine, a nurse responsible for general care, a dental practitioner, a midwife, or a pharmacist within the meaning of Directive 2005/36/EC or another professional exercising activity in the healthcare sector restricted to a regulated profession defined in Article 3(1)(a) of Directive 2005/36/EC or according to the legislation of the Member State of treatment, a person considered to be a health professional (Raposo V. L., 2016). Telemedicine and telehealth are one of the 4 primary components of eHealth while other elements are health informatics, e-learning, and electronic commerce (Scott RE, 2009). Principal telemedicine services are ‘remote assistance’ which refers not only to teleconsultations necessary for remote follow-up, diagnosis, or treatment of patients but also telemonitoring services for usually chronic patients, and most often includes a recording of biological parameters (European Commission, 2018). In PAHO (2016), according to the classification proposed by Hersh et al. in 2006 (21), telemedicine services or programs are grouped into services based on stored images (store and forward) such as teleradiology, telehistopathology, teledermatology, etc.; home monitoring programs and systems (home-based services) and real-time specialized care (hospital-based services). However, other authors consider other categories, such as the type of service delivered, teleconsultation, telemonitoring, and teleradiology, for different specialties (ibid). Platforms may include ‘databases’ because databases store medical information especially electronic health records (EHRs). If technical types are considered, telemedicine can be a medical device such as a portable electrocardiogram device, wearable device to measure parameters such as ECG, mobile health apps, telemedicine support software such as health data management, Big data/artificial intelligence/robotics, etc... (European Commission, 2018).

On the other hand, the phenomenon of telemedicine in Sweden lacks definition under Swedish law. However, telemedicine is defined as the utilization of ICT technologies in order to deliver healthcare related services (DRAKESTAR, 2021).

In Qvannström and Carlsson (2000), according to the Swedish Health Planning Institute (SPRI), telemedicine, needs at least two people, to apply the technique used for transmission of information, information contents with the description of who communicates with whom. Sweden followed the same pattern as in the rest of the world when considering telemedicine as an aid to healthcare delivery or transformation of information. Trials have been performed with expensive technologies such as interactive satellite television along with different pilot projects which have

used (most projects have used technical aspects of transferring medical knowledge) various image transfers over telephone lines, expensive data transmission lines, and widely used integrated services digital network (ISDN). With technological progress, they found that it is possible to diagnose the patient, from places different from the patient based, on electronically transferred images or examinations (ibid).

Sweden, an example of a country for using various forms of telemedicine in different ways, paid attention to telemedicine in 1990 for meeting its growing health needs with reduced costs for medical care (Petersson, 2011; Flaga-Gieruszynska et al., 2020). Indeed, healthcare systems' different structures have huge effects on the various aspects of telemedicine because telemedicine plays within the contexts of the healthcare system (Magnus Stromgren, 2003). Teleconsultation (doctor-to-patient) and telemonitoring are the types of telemedicine applied and in April 2005, a service for remote patient health monitoring was launched. Sickness or diseases requiring no hospital treatment or other types of medical care can be treated by using GPRS in the mobile network by the hospital and healthcare staff and it is evident that about 9% of the practitioners in Sweden use telemonitoring. Besides the use of teleconsultation and video conferences in Sweden that enables up to 12 people/workplaces to take part at the same time, the national helpline (1177) is round the clock active with the access of nurse advice along with expert advisory services (Doupi et al., 2010). In practical terms, the county council of Jönköping, which represents slightly less than 2 percent of the national population, was connected by digital services of entrepreneurs Kry and Min Doktor (subcontractors to two private primary health care centers, Tranås and Wetterhålsan, supervised by the local authority). Starting in 2016, Sweden evolved into a hybrid health care system with this somewhat artificial construction and has provided digital health care access to all designating local regulators responsible for supervision and financing (Blix, & Jeansson, 2019).

Furthermore, telemedicine, if we take some examples from *hospitals in Gothenburg city*, is the use of IT to reduce work and provide remote service to more people.

So it is rather a lot of double work for us, just now we are in a situation looking for IT solutions which solve those problems so we don't have to do so much work by manual work. We know that the patients want to have telemedicine solutions so they don't have to come to us. They don't want to be in the hospital, that we know (Chef avdelning Digital Utveckling, Sahlgrenska Universitetssjukhuset).

We reach significantly more people now and can offer more assessment calls per week than before, says (Maria Millback, care unit manager of the Addiction Clinic, Östra Hospital).

Data collection methods and procedures

The data for this research paper is collected and gathered through various search engines online such as Google, Google Scholar and GU library website. All the empirical findings (except interviews) rely on secondary data and collected through different internet sources, such as prior research articles and reports, EU/EU Commission's reports, Swedish national healthcare report, previous research papers, two doctoral thesis, E-book chapters, and electronic journals. Indeed, we have studied more than 50 different articles, and it was possible to obtain appropriate and relevant information from those published articles. According to Gnyawali and Park, (2011),

“published secondary data are likely to be more objective and allow for cross-checks using multiple sources.”

Further, we have also conducted two interviews with two medical professionals from two well-known hospitals in Gothenburg city.

While taking the 35-40 minutes' interviews from both medical professionals, we tried our best to reduce power asymmetry so that we could take the interview ethically (Kvale, S., 2006) and one way, we did so, was by ‘not dominating our view and also giving a similar opportunity to everybody by participating actively.

Data analysis methods

For us to be able to find the answer for the research question of our paper, we needed qualitative data, because by choosing a qualitative research method, we could get a deeper understanding of a particular phenomenon or situation. Moreover, this sort of research helped us realize what people basically do in “real-life” contexts (Silverman, 2015). For our case study, we did discourse analysis and to complement our report further, we conducted two open-ended interviews, one with a doctor and another interview with the head of the digitalization department in the two well-known hospitals in the Gothenburg city.

We explored data using discourse analysis and according to Carla, (2014), as soon as a proper and relevant text for analysis has been achieved, discourse analysis begins by working through the text “line by line”. Even though, many scholars such as Parker (1992), Kendall and Wickham (1999), Langdrige (2004) and Willig (2008) provided several “step-by-step” instructions in regards to discourse analysis, it seems quite essential to remember that this particular method of qualitative research is certainly a perspective on language through what the researchers make a specific sort of reading of a text, such a reading can further create the ‘constructive’ as well as ‘performative’ features of language.

There is no analytic method ... There is a broad theoretical framework which focuses attention on the constructive and functional dimensions of discourse, coupled with the reader's skills in identifying significant patterns of consistency and variation (Potter and Wetherell, 1987: 169).

In practice, the search for collecting materials from online sources began by connecting the text words “telemedicine” with the subject headings “telemedicine and EU, Sweden and some hospitals in Gothenburg city”. We obtained more than hundred articles, then we further focused to those in organizational studies articles encompassing materials regarding “telemedicine in the EU and Sweden”, articles encompassing data about telemedicine in general were not selected for our study, but the ones that were particularly specifying “telemedicine in the EU and Sweden” were chosen. Finally, we obtained more than 50 articles.

The two Zoom-held interviews were recorded, transcribed and used as complement for our report. Further, we began the process of analyzing our collected data by carefully reading and rereading the texts. While reading, our aim was not the summary of the text, but the features of the language utilized in the particular texts. Next, we did a “line-by-line” analysis of the texts, applying two measures from Parker’s (1992) seven essential criteria for identifying discourses. In the first

criteria “a discourse is about objects”, we focused on identifying objects in the texts for instance, some of the identified objects were; telemedicine solutions, rules, policies, regulations and so forth. Whereas, in the 2nd criteria “a discourse contains subjects”, our focus was to look for the subjects in the particular texts e.g. telemedicine solution providers, EU member countries, EU Commission, Swedish eHealth agency, Sahlgrenska Hospital and many others are some of the subjects that were identified in the texts. More specifically, while applying the two measures, we did some analytic notes in the margins of the particular texts, with the purpose of realizing what was basically talked about, how was talked and of course with what conclusions. And eventually, the themes that emerged from our analysis are; “telemedicine solutions”, “telemedicine rules, regulations, and prerequisites to institutionalize telemedicine idea”, “network of telemedicine”, “project as a translation machine”, and “telemedicine knowledge sharing in practice”.

Ethical reflections and limitations

The whole report (except the two interviews) rely on secondary data, which is appropriate especially in understanding about the EU and Sweden. However, we were eager to take more interviews but Covid-19 situation forced us to be limited to 2 interviews. That said, two interviews were highly rich in data to understand telemedicine in some hospitals in Gothenburg and we added some documents also for understanding those. So, interviews and relevant documents helped us take a clear picture. In addition to interviews, most of the other parts were discourse analysis and therefore, we do not have ethical issues so much. We have used most of the documents but it has not hampered our findings because those documents are well enriched with enough data to answer our research question and to understand telemedicine practices.

EMPIRICAL SECTION

Telemedicine solutions in EU:

Telemedicine solutions are defined as products and services designed to use technology for advancing and coordinating patient care, pointing out the growing health related costs and dealing with the long-term burden of illness. Indeed, the percept of telemedicine solutions has made healthcare service providers capable of offering patient-management processes through remote monitoring and follow-up, making sure access continuity to daily care and establishing a broader information base for “clinical decision-making”. Hence, the percept along with great use of these solutions can result in positive impacts on main healthcare fields like, chronic disease management. Furthermore, these telemedicine solutions contain applications and tools which boost healthcare services on a distant basis. This means that telemedicine solutions assist patients living far from hospitals and clinics to have access to healthcare services, additionally such solutions make the process of prevention, patient management, follow-up and monitoring smoother and easier. This can further be translated into specific clinical health related services that encompass teleconsultation, telemonitoring, tele-education, telecare, telesurgery and so forth. Infact, it is seen that these remarkable systems perhaps make it possible to manage one or more patient disorders on a proper basis, e.g. individuals having heart and blood pressure issues can be monitored daily, making treatment more effective and smoother (PWC,2016).

Furthermore, ‘telemedicine solutions’ are mostly products and/or platforms, provided by companies to share data and then healthcare professionals such as doctors or software professionals analyze and interpret the stored data from the database. Such combinations of “product-platform-database” compose telemonitoring solutions which is a form of telemedicine (European Commission,2018).

In addition to the above mentioned solutions, two other widely used telemedicine solutions in European countries are known as ePrescription and Electronic Health Records (EHRs) (Negreiro, 2021). Based on the European Commission’s report (2018), teleconsultation and telemonitoring are the two dominant forms of telemedicine solutions. With the telemedicine idea, further devices are crucial such as smart homes, connected vehicles, AI, Data analytics in enabling distant healthcare.

Telemedicine solutions in Sweden:

It is seen that, in Sweden, Electronic Health Records (EHR) was accepted as a telemedicine solution during the 1990s. As a matter of fact, in 1997, Uppsala City Council performed an experiment of initiating records to patients in the Sustains project which was funded by the European Commission. As soon as the project was launched, huge number of citizens showed their willingness in having access to their personal health information, and as a result of the high level of demands, the digitized electronic health records (HER) were made accessible to citizens in the entire region of Uppsala in 2012 through portal Minavardkontakter.se (“My Health Contacts”). Additionally, there were some other services as well such as; requesting certificates, sick leave extension, communicating with health professionals (doctors).

Furthermore, another telemedicine solution in Sweden, which is of great importance is the development of ePrescription (Arak & Wójcik, 2017).

It is seen that, national ePrescription service has been in practice in the country before 2000. The utilization of this particular system was persuaded by a strategy at the end of the 1990s and by the development of the “Healthcare-digital-network” which is an IP-based broadband network that links all national hospitals, primary care centers as well as several other health services. In addition to ePrescription, Sweden has a National Patient Summary (Den nationella patientöversikten-NPÖ) which was adopted in 2008. This specific system provides vital information about citizens’ updated care contacts, personal data, chronic diseases, medical alert information as well as updated medical test results (European Commission, 2018).

‘In-patient and out-patient information’ (actors keep a record of their visit) are available in the National Patient Register (NPR) managed by The Board of Health and Welfare and also this register (nationwide) contains patient, geographical, administrative, and medical data. In-patient treatment and clinical investigations (X-rays, laboratory tests) and partial information about the out-patient care are available in every county council but ‘A National Quality Registry’, monitored and approved for financial support by an Executive Committee with representatives from states, is rich with individualized data that depicts patient problems, medical interventions, and outcomes after treatment within all healthcare production (Pontén et al., 2017).

Furthermore, “image sharing” is another brilliant telemedicine solution developed successfully by a unique cross-border collaboration, of two different healthcare institutions (hospital in Vasa, Finland and Norrland University Hospital in Umeå, Sweden) for treating stroke patients in the year 2018 (Collum,2021).

” The possibility of using an efficient image exchange service allows for improved specialist knowledge, but also contributes to equal access to care among patients—regardless of where they live—as each case can be sent electronically to the appropriate specialist” (Jörgen Strinnholm, radiology department head at Norrland university hospital).

Telemedicine solutions in some hospitals of Gothenburg City:

In the Gothenburg city, for instance, Swedish hospitals and vårdcentrals implement various forms of telemedicine solutions. For example, Angered hospital (Angereds Närsjukhus) uses a “digital care meeting” solution that helps citizens to meet their care providers via a video call on their mobile, computer or tablet (Angereds Närsjukhus, 2020).

Further, there are a number of other well-known hospitals in the Västra Götaland region that have different telemedicine solutions that assist in providing best medical services to citizens such as Sahlgrenska University Hospital has. This particular hospital has a telemedicine solution known as “Digital calls' ' (Digitala kallelser), that summons patients via 1177 Vårdguidens e-services. In addition to “Digital calling”, the hospital is offering various other digital solutions such as; “Digital care meetings for remote care”, web time booking”, “Digital test answers”, “Digital drop-in” for performing the abstinence treatment quicker, more specifically those who are addicted and are willing to get help in getting rid of their addiction, can receive treatment promptly (Sahlgrenska University Hospital, 2022).

We reach significantly more people now and can offer more assessment calls per week than before, says Maria Millback, care unit manager of the Addiction Clinic, Östra Hospital.

Furthermore, Sahlgrenska hospital in collaboration with the Innovation Fund has developed a virtual reality (VR) app. The app is particularly used to decrease anxiety as well as stress in the elderly (Sahlgrenska University Hospital, 2022).

We have solutions for home care, if you are sick and you want to value something... we get the answers and results from our hospital staff and read the numbers of different measures from patients. We look forward to better systems. We have an IT technique department but that is very small in the hospital, but we have a bigger digitalization department and people all over the hospital in different levels to work with developments not only digital development but also process development, patients so we work together. Much more development, we are just in the beginning. In the early beginning I think (Chef avdelning Digital Utveckling, Sahlgrenska Universitetssjukhuset).

Telemedicine rules and regulations, and prerequisites to institutionalize telemedicine idea in EU:

For best practices between states and Member States (34 European Countries) , the EU has a principal standardization body called European Committee for Standardization (CEN) which is committed to developing and delivering European standards with ISO assistance. For telemedicine, there are also other European bodies such as European Committee for Electrotechnical Standardization (CENELEC) and the European Telecommunications Standards Institute (ETSI) (European Commission, 2018).

Guideline/Standard category: Telemedicine, as a healthcare service, is under Articles 56 and 57 of the ‘Treaty on the Functioning of the European Union’ (TFEU) and is subject to the general freedom regarding free movement of services. It is simultaneously a healthcare service and an information service (in the framework of European law) that are normally provided for remuneration, remotely and by electronic means at individual request and so both healthcare and information society service regulations apply for telemedicine services (Raposo V. L., 2016). Most widespread guideline is the ‘Technology and equipment guideline’ that covers aspects such as interoperability, reliability, communication modes, device/equipment specifications, connectivity, etc. Data protection rules are other categories that aim to control how personal data can be used and ensure patients’ rights regarding their information (ibid; Kautsch et al., 2017)) and this directive 95/46/EC was taken on 24 October 1995 by European Council (Callens, 2009). Next, ‘organizational guidelines’ help understand how business is to be conducted and governed by acceptable workplace behavior. So, it covers ensuring readiness, accountability, process implementation, etc. in addition to directing to ‘patient empowerment guideline’. Further, ‘how healthcare professionals have to care for people with specific conditions’ is recommended by ‘clinical guidelines’ which cover aspects such as patient healthcare provider relationship, physical environment, patient evaluation, examinations, and follow-up. To create effective organizations with HR management policies and practices, ‘human resource guidelines’ inspire fundamental roles by motivating, educating, and supporting board members, managers and employees. Moreover, ‘ethical standards and guidelines’ are related to the purposes of data storage and processing. Again, HER (Electronic health record) guideline helps healthcare providers and healthcare IT implementers to implement (European Commission, 2018). E-commerce directive 2000/31/EC applies to information society services in which remote services are provided by electronic means. Also, there are medical devices, distance contracting, electronic signature directives, and competition laws (Callens, 2009).

EU policy related to e-health and telemedicine: In December 1999, the Commission launched ‘e-Europe initiative’ that targets to ensure full utilization of growing information society and they had action plans, in 10 areas, that were revised in ‘Lisbon European Council’ in year 2000 with actions clustered around three main objectives such as cheaper, faster and secure internet, investment in people and skills, and increase of internet use. This ‘Health online Action’ has a policy to ensure availability of health telematics infrastructure for primary and secondary health care providers along with regional networks which can identify and disseminate best practice in electronic health services in Europe to set benchmarking criteria. This policy has further initiatives

not only to establish a set of quality criteria for health-related web sites but also to publish a Communication on the legal aspects of e-health and to establish health technology and data assessment networks.

A working Group, established by the High Level Committee on Health Telematics, was asked to review the introduction of information and communication technology (ICT) in the health sector, relevance of 'Community legislation' in required areas, and the factors promoting or inhibiting its development. The Group, whose report was accepted by the High Level Committee on Health in April 2003, considered particular applications of ICT in health such as health cards, virtual hospitals and provision of health-related information to health professionals and patients (Callens, 2009). In early 2004, (EU eHealth Action Plan 2004-2010, called European eHealth Area) Action Plan states when combined with organizational changes and the development of new skills, eHealth can help to deliver better care for less money within citizen-centred health delivery systems and thus eHealth is major challenges that EU is responding (PAHO, 2016; Kautsch et al., 2017). However, the Commission has issued on 4 November 2008 a Communication on telemedicine for the benefit of patients, healthcare systems and society because it has observed a low take-up of telemedicine applications in real-life medicine and so, now they are identifying the barriers and triggering factors for greater use of e-health applications. To get wider access to telemedicine services, the Commission urged Member States to assess and adapt their national regulations by the end of 2011. Addressing factors should be accreditation, liability, reimbursement, privacy and data protection. The Commission states that the prospective return on e-health investment is relatively higher than costs in the health sector and so, they have drawn up a report on accelerating the development of the European e-health market. In its recent Article 16 proposal, for patents' rights in cross-border health care, the Commission states that it will adopt specific measures (shall specify standards, terminologies for interoperability of relevant information and communication technology, ensuring safe, high quality and efficient provision of cross-border health services) for achieving interoperability of information and communication technology systems in the healthcare field (applicable whenever Member States decide to introduce them) (Callens, 2009).

Former provisions of Directive 93/42/EEC is replaced by the newly issued Regulation 2017/745 which has a detailed framework with 123 articles and 17 technical annexes stating that a medical device is any instrument, apparatus, appliance, software, implant, reagent, material or other article that manufacturers wish to use alone or combination for human beings for purposes such as diagnosis, prevention, monitoring, prediction, prognosis, treatment or alleviation of disease; diagnosis, monitoring, treatment, alleviation of, or compensation for, any injury or disability; investigation, replacement or modification of the anatomy or of a physiological or pathological process or state. According to Annex I of the Regulation (Art. 5.2), all medical devices in the market or service in the EU have to follow safety and performance requirements and also Regulation 2017/745 has several obligations to manufacturers, importers, and distributors. Further, manufacturers need to maintain latest documents accessible by national authorities, conduct clinical safety evaluations before entering market or providing service (Art 61), set up a risk management system including a post-market surveillance track (Art. 83). Moreover, Regulation newly established "European Database of Medical Devices" (briefly Eudamed) that works as a means to inform users of the main features of purchasable medical devices, their

purposes, and their conformity to EU legislation and also eases the traceability of medical devices within the internal market, encourages MSs and the EC to cooperate in this field on the basis of shared knowledge (Art. 33.1). Regulation 2017/745, replacement of Directive 90/385/EEC [18], covers implantable devices that are the operations depending on a source of energy rather than operations generated by the human body or by gravity in addition to acting by changing the density of or converting that energy (Art. 2). Implantable devices are important in telemonitoring and mHealth and so this regulation is vital in Telemedicine because it contains provisions applicable in telemedicine especially where the regulation states the obligation of the devices, intended with both a medical and a non-medical purpose, to fulfill cumulatively the requirements applicable to both categories (Art. 1.3). Besides, Regulation 2017/745 establishes a “Medical Device Coordination Group” that support MSs and the EC to fulfill several tasks and also EC is committed in updating a series of guidance documents (known as “MEDDEVs”) to help stakeholders to understand the criteria technological device falls into within the scope of the EU medical device legislation (Botrugno, 2018).

What needs to be done to institutionalize telemedicine idea in EU: In addition to above mentioned policy and guidelines, for service standards to follow and establish relationships between patients and providers with the quality benchmark, the EU has a project called ‘TELESCOPE’ (which aims to develop a comprehensive Code of Practice) (COCIR, n.d.). The EU has directives for patients’ rights such as the right to receive medical treatment in another Member State, access to one’s medical record, get information about the standards and guidelines on quality and safety in place in the Member States, and availability, quality, and safety of the service used, etc. (Raposo, 2016). They have developed the system called ‘Electronic health records’ (EHR) for easy access to and transfer of information, leading to better treatment and increased healthcare efficiency and also, for protection of the most sensitive data (Kautsch et al., 2017). For doctors, fundamental ethical principles and professional standards are the same for both using telemedicine and face-to-face consultations. Doctors are responsible for prescribing remote consultation with possessing adequate digital competencies about telemedicine practice, platforms, and devices and should maintain patients’ all privacy issues. While doctors can take advice or other instruments set down by data protection and/or health regulatory agencies, they should inform patients about the proceeding of remote consultation (CPME, 2021). Moreover, the Commission gave direction to member states to address national regulations related to accreditation, liability, reimbursement, privacy, and data protection. Besides, to achieve interoperability of information and communication technology systems, the Commission proposed specific measures such as standards, terminologies for interoperability of relevant information and communication technology (Callens, 2009). Most importantly, they not only define medical devices for safety and performance requirements, obligations to manufacturers, importers, and distributors but also have a database, coordination group, and guidance document (Botrugno, 2018).

Telemedicine rules and regulations, and prerequisites to institutionalize telemedicine idea in Sweden:

Telemedicine which is under ‘digital healthcare services’ is regulated by the same healthcare service laws of physical visits in Sweden and also there are no specific laws, rather central legislation is the Swedish Healthcare Act (Sw. Hälso-och sjukvårdslagen)2017:30. The main characteristic of the law is that before starting the operations, a healthcare provider must register at the latest one month before with the ‘Swedish Health and Social Care Inspectorate’. There is no limitation for using different ways (such as written communication, video calls, or telephone calls) to provide digital healthcare services (also can be provided in any region by the provider) and the patient will only visit the physical clinic before or after using the digital healthcare if the healthcare professional sees it necessary. The provider will coordinate with other actors, follow-up patients with full access to the patients’ medical history but has to refer the patient to physical care providers when necessary. In June 2019, there was a recommendation regarding ‘lowering compensation for digital primary care’ by the Swedish Association of Local Authorities and Regions (Sw. SKR). Also, during Covid-19, there was a temporary change in the compensation model for digital healthcare services. Regardless of providing service privately or not, healthcare in Sweden is largely tax-funded and also reimbursement system is different for primary care from regions. A physical clinic with a reimbursement agreement with a region usually comes into agreement with a digital healthcare provider. The patient’s residential region (just like the subcontractor) will compensate the region that has entered into a reimbursement agreement in case a patient from another region uses the digital healthcare service (Biolegis, 2021).

There are several important acts as a foundation of Swedish healthcare system such as ‘Health and Medical Services Act of 2017’, ‘The Medicinal Products Act of 2015’, ‘Act on sales of medicinal products’, ‘Act on sales of certain prescription free products’, ‘Acts on Pharmaceutical benefits of 2002’, ‘Act on Patients’ Security of 2010’, ‘Pharmacy data act’, ‘Act on prescription registry’, Act on medicines list’, ‘Patient act’, ‘Patient data act’, ‘The Public Procurement Act’ (Pontén et al., 2017).

Institutionalization of Telemedicine idea in Sweden: *eServices for accessibility and empowerment-support, involve, motivate and empower individuals:* This includes access to information about citizens’ own health and social care interventions by using secure, personal eServices and also development of resources that originate from services individuals can document and share information about their own health along with presentation of information about quality, accessibility and staff friendliness in a customized and user-friendly way to help people make free and informed choices (National eHealth Strategy, 2010; Swedish eHealth Agency, 2020).

Usable and accessible Information-Decision support for the staff: Importance for future work will be not only on access to the patient’s entire drug history and the appropriate prescriber support by all drug prescribers but also on the full deployment of National Patient Summary throughout the healthcare services and in the relevant parts of the social services. Further, to facilitate the administration of municipal care services, appropriate and interactive ICT support shall be stimulated and also to improve the user-friendliness and functionality of electronic documentation

and decision support, there should be cooperation between purchasers, staff and ICT suppliers. Moreover, to stimulate continuous method development, future steps will be to disseminate guidelines and new evidence more rapidly as an integrated component of the staff's decision support system (ibid).

Knowledge management, innovation and learning-better basis for research, monitoring and decision-making: There will be more in-depth knowledge about eHealth services as a part of education and training of all care professional groups and also design of documentation systems in the healthcare and social services will be made to automatically and securely transfer relevant information to health data and quality registers for improving the prerequisites for research. New eServices need to be developed by public-sector care providers and private entrepreneurs in the same way by the encouragement for innovativeness from decision-makers' side (ibid).

Technical infrastructure – The basic prerequisite for the secure and efficient sharing of information: Agenda is widespread introduction and full use of national eHealth services (already developed) and for integrated health records management for guaranteeing data protection and integrity, rapid introduction of the services required under the Patient Data Act. Technical infrastructure should follow global standards, overall, along with establishment of deeper forms of cooperation with ICT suppliers to accelerate the further development of existing eHealth services or the creation of new ones (ibid).

Information structure, terminology and standards – The basic prerequisite for structured and uniform information: Care staff and administrators shall validate and test the results of the Swedish National Information Structure and National Interdisciplinary Terminology projects and similarly, there should be further development of information structure and interdisciplinary terminology. Health authorities and industry will also be in the development process of a national standardization for the introduction and use of the information structure and interdisciplinary terminology (ibid).

Laws and regulatory frameworks – Regulatory frameworks that combine integrity with safety and efficiency: By taking the proposals of the 'Social Services Personal Data Inquiry' as an important basis for future work, steps will be taken to thoroughly analyze the need for well-developed and improved information exchange both within and between health and social care providers. More in-depth analysis of national regulatory frameworks is needed for greater patient mobility and international eHealth services so that care will be continued across both organizational and national borders (ibid).

Telemedicine rules and regulations, and prerequisites to institutionalize telemedicine idea in some hospitals in Gothenburg city: (Västra Götaland region's policy):

Västra Götaland region's rules and regulations are compatible with their policy that is people centric keeping in mind cohesiveness and equality. For secure digitalization, the rules address legal issues, information and IT security, ethical aspects and integrity issues, access to information according to the principle of public access (Regionfullmäktige, 2020).

There are some rules and regulations from the Swedish government and also, rules or functionality from supporting organizations.

We have some roles from the own västra Gothaland. . . . and we have hospital roles and guidelines to follow. So it is safe and easy to do the right thing. we have, not in the hospital but we have in the region some supporting organizations for telemedicine. But it is more by the rules or by the functionality. we have also, support line with quality organizations who help us to spread new things and do techniques in the solutions we already have. So we have organization about that (Chef avdelning Digital Utveckling, Sahlgrenska Universitetssjukhuset).

Some rules and regulations are followed for the emerging situation related with patients' rights, doctors, nurses' duties.

It is very hard to educate nurses, maybe not doctors. But the nurses are really hard to get. So naturally we are less and less nurses in the hospitals, because we don't pay them very much and it is very hard work. (Chef avdelning Digital Utveckling, Sahlgrenska Universitetssjukhuset).

Institutionalization of telemedicine idea by some hospitals in Gothenburg city: Telemedicine idea was adopted by hospitals and for this purpose, there was change in manpower, schedule, organization system (top-down or bottom up), some rules and regulations are followed such as patient rights, doctors, nurses' duties etc. In this way, the idea was institutionalized.

Maybe we need other kinds of specialists on telemedicine, or technique or digitalization solutions more than today. Yes, we have IT technique department but that is very small in the hospital, but we have bigger digitalization department and people all over the hospital in different levels to work with developments not only digital development but also process development, patients so we work together. Both way I think, they must think in new ways and that is I think from the bottom. But sometimes the management of the hospital also say that we have to be better to work with digitalization and that kind of things so from both ways and the patient wants it, so that is the third way to increase the needs (Chef avdelning Digital Utveckling, Sahlgrenska Universitetssjukhuset).

Our system is top-down because our boss directs us and we follow what she says and we created roles for telemedicine from these employees (Specialist i allmänmedicin, Närhälsan Angered vårdcentral).

Network of telemedicine in the EU:

Direct consumers are aging populations, and chronic disease patients in 34 countries while regulators are governments of 34 EU countries to converge standards and regulations and also, the EU is part of the Global Harmonization Task Force (GHTF), International Medical Device Regulators Forum (IMDRF) (European Commission, 2018).

Telemedicine solution providers are mainly in five categories such as telecommunication companies and mobile operators, big ICT and electronics groups, manufacturers of medical/monitoring devices/platforms, pharmaceutical industries, and start-ups.

Telecommunication companies and mobile operators such as Deutsche Telekom, Orange, altice portugal, telecom Italia, telefonica and vodafone, not only offer data centers for storing and managing health related data, but also make obtainable networks having enough bandwidth and data upload capabilities, supporting "high-quality image" as well as "video-based" services. Big ICT and electronics groups, such as Google, Microsoft, IBM, Philips, Cisco and Apple, produce various innovative products, software and platforms such as personal health record apps/platforms, that offer highly developed and modern functionalities to telemedicine implementers. Manufacturers of medical/monitoring devices/platforms, like Medtronic,

BioTelemetry, Aerotel, LiveWatch as well as Biotronik possess a broader market scope, because these players target the distant patient monitoring market, home-based care, independent living as well as well-being. Their offered products combine highly improved technology and encompass sensors, software and connectivity to Electronic Health Record. *Pharmaceutical companies*, the association of these companies such as Roche & Qualcomm, Johnson & Johnson, GlaxoSmithKline and Abbott Laboratories with ICT groups are expanding and they, through their expertise, provide highly advanced products as well as services. For them, telemedicine is thought to be a wonderful chance for increasing sales, particularly by tightening regulation for producing new drugs (ibid).

Moreover, great start-ups like; Diapason, KineQuantum, My15 and DrCare24, offer innovative delivery model services, such as; Diapason which is a mobile app that exercises precise audiograms through games to understand hearing loss of the individuals, then provides therapy based on sending sound alarms to readjust parts of the hearing (ibid).

Network of telemedicine in Sweden:

In Sweden, the Swedish eHealth agency (E-hälsomyndigheten) is responsible for offering e-health related products and services such as the transfer of electronic prescriptions and e-prescription data over national borders, the personal health account or "Health for me", national drug statistics, as well as the infrastructure among all healthcare actors in the form of records and systems (PWC, 2016). Another important player in the telemedicine market in Sweden seems to be the Swedish Medical Products Agency that has the responsibility of monitoring medical devices, persuading implementers of medical applications to make sure that they are CE- marked (ibid). Moreover, there seem to be some private companies as well that offer telemedicine solutions in Sweden such as Kry, Min Doktor and Doktor.se (DRAKESTAR, 2021). Kry and Min Doktor started their telemedicine application in the year 2016 and within a short period of time, both companies' fame and recognition increased around Europe. Kry is not only functioning in the home country (Sweden) but has expanded to other European countries such as, UK, France, Spain, Norway and Germany. In the UK and in France, it operates under the name of Livi (Blix & Jeansson, 2019), and has offered over five hundred thousand video consultations, working with more than three hundred physicians around Europe (OECD,2020). Being the first telemedicine solution provider in Sweden, Min Doktor started its operations in the form of offering patients digital care consultations in 2013 (Dermicus,2022). Moreover, some start-ups such as *HälsaFörMig* and *Mina VårdKontakter (MVK)* are also in application here (Arak & Wójcik, 2017).

Network of telemedicine idea in some hospitals in Gothenburg City:

Hospitals and primary care centers are owned and operated by 21 regional authorities and county councils of which 10 county councils, referred to as regions, are connected in the network by performing increased responsibility for regional development. Besides, for specialized medical care, cooperation among actors of county councils has six medical care regions. In this local network, 290 municipalities are also connected by providing nursing-home care, social services, and housing needs for the elderly (Ponten et al., 2017). In addition, for role purposes, these

hospitals' telemedicine network is connected to 'västra Gothaland, and also, for patient data, hospitals are dependent on Swedish solutions of data savings and data storing.

We can't have patient's data in the cloud. It has to be a Swedish solution of data savings and data storing and that kind of thing. We have some roles from our own västra Götaland (Chef avdelning Digital Utveckling, Sahlgrenska Universitetssjukhuset).

Hospitals are also linked among themselves to cooperate even though they may be classified as regional, central county, and district counties. They have connections to wholesale pharmacies because wholesalers cannot go to patients directly and also hospital pharmacies dispense medicines along with small outlets (Ponten et al., 2017).

Project as a translation machine in EU:

According to COCIR (n.d.), the Renewing Health project uses a patient-centered approach and assessment technology for the validation and evaluation of telemedicine services by giving patients a central role in the management of their diseases and helping detect early signs of worsening pathologies. Next, the Chain of Trust project assesses telemedicine based on views, needs, benefits, and barriers that patients and health professionals face to increase awareness of telehealth amongst patients' and health professionals' organizations and health authorities at the EU and national levels. Another project called 'The Momentum Thematic Network' builds a body of good practice by telemedicine services where key players share knowledge and experience and also it assists countries and telemedicine practitioners in their telemedicine implementations. Finally, project 'Telescope' establishes service standards to provide a quality benchmark for service regulation in the Member States, and its efforts to develop a 'Code of Practice for Telehealth Services' will increase relationships of trust between patients and providers (ibid).

Project as a translation machine in Sweden:

Sweden, an example of a country for uses various forms of telemedicine in different ways, paid attention to telemedicine in 1990 for meeting its growing health needs with reduced costs for medical care and there are 21 administrative regions where numerous telemedicine projects are running but not coherently because of autonomy of those projects. *'The Eye' project*, implemented in central Sweden, which was developed by ophthalmologists and general practitioners, serves to enable the treatment of selected eye diseases in primary health care by using video transmission between the general practitioner and the ophthalmologist, allowing the reduction of the territorial distance between primary health care facilities and ophthalmic hospitals. Next, *'The Heart Project'* (started in 1997), for patients with heart failure, consisted of video connection of primary health care facilities with cardiologists in a hospital, and teleconferences were held once every two weeks during which period, the results of patient examinations were discussed, aiming to speed up the diagnosis and so, start treatment but not so much to reduce territorial differences. *'The North' project*, to ensure the highest quality of services in rural areas, implemented a connection between a university hospital (specialists in the field of ENT, orthopaedics and dermatology) and two primary health care facilities and also uses video-conferencing and image exchange (X-ray images, and photographs of skin lesions, nose, throat and ear) for consultations for equalizing inequalities in health among the inhabitants of northern, mountainous, hard-to-

reach rural areas. *'The South'*, an example of using telemedicine for organizational changes, created a joint electronic archive of radiological images for connected hospitals (Flaga-Gieruszynska et al., 2020; Petersson, 2011).

Project as a translation machine in some hospitals in Gothenburg city:

Gothenburg city hospitals such as Sahlgrenska have scientific groups and educational programs along with participation in the national program.

We have the idea to introduce some systems, we want to combine it with some scientific measuring effects in medical health. For example, chronic lung disease, have a bigger scientific group to work with to measure if it is good and what patients get the benefits of it and that kind of way, that is till now the best way to introduce telemedicine solutions for us. Technical things can also be difficult for the staff but if you learn it is easy. But we have a lot of educational programs about it (Chef avdelning Digital Utveckling, Sahlgrenska Universitetssjukhuset).

Telemedicine knowledge sharing in practice in EU:

According to (COCIR, n.d.), European Union has a project called 'The Chain of Trust project' that aims to assess the views, needs, benefits, and barriers of patients and health professionals and also works to increase awareness among the organizations of patients and health professionals and health authorities at EU and national level so that user perspective on telehealth (including telemedicine) become widespread. Furthermore, for knowledge sharing experience in deploying telemedicine services into routine care to build a body of good practice, there is a platform named 'Momentum Thematic Network' which also works to accelerate overall telemedicine deployment in Europe by proposing a set of policy recommendations to create an enabling environment. Moreover, focus has on citizen engagement (patient or healthy persons) for self-management and supportive environment such as health promotion, health literacy and disease prevention, development of a multi stakeholder ecosystem (ibid). To cultivate knowledge sharing in formal ways, the EU has a 'human resource guideline' that motivates, educates and supports board members, managers and employees of the EU countries (European Commission, 2018). 'European Database of Medical Devices' (briefly Eudamed) informs users (members) device related factors and encourages cooperation based on shared knowledge (Botrugno, C. 2018). To support member states and European Commission (EC), there is 'Medical Device Coordination Group' that works to implement telemedicine idea and also EC updates a series of guidance documents (known as MEDDEVs') that help stakeholders understand the technological device (nonhuman parts) and its category as per EU medical device legislation (ibid).

Telemedicine knowledge sharing in practice in Sweden:

Digital database sharing for multipurpose: More data from public national census surveys were put into digital databases which are used by health service planners, clinicians, managers, and

researchers for several reasons in telemedicine practice because these data can direct attention to assessing causes and then to targeting interventions (John Øvretveit, 2019).

Peer sharing and patient experiences: Patient-run and patient-directed sharing sites and associations are developing in Sweden, accompanied by Swedish or overseas services, to share experiences and information with other patients and these are developing independently from health care services (despite having some partnering with researchers and clinicians to help patients in contributing data for health research) (ibid).

Data in management dashboard: Many hospitals are now using quality improvement methods such as Radio frequency identification and other types of sensors attached to the patient transmit data. These data are then aggregated and displayed on management dashboards for use in different ways to improve short and long-term management of patient pathways and hospital performance (ibid).

Co-care is a knowledge sharing in a shared decision process: In this process, clinicians and patients can make decisions and get mutual support to consider options, to achieve informed preferences by sharing the best available evidence. Another concept driving changes is ‘expert patient knowledge’ in which concepts, patients have about their symptoms and what works for them for use in managing their symptoms, and health and also, more patients are sharing and learning from other patients about such strategies. The other patient-engineer collaboration is the self-tracking tool ‘ParkWell smartphone application. A third tool, the patient evaluation of co-care survey (PECS), is for patients to measure the performance they want to achieve. A further sharing platform is Swedish ‘Recovery Colleges’ which want to increase people’s self-confidence in their self-management of their mental health and well-being (ibid).

Telemedicine knowledge sharing in practice in some hospitals in Gothenburg city:

Telemedicine idea is more or less shared by members of the organizations within organization structures or outside organization no matter whether it is formal or informal. Approach to implement the idea is top down or both top down and bottom up depending on the organizations.

I think people can better understand telemedicine but there is not adequate materials for knowledge sharing. Top management fixes everything here (Specialist i allmänmedicin, Närhälsan Angered vårdcentral).

Storytelling and we have a newspaper in the hospital, on the internet. And we have a lot of good stories there, and a lot of them are about digitalization and solutions in the nearby area in that newspaper every week, several times every week. And we share a lot of things on LinkedIn or Facebook for example and that kind of staff because we know that our staff is there. So we try to spread it in different ways. And we have some quality days in the spring where the staff is talking about their development work and a lot of things that are in the digitalization area or telemedicine area and it is a good way to get inspired by others in the same situation. So it is not the board of the hospital, it is the staff, from the people who work with patients who talking. So that is one thing to spread it. Our knowledge sharing and implementation approach is both top-down and bottom up depending on the situation (Chef avdelning Digital Utveckling, Sahlgrenska Universitetssjukhuset).

DISCUSSION

Similar idea differs for translation and repeated communication in change theory to become practice:

Here we will show that ‘translation of idea’ is not similar in different time and space for several reasons.

Similar idea read differently: From findings, the idea of telemedicine is not similar in all places even though some features may be identical. *The EU* Commission sees telemedicine as the usage of ICT to connect health professionals and patients who, from different positions, involve in secure transmission of medical data and information using text, sound, images or other forms to prevent, diagnose, treat, and follow-up of patients. Telemedicine solutions are products and services where advancement and coordination of patient care are done by using technology so that health-related costs and dealings of long-term burden of illness are reduced. Also, ‘telemedicine solutions’ that are provided by companies are mostly products and/or platforms (may include databases) that help share data that doctors or software professionals analyze and interpret from database storage. Telemedicine services can be defined based on storage devices, categories, and stored images. On the other hand, even though *Sweden* lacks a definition under Swedish law, they add some extra points to the EU pattern such as the identification of who communicates with whom and also, different structures of the healthcare system that determine various aspects of telemedicine. Further, examples of *some hospitals in Gothenburg* depict the mostly same idea of telemedicine but have added that it should reduce work. So, we see similarities of the same telemedicine idea in all 3 discourses but that does not suggest (important lessons for managers) that the idea is translated from EU to the last part, rather, we see that it is identical to Czarniawska and Georges (1995) concept that all of them have read the same idea (which was translated in different organizations at the same time) in different ways and ideas can be written and also, Wedlin and Sahlin (2017) description that ideas impact other ideas and organizations involved. So, do change for idea need planning?

Continuous change does not mean no planning: When looking at telemedicine solutions in findings, we see that in *the EU*, change was needed to advance and coordinate patient care to reduce costs and lessen the long-term burden of illness. For health providers, the ‘change’ means offering patient-management processes through remote monitoring and follow-up continuously to establish a broader information base for ‘clinical decision-making. Telemedicine solutions contain applications and tools which assist to make prevention, patient management, follow-up, and monitoring smooth and easy. *In Sweden*, technological progress convinced Sweden (to make a change by taking telemedicine idea) to diagnose patients using electronically transferred images or examinations even when patients are at distance and also they feel the necessity to meet growing health needs with reduced cost. Another fact is, in 1997, Uppsala City Council experimented with records of patients who responded positively to having access to their personal health information, causing digitalized electronic health records (HER) available to citizens in Uppsala. But Sweden is in a hybrid health care system with digital access to all designating local

regulators with somewhat artificial construction. *Some hospitals in Gothenburg* took the change as a way of IT use and provision of remote service to the highest number of people because they want a better system to develop or change to work together. Here the change in all spheres happened, according to Czarniawska and Sevón (2005), when they questioned their previously taken for granted ideas in responding to the situation and also planning happened at some stages of change but that is not planned change; however, Sweden uses a combination of telemedicine and traditional system, refuting Czarniawska and Sevón (2005) idea that change needs old practices to be destroyed and previous social order will be deconstructed because here, change happened keeping the old construction. As Chia (2014) as well as Weick and Quinn (1999) mention change as an ongoing process (not planned), we see, in all areas, there was already a developed healthcare system but change happened by answering the necessity and situation and Chia (2014) idea of ‘let change happen’ is reasonable too. This continuous adoption and editing of ideas lead organizations to follow the ‘idea of translation’ (business world should not be too focused on planned change) that is what Czarniawska and Joerges (1996) reference as ‘idea travel’ and further, Weick and Quinn (1999) supported this by saying ‘idea of translation’ has an impact with a combination of fit, institutional salience, and chance. In traveling, Idea can be new phenomena or revise old ones.

Formation of unknown object or change in the known: Further study in findings depict that in *the EU*, telemedicine solutions, mostly products and/or platforms, can also be translated into specific health-related services (maybe needed further devices such as AI, data analytics, etc.) and this is visible from other solutions, in European countries, such as ePrescription and Electronic Health Records (EHRs). *Sweden* has other solutions, along with the EU, that include a national patient summary, registers, image sharing, etc. *Some hospitals in Gothenburg* have ‘digital care meetings, digital calls, digital drop-in, etc. as an added version of telemedicine. Czarniawska and Georges (1995) define those different solutions as ‘idea materialization causes a change that can take the form of unknown objects, appearance, and change in the known objects’ (Change does not mean completely new business model). This object has spatial issues such as local, global or translocal.

Meaning of translocal in change: Our study also clarifies that in the translation process of telemedicine in *the EU*, the EU commission, in a combination of their telemedicine solutions mentioned above, works with 34 countries, their aging populations, various disease patients, different parties in the international field, telemedicine solution providers, telecommunication companies and mobile operators, and start-ups and many more. *For Sweden*, they are also part of the EU, but they are not confined to that because they have further combinations of the National eHealth agency, Swedish Medical product agency, private companies, Swedish start-ups, Swedish markets, etc. *Some hospitals in Gothenburg* are connected with regional authorities, county councils, medical care regions, municipalities, Vastragotaland county, Swedish solutions of data savings and data storing, etc. It is clear from the three discourses that there is no network such as from EU to Gothenburg or reverses, rather, sometimes the network is inter-related, meaning we cannot say local or global (Organization should not be focused on local and global) but can say ‘translocal’ what is exactly described in Czarniawska and Georges (1995). Further, the network here defines the total telemedicine idea (that is translated) and the translators (actors in the network) simultaneously, and also, all of them are working together for the same telemedicine idea to be implemented. According to Wedlin and Sahlin (2017), it is the beauty of ‘translation

theory' where both translator and translated objects are modified and Thomas and Hardy (2011) describe that there should be no division following dualism of power and resistance or change. We can further see that the network of all stages is composed of both human and non-human, which we will explain in our 'Role of human and non-human part'. We can understand more about the network and translation from the project.

Project is vital in the translation process: Projects in Europe not only show and evaluate the role of telemedicine in terms of a patient-centered approach but also increase awareness of the telemedicine idea. Further, they contribute to the 'materialized idea' by making it a good practice and in this stage, when the telemedicine idea gets into the action, they provide a code of practice to institutionalize telemedicine idea. *Projects in Sweden* concentrate on the practice of the telemedicine idea in addition to its role to increase the institutionalization of this idea through repeated communication and also emphasize what should be embedded into the idea. Finally, *some hospital projects in Gothenburg* have lots of technical educational programs with scientific measures to translate the telemedicine idea into practice. Literally, all projects define the actors (both human and non-human) and their roles in the network, specify what needs to make the idea actionable, and then institutionalize the idea through repeated communication. If we combine the acts of all projects, we can reflex from Czarniawska and Georges (1996) that the task of a project is a 'translation machine' (business should pay extra care for project) because it re-embeds, materializes ideas into actions, then institutionalizes the idea in a process of the network to provide the practice.

The actionable idea is institutionalized after a successful journey: Findings suggest *the EU* focuses on the free movement of services for repetitive communication so that the telemedicine idea can be institutionalized and purposively, they have guidelines for actors involved in the translation process. To make ideas more actionable, they have a policy to fully utilize 'growing information' to make telemedicine cheaper, faster, and secure and also have an investment target in people and skills. Quality criteria are not the last thing they have for actors, the EU concentrates on legal aspects of e-health, the establishment of health technology, assessment networks, etc also. Comparatively, *Swedish action* is more focused on users, providers, rules, and regulations to provide telemedicine, on country-based authorities, and on products, services, etc. They have initiatives to institutionalize telemedicine idea through a support system, motivation, and empowerment of individuals in the network, technical infrastructure, information infrastructure, rules and regulations, and so on. *Hospitals in Gothenburg* have something in common with Sweden initiatives but they further add ethical and integrity issues and also their institutionalization is in one way 'organizational reform'. Comparing the three, we see the telemedicine idea has traveled successfully to be institutionalized even though it is an ongoing process and according to Czarniawska and Georges (1996), materialized ideas get into action and after a successful journey they are institutionalized (Business rules and regulations should pay attention to organization's well-being through institutionalization). Similarly, Diedrich & Guzman (2015) mentions successful translation is the end of the journey. Next, we need CoP to understand how translated idea become practice.

CoP to translate idea into practice: Findings elaborate that *EU* exchange views, needs, benefits or barriers with distinct groups to widespread telemedicine practice and there is a special network

to create an enabling environment. While for *Sweden*, knowledge sharing is based both individually and organizationally to share data and give momentum to telemedicine practice, some *hospitals in Gothenburg* try to accelerate telemedicine idea collaboratively and also individually. This is CoP because knowledge is shared, and learned collaboratively whether it be within or outside of the organization (Wenger & Snyder, 2000; Esnault, Zeiliger & Vermeulin, 2006; Fox, 2000; Schmitz Weiss & Domingo, 2010; Pyrko et al., 2019; Rennstam & Kärreman, 2020). Czarniawska and Georges (1995) cite communities get signal from idea to materialize idea object in the translation process, Esnault et al. (2006) mention several translation processes in CoP, Fox (2000) indicate that CoP helps learning which is an ongoing translation process and Pyrko, Dörfler, and Eden (2017) opines CoP produces knowledge.

Next *EU* has initiatives for self-management and a supportive environment that require individual efforts but there are formal ways (very less informal knowledge) of collective efforts of knowledge sharing to motivate, educate and support members, managers, and employees of EU countries. In *Sweden*, both formal (knowledge sharing in co-care) and informal (peer sharing) knowledge is shared in organizational structures but *some hospitals in Gothenburg* have various forms of informal social groups and individual efforts for knowledge sharing. Schmitz Weiss and Domingo (2010) have similar concepts that illustrate knowledge sharing and learning happen in individual work but initiatives are collective context and so combined efforts happen in CoP. Organizations fulfill knowledge requirements by sharing both contextual and formal knowledge as a translation process in CoP (Wenger & Snyder, 2000; Rennstam & Kärreman, 2020).

Furthermore, we found *EU* emphasis on its member states to share and spread telemedicine idea through CoP and consequently enabling working environments were created. Also, the development of a multi-stakeholder ecosystem and health literacy among CoPs create an opportunity for innovation. Self-management and a supportive environment in CoP motivate learning. In comparison, *Sweden's* knowledge sharing is accompanied by data sharing through digital database sharing, data in the dashboard, etc. along with individual knowledge sharing through peer sharing, co-care, and so on, leading to new solutions in telemedicine idea with a good working environment. However, *some hospitals in Gothenburg* have CoP, both inside and outside organizations, through which they continue their work but they are not focused too much on innovation even though they have a very good mechanism of CoP such as 'storytelling'. Brown and Duguid (1991) describe individuals developing CoP by identifying their activities and changes in community values and views create innovation. Also, working and learning is the output of emerging communities because CoP bridges the gap between static view and challenge in changing practice, leading to innovation (ibid). Besides they told about the process of 'forming a story' that helps understand (which is not possible by canonical documents) machines communally and this idea is similar to human and non-human actors in the translation process for change (Czarniawska & Joerges, 1996; Diedrich & Guzman, 2015). Esnault et al. (2006) mention the 'participatory design approach' for developing tools in CoP because it will help align the interest in the network and we can see, in all areas, that CoP is operating with human and non-human actors (similar to Czarniawska & Joerges, 1996). Additionally, Brown and Duguid (1991) point out that CoPs share information about other communities (we found this in all courses of our findings) if the information is seen as a commodity and power is considered in terms of 'information travel'. They further mentioned storytelling as a good source of 'idea travel'

and we found this practice in some hospitals in Gothenburg. Finally, working, learning, and innovating (some hospitals are not innovating so much) are in progress, in combination, in CoP in all areas (every business should adopt this for success), according to the theory of Brown and Duguid (1991). However, CoP is not similar in three discourses and so, to understand more about ‘idea into practice’, we will discuss ‘time and space aspect’ and ‘management approaches of translation in CoP’.

Time and space is vital dimension in translation: EU context suggests telemedicine is an ancient phenomenon but recent historical advancements in a technology disrupted the traditional into new telemedicine idea, while for *Sweden*, they started telemedicine from 1990 for growing patient needs and *some hospitals in Gothenburg* follow Sweden and its institutionalization and therefore, are not so advanced, findings suggest. Considering the space, we found the EU has an international arena with its 34 member states and network outside the EU but Sweden, even if connected to the EU, mainly focused on its regions to be developed and *some hospitals of Gothenburg* city are very narrowly focused because they are concerned about themselves besides following Sweden. Consequently, the telemedicine idea traveled for a long time in vast spaces in the EU compared to Sweden and some hospitals of Gothenburg, leading to better translation in the EU. About time and space, both Czarniawska and Joerges (1996) and Wæraas and Nielsen, (2016) specify that idea travels across time and space to adapt to the local context in the translation process. Czarniawska and Joerges (1996) recognize idea enters translocal path by transgressing the barriers of local time to be disembedded and lands in localities to be reembedded. This is very crucial for the business world to get success from idea materialization.

Management approaches in CoP: Moreover, findings further add that *the EU* has the leadership to set the agenda in CoP because the EU is a higher authority body but in *Sweden*, the healthcare system is even though centralized, they have both ways to share knowledge in CoP. *Some hospitals in Gothenburg* differ in systems because some are dependent on leadership for individuals to contribute to knowledge sharing and be part of innovation while others are autonomous to their employee potential and the others have a combination. Even though CoP responses to change with their leadership, it can gain from a managerial intervention such as identifying CoP that increases company capabilities, enable members to apply expertise, etc (Wenger & Snyder, 2000; Rennstam & Kärreman, 2020). But, according to Rennstam and Kärreman (2020), CoP is best suited to members, and (Pyrko et al., 2017) explain not to set up CoP but develop one’s learning through group efforts. However, evaluation of top-down and bottom-up management approaches to practice is indeterminable here because all contexts are practicing telemedicine from their perspectives and these three discourses are not completely detached from one another. In this regard, Chia (2014), Thomas and Hardy (2011), and also Czarniawska and Joerges (1996) are against planned top-down change and Kotter (1995) is in favor of top-down. Further, interactions and involvements among all actors, regardless of power, is necessary (Thomas & Hardy, 2011; Diedrich & Guzman, 2015), meaning different approaches are required. For management, it is an emergency to understand the power relation.

To sum up, a differently read idea, turned into an object with continuous change process, is not translated in a unique way because it is done in varied networks, institutionalization process and non-identical CoP that accepts working, learning and innovating as a composition, not conflicting separation (very significant idea for business professionals).

CONCLUSION

Our aim of the study was 'How telemedicine has been translated' and we covered this by studying telemedicine at the EU, Swedish and some hospitals in Gothenburg city to grasp the complete understanding. In doing so, we have contributed to the way an idea can be translated and also, in organizational studies by showing the processes of organizational change. The findings are illustrious in idea materialization, institutionalization when idea travels through translation process, and rules and regulations are institutionalized in 3 different levels. To answer the research question '*how telemedicine has been translated*', first, we showed that idea is not read by all in the same way and it is seen, for EU, telemedicine idea is based on its 34 member states, whereas Sweden follows EU but has some characteristics from themselves while some hospitals in Gothenburg take an idea from their point of necessity and from Sweden too. Next, in the translation process, change should not be planned but rather a continuous process where an idea can take the form of an 'unknown object' or change in the known object (relevant for both EU and Sweden). Then change happens when an idea travels in time and space, requiring the term translocal to eradicate the dichotomies of local and global and this is specifically true for the EU, Sweden, and some hospitals in Sweden because all three are so connected that we cannot differentiate here what is local or global. After that, we got a project, in all of the three discourses, as a great network to materialize telemedicine idea. When an idea is translated, it is institutionalized and we saw the EU, Sweden, and some hospitals in Sweden are processing institutionalization through policy, guidelines, rules and regulations. Following this, the telemedicine idea is incorporated by CoP, social constellations, which is more visible in some hospitals in Gothenburg in both formal and informal ways in organizations and outside. We think time and space are crucial as it is evident from the EU who has got more time and space compared to others for translation. Finally, power relation (top-down, bottom-up) is a factor to consider but we have not found a clear relation in our study.

Doctors, nurses, healthcare professionals, and patients in Gothenburg (along with Swedish system involvement and EU overall eHealth system) have interacted in CoP through different products and services of telemedicine where support from relevant management and authorities have also taken part to convert telemedicine idea into practice. The organizations are facilitated by the translation process of human and non-human actors within CoP where the network has used the knowledge-sharing to realize the telemedicine idea into practice. Literally, the telemedicine idea has all the resources to be translated if the organization is knowledge-intensive with open learning culture and management support.

There is no noteworthy research on 'translation of telemedicine' that covers such wide regions as we did in the EU, Sweden, and some hospitals in Gothenburg and also no mentionable research is done using the theoretical approach, Scandinavian Institutionalism, to express all aspects of change and non-human and human relations. Further, telemedicine covers feature of products or services'; however, even though there are numerous research on specific services such as teleconferencing or other criteria for specific diseases, those do not fulfill the complete idea of telemedicine. Hence our study is instrumental in understanding either product or service industry (as an idea) literature that needs organizational studies and also how those ideas are translated

into practice. From our thesis, business professionals not only can learn power relations and roles in translation but also can understand a new way of knowledge sharing, learning, and innovation from a CoP perspective in practice. While this experience can help to understand how similar ideas turn into practice in different industries, further study could develop what is a better way to translate change into practice using those concepts and what happens in the recurring phases after ideas are institutionalized (in this case, what will happen to telemedicine).

Hospital services are becoming very slow due to population increase, especially for the increasing trend of elderly people and therefore new ideas, such as telemedicine, can be a great solution in practice with knowledge in change management.

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