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# How the local domestication of a teleconsultation solution is influenced by the adoption of a national policy?

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**Abstract.** Telemedicine is presented by the French government and regional authorities in France as key to guaranteeing equal access to healthcare. Research on telemedicine has highlighted how it impacts the work practices of healthcare professionals and how its adoption is challenging. In this context, we are interested in understanding how the discourses and policy on equal access to healthcare are implemented and how they impact the deployment of telemedicine solutions in practice. We are currently studying the deployment of a teleconsultation solution for nursing homes inside a group of hospitals in Northeast France. On the basis of on-site visits at four nursing homes and interviews with the different stakeholders, we analyzed the domestication of the teleconsultation solution. Our first results highlight that the defined policy is useful to support the deployment of the technology but does not appear as sufficient for its incorporation into regular work practices. Our hypothesis to understand this obstacle is that nursing homes would need to endorse a new role to engage in further incorporation and later stage of domestication, which may be prevented by their existing ecosystem.

# Introduction

Telemedicine in France was officially introduced in the health legislation in 2009. Then, in 2016, a law for the modernization of the health sector presented telemedicine as a way to ensure and equal access to healthcare independently of the social conditions and the territories<sup>1</sup>. September 2018 marks a milestone for the development of telemedicine practices, with the “DECRET 2018-788” that formally recognizes telemedicine as one of the regular medical practices in the French health insurance system<sup>2</sup>.

Telemedicine is presented by experts and healthcare authorities as a major opportunity to address the demands for healthcare across a rural and underserved territory in a context where existing health professionals are overwhelmed, and newcomers are reluctant to settle in rural areas. Telemedicine is envisioned as a way to ease access to healthcare and to allow a better follow-up of patients, which could prevent emergency situations from arising.

The research that we present in this paper was conducted in this context where the East regional health agency (East-RHA), in partnership with the main hospital from one department of this region envisions telemedicine as an opportunity to improve the accessibility of healthcare by residents of nursing homes.

In fact, in France, nursing homes are not considered as healthcare providers, but rather as an accommodation and living service. Their staff usually includes a part-time coordinating doctor (most of the time, a general practitioner who could be retired from private practice), and nurses. A recent report from a commission of the French National Assembly points out that, on average, nursing homes have a ratio of 6 full-time nurses for 100 residents (Commission des affaires sociales, 2018). Moreover, a lot of nursing homes are settled in suburban or rural areas, which limits the availability of medical resources and competencies and then leads to the need for transportation of the residents to consult specialists. Telemedicine is then seen as an interesting solution to avoid moving patients. However, deploying telemedicine requires nursing homes to endorse a new role beyond solely supplying accommodation services. Indeed, allowing teleconsultation means becoming a genuine partner of the healthcare system, playing an active part in the medical care of their residents.

The current implementation and deployment of telemedicine solutions appear as complex and challenging, intertwining social and material issues (Orlikowski, 2007; Bjørn & Østerlund, 2014; Mathieu-Fritz & Gaglio, 2018). Projects of telemedicine deployments are hindered by numerous hardware and networking problems, and issues related to the appropriation of technology by organizations and professionals (Pols, 2012; Gaglio et al.,

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<sup>1</sup> (LOI n° 2016-41 du 26 janvier 2016 de modernisation de notre système de santé, 2016)

<sup>2</sup> (DECRET n° 2018-788 du 13 septembre 2018 relatif aux modalités de mise en œuvre des activités de télémédecine, 2018)

2016). In this context, we identify a gap between the high-level discourse in health policy related to telemedicine, and the technical and organizational issues at stake when dealing with its deployment in practice. Implementing new technology in a work setting is always an effort, but the conditions that support the organizations and professionals to engage in the effort of making their work practices evolve are still unclear. Our research is interested in examining the role of policy and the ways the stakeholders that promote and implement in the success of the deployment.

The questions we are dealing with are the following: How does the high-level discourse on equal access to healthcare impact the current deployment of a telemedicine solution? Does this policy support the adoption of teleconsultation? And at which step of the deployment process does it have an impact?

In order to account for the adoption of the telemedicine technology that was deployed in the project that we are following, we have chosen to adopt the perspective of domestication (Roger Silverstone & Haddon, 1996). Indeed, this framework supplements technology appropriation (Balka & Wagner, 2006; Draxler & Stevens, 2011) and allows us to consider the steps that are occurring before, during, and after the technology is introduced. The lens of domestication also provides a shared longitudinal model that allows for comparison across several organizations. Therefore, it is useful for addressing the relationship between policy discourses and technology implementation and highlighting the role of policy at different stages.

Through a field study of the deployment of a teleconsultation solution between a local hospital and four nursing homes (Aube department – NorthEast France), we had the opportunity to observe the contrasted reception of the solution at different sites. Since 2017, with the support of regional funding, the local hospital has developed (in partnership with a local software company) a teleconsultation solution that allows nursing homes to schedule teleconsultation appointments for their residents with specialists from the hospital. Forty-six nursing homes have been equipped with a dedicated teleconsultation solution. At an operational level, the knowledge and understanding of the different domestication situations across nursing homes could help the hospital to better accompany the deployment of the teleconsultation solution.

In this exploratory paper, we present preliminary results of the contrasting cases of four nursing homes, which are at a different stage in their domestication of teleconsultation. By so doing, we aim at contributing to the research questions listed above, in line with the CSCW research challenge of better addressing the relations between healthcare policies and practices raised by (Fitzpatrick & Ellingsen, 2013).

## Related work

### Telemedicine and Teleconsultation in Nursing Homes

Telemedicine, or telehealth, appears in the literature as an umbrella term that covers a wide range of medical activities with specific challenges in terms of technology, organization, and care relationship development (Pols, 2012). These medical activities range from collecting physiological measures at the patient home to enabling the patient to consult a health professional through a video-call (Larsen & Bardram, 2008), or supporting distributed medical teams to organize meetings at a distance (Robertson et al., 2010). Despite its focus on a mediated practice, the telemedicine term does not mean that all the care to the patient will be provided at a distance through networks without any face-to-face contact. Its deployment in practice often consists of providing a supplementary channel for care provision between a patient and health professionals, partly occurring in physical presence at one point or another (Islind et al., 2019).

In France, the legal framework distinguishes five categories of medical activities that can be performed at a distance and so be accounted for the health insurance system (Simon & Acker, 2008): “telemonitoring” which is the act of gathering medical data from outside a medical structure (for instance at home); “Tele assistance” which is a request for help to a peer doctor when performing a medical act, “regulation” which covers the existing practices for emergency medical services (EMS); “tele expertise” which is a request for advice and counseling between two health professionals; and, “teleconsultation” which involves a meeting at a distance between a patient and her personal general practitioner (GP) or a health professional appointed by her GP. In this paper, we focus on the deployment of a teleconsultation solution, but tele-expertise can be mentioned as a follow up of a medical consultation with a patient.

Among the few detailed studies of teleconsultation in practice, (Esterle & Mathieu-Fritz, 2013) and (Mathieu-Fritz & Esterle, 2013) have looked at its impact on articulation work and have shown that teleconsultation as a situation (Goffman, 1974) involves work at four different levels (or framings): a technical or material level which is especially concerned with the setup of the communication channels and camera; an organizational level in which one needs to gather the proper patient’s health records, register the teleconsultation event, and follow-up in the information system; a social level to stage proper introduction of the teleconsultation and initiation of the exchanges between the participants, as well as the interaction work for closing the exchanges; a clinical level in which medical care is achieved and good practices in the medical examination have to be attained. These authors have observed how the lead doctor in charge of the teleconsultation project had to define and negotiate the work to be done at these four levels in order to successfully routinize the practice of teleconsultation (more than 1500 teleconsultations had been carried out as of September 2012).

The “progressive routinization” (Esterle & Mathieu-Fritz, 2013) at the different framing levels and the adoption of teleconsultation come with the partial transfer of knowledge and responsibilities from the lead doctor to a nurse trained as an assistant in telemedicine. Thus, as observed elsewhere with the training of specialized paramedics for tele-EMS (Stevanovic et al., 2017), the successful deployment of telemedicine appears as a socio-material achievement that has an impact on articulation work.

Teleconsultation has also been studied in the context of nursing homes (N. Salles et al., 2013) with the aim to reduce the need to transport patients to health organization and to ensure a better quality of care (secondary preventive care) to reduce the request to Emergency Medical Services (EMS). The reported results of the experiment in the context of nursing homes are positive, and learnings for implementation have been gained (Nathalie Salles, 2017).

This existing work on the impact of telemedicine on work provides important insights on how to enable the successful implementation of teleconsultation in other settings, but few is known about the role of policies and political discourses, and how they can impact the adoption of a teleconsultation solution in a region-wide context.

## The Domestication of Technology

The domestication approach of technology adoption allows us to account for the deployment and use of ICT as a consumption process (Roger Silverstone & Haddon, 1996), binding material, symbolic, and as such social dimensions of living with a technology artifact. The model supplements research on the appropriation of technology in practices (Balca & Wagner, 2006; Draxler & Stevens, 2011) as it accounts for steps before the technology is available in the field site, and enables to address the relationship between discourses and the deployment of the technology.

The domestication model has originated in the analysis of ICT adoption in homes from a media studies perspective (R. Silverstone et al., 1992), and provides an analytical framework to account for different stages in the adoption of technology artifact. This longitudinal model offers a structure to bring the trajectory of adopting a technology artifact together again.

\* **Appropriation** deals with the circumstances of acquiring the technological artifact, moving it from the external public sphere to the setting. It focuses on the process of getting or buying it, the issues of funding and associated technology providers.

\* **Objectification** is interested in the way the technology artifact has been set up and installed in the setting. This setup is as much about the configuration of the technology itself, as the connection to the network than with the change involved in the environment, like finding a proper physical place for the artifact in the setting and accessibility.

\* **Incorporation** is concerned with the effective and attempted uses of the technological artifact and the changes in the users' daily routines and practices. Successful incorporation in the users' daily routine is challenging and may lead to abandonment, especially when the cost of making use of technology passes the benefits for the setting activities.

\* **Conversion** addresses the value and symbolic meaning of the technology artifact through the way it is displayed to others, through discourses or presentation, outside the setting. Of course, not all adoption processes reach this phase, where technology impacts the identity of a setting, moving back the technology artifact from the setting to the external public sphere.

The focus of the domestication analysis framework was originally household adoption, but the model authors' intention was not to bound the applicability of their model to other contexts (Roger Silverstone, 2005). Several studies on technology domestication have been conducted on small businesses (Harwood, 2011), work organization (Pierson, 2005), and healthcare as well (Chamberlain & Craig, 2016; Gaglio et al., 2016; Kivits, 2006; Östlund, 2017).

This model is of special relevance for our study for its synthetic purpose, allowing us to gather and make sense of the very different adoption stories of the different nursing homes we are following. It also allows us to address the issue that not all nursing homes have reached the same stage with the teleconsultation solution.

## Context

In this section, we introduce the context of the "MyGHT Télémédecine" project that is dedicated to the development and deployment of a teleconsultation solution allowing nursing homes to access specialists from the hospital. We first introduce the French telemedicine context, which allowed the implementation of MyGHT Télémédecine. Then we present the Groupement Hospitalier de Territoire (GHT), which gathers the medical organizations in the Aube and Sezannais region around shared healthcare aims and policies, and which has initiated the project. We then present the onset of MyGHT Télémédecine, the developed technical solution, and the current status of its deployment in the region nursing homes.

As a foreword, we would like to mention that the authors of the paper have been invited by the leader of the MyGHT Télémédecine project to follow its deployment as a follow-up of previous research projects. Indeed, we have not taken part in the design or the implementation of the teleconsultation solution. We have responded positively to the invitation following our interest in the case.

The evolution of the population demographics these last twenty years in France has led to a rising concern from health authorities and the population about the lack of available medical resources and trained staff, especially in rural areas. The notion of equal access to

healthcare has been reasserted in the framework of 2009 (July 21<sup>st</sup>) French law related to patients, health, and territories. This law has shaped telemedicine in France with the categories of medical activities introduced above (Simon & Acker, 2008). From 2014 to 2018, experimentations have been allowed locally under guardianship and funding of the Regional Health Agencies (RHA)<sup>3</sup>. RHAs are in charge of applying national policy orientations at the regional scale.

To address territorial inequalities, “Groupements Hospitaliers de Territoire” (GHT) has been defined (Healthcare modernization law, October 2016) as an organizational model gathering several hospitals on the territory, in order to develop a territorial approach of healthcare that would improve cooperation and coordination among its members.

The GHT Aube/Sézannais was officially created on the 9th of July 2016 with the support of the East-RHA and is a compound of 6 hospital organizations (figure 1).

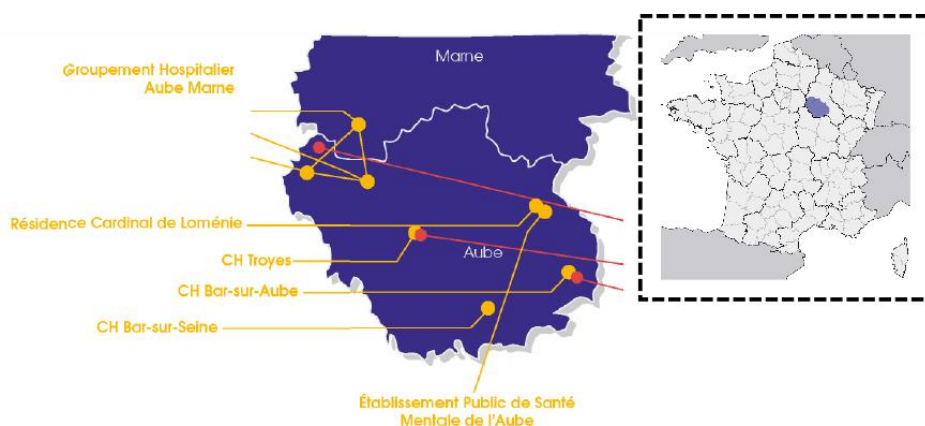


Figure 1. Location of the six institutions of the GHT (thumbnail: location of the GHT in France)

In this context, a project has been defined and agreed upon by the different members of the GHT for the 2017-2022 period. This project promotes a digital and ICT strategy to address the lack of available medical resources and to implement equal access to healthcare policy. On the side of elderly persons' care, the project's policy aims at easing the access to specialist doctors and at preventing the transportation of patients from nursing homes to the local hospitals. The project also aims at creating specific care pathways for a defined population (e.g., elderly residents with diabetes) with the support of telemedicine, as well as providing support to healthcare professionals for the use and integration of ICT in their practice. In this context, MyGHT Télémédecine was born in 2018, partly funded by East-RHA. The motivation behind this telemedicine project is based on the observation that nursing homes residents are experiencing a lack of medical follow-up, despite being the most at risk of experiencing chronic conditions and multiple pathologies. The main reason

<sup>3</sup> Article 36 du Projet de Loi de Financement de la Sécurité Sociale (PLFSS) 2014.

being the cost and the iatrogenic risk associated with transportation to the hospital for access to specialists. As explained by the leader of the MyGHT Télémédecine project:

“most of the elderly residents are not able to book and consult diabetes’ specialists from the hospital, apart from the occurrence of a critical event that will justify the cost for transportation and hospitalization”.

This means their diabetes is mainly followed at the nursing home through general practice, which may not be up to date with the last medical protocols, if not at all. Diabetes by itself is not the main source of the request to EMS by a nursing home, but its association with other pathologies, for instance, with neurodegenerative conditions, and bad diabetes follow-up makes the residents at risk of experiencing a critical emergency, especially in the summer heatwave.

Several specialists from the GHT have accepted to take part and to open time slots in their calendar for teleconsultation on four domains: wound healing, diabetes, sleep apnea, and geriatrics. The nursing homes taking part in the experiment are then able to book teleconsultations for their residents with MyGHT Télémédecine (fig 2). On the defined day of the teleconsultation, the resident is accompanied by the nursing home coordinating doctor and/or a nurse to reach a dedicated room and have a consultation with the specialist through the Internet.



Figure 2. An example of the MyGHT Télémédecine teleconsultation software interface, before the start of a teleconsultation between a 74-year-old patient and a dermatologist.

The teleconsultation solution is an off-the-shelf laptop computer with a good quality camera and a printer. The chosen solution does not include any connected medical or physiological measurement device in order to keep the system simple. Health professionals are supposed to use the video-call channel to share physiological measures and information. The software solution provides secure video communication with scheduling and waiting room on the server-side and has been chosen to be able to run on any professional-grade computer as those used by the hospital.



After six months of experimentation and more than 200 teleconsultations, East-RHA validated the success of the pilot study and its interest in the solution. This early success has allowed the GHT to get funded for expanding the solution to the other nursing homes in the territory (n=49). As of September 2019, forty-six nursing homes have been equipped.

Despite this successful coverage, and the East-RHA attempting to incentivize nursing homes to use telemedicine, only some of them are regularly requesting teleconsultation. For a nursing home, fifty teleconsultations between September and December 2018 would have permitted to receive more funding, but several have not done much more than the test required by the East-RHA to get reimbursed from their investment.

In the remaining parts of this paper, we present the qualitative approach that we adopted in order to get a better understanding of the reception of the MyGHT Télémédecine solution at different nursing homes in terms of domestication of technology.

## Participants and Methods

Given the distributed character of such telemedicine applications, our approach is inspired by multi-sited ethnography with the aim of “following people, connections, associations, and relationships across space (because they are substantially continuous but spatially non-contiguous)” (Marcus, 1995).

At the onset of our inquiry, we had conducted two one-hour long interviews with the doctor who leads the MyGHT project. These interviews focused on the context and history of the teleconsultation project, the motivation for the project regarding health policy and the organization of healthcare in the region, the current deployment status at the hospital and in nursing homes, as well as the cases identified as successful or not from his point of view. The documents shared among the different stakeholders of the projects and the presentations made to the public are also part of the material that we have collected.

From May to July 2019, the first author has conducted visits at four different nursing homes where the teleconsultation solution has been installed. The visits have been arranged with the support of the doctor in charge of the MyGHT project, who has provided us with a contact person in charge of MyGHT Télémédecine at each institution (the head of the nursing home or a coordinating doctor, depending on the case). Through observation and interviews, our visit allowed us to gather information about the reception of MyGHT Télémédecine following its installation and the current working status and material arrangement of the teleconsultation solution.

The topics addressed in the interviews were the history of the teleconsultation project at the nursing home (project enrolment and local needs), the installation and technical configuration of the solution, the current use by the staff (i.e., how is the decision of practicing teleconsultation made? Which pathologies are concerned? How is a teleconsultation scheduled and conducted?), as well as the future evolution of telemedicine

in the nursing home. In one case, we were able to follow a teleconsultation with the agreement of the patient and staff.

The visits lasted from thirty minutes to two hours. Detailed field notes have been written just after the visit, or the following day.

As mentioned already, the four nursing homes (figure 3) among the forty-nine in the GHT territory have been chosen after discussion with the doctor who leads the MyGHT project with the willingness to include both nursing homes in which the deployment is considered successful (VSB and ASA in table I), and nursing homes in which few or no teleconsultation have been conducted so far (BSS and BSA in table I).



Figure 3. The localization of the Troyes hospital (in red) and the four visited nursing homes (nursing homes attached to a local hospital are figured in yellow).

Table I. The visited nursing homes (TC = teleconsultation).

Nursing home name	Size of the institution (in beds)	Contact person role	Is close to a local hospital?	Date of the 1st TC	Number of TC in 2018
VSB	72	Head of the nursing home (former nurse)	No	2018-04-30	47
ASA	108	Head of the nursing home (non-medical staff)	No	2018-11-20	1
BSS	205	Coordinating doctor	Yes	--	0
BSA	130	Coordinating doctor	Yes	2018-07-17	1

## VSB

Situated 36 km East from Troyes, Vendevre-sur-Barse is a 2300 inhabitants' village. The nursing home is part of an international for-profit private group (102 institutions in France, 10 in Italy, 11 in Spain, 2 in China). Twenty-eight among the 72 accommodations in this nursing home are dedicated to people with advanced dementia (ADRD: Alzheimer's disease and related disorders) and 4 to short-term stays. The first floor is called "the Village center", with some tables imitating a sidewalk cafe and a free to use coffee maker is available for everyone (residents, families, workers).

We started with a thirty-minute semi-structured interview with the general manager and the telemedicine referent nurse in a meeting room. Then, we attended a 23 minutes' teleconsultation for a non-healing pressure ulcer. Third, the general manager showed us the institution around.

## ASA

Situated 37 km North from Troyes, Arcis-sur-Aube is a 2800 inhabitants' village. The nursing home is an independent public institution composed of 108 accommodations, including 14 for ADRD. Furthermore, it includes a service that delivers nursing care at home (46 beds). Nurses and assistant-nurses go to patient's homes to practice everyday nursing care.

A 35-minute semi-structured interview with the nursing home's general manager was conducted in his office. No telemedicine consultation occurred when we met, so he just showed us his telemedicine equipment.

## BSS

Located 32 km South-East from Troyes, Bar-sur-Seine is a 3000 inhabitants' town. Including ten short-term beds, 22 long-term and rehabilitation beds, and two nursing homes with 205 beds (counting 21 ADRD beds) that are public institutions. Bar-sur-Seine hospital, which is part of the GHT, is key for the local healthcare infrastructure. This hospital only works with healthcare practitioners with a private practice. It is a classic operating mode for small hospitals that cannot afford permanent practitioners. Because of this organization, the nursing home has issues finding available practitioners for their residents.

A 46-minute semi-structured interview took place with the coordinating doctor and one of the two health managers in the health manager's office.

## BSA

Located 60 km East from Troyes, Bar-sur-Aube is a 5000 inhabitants' town. The local hospital offers 30 long-term care beds, 30 rehabilitation beds, a 130 beds nursing home (including 14 ADRD beds), an Emergency and Resuscitation Mobile Service, a conventional radiology unit, and offers a wide range of external consultations (cardiology, neurology, general surgery, ORL...).

A 20-minute semi-structured interview with the coordinating doctor took place in his office.

## Findings

In what follows, we use the four stages of the domestication framework to present the reception of MyGHT Télémédecine at different nursing homes. It is worth noting that the design and the deployment of the teleconsultation solution did not consider the specific work practices of the nursing home we have followed.

### Stage 1: Appropriation

As a follow-up of the success of MyGHT Télémédecine experiment, the local government, and the Regional Healthcare Agency (RHA) funded the nursing homes to be equipped with the “MyGHT Télémédecine” technical solution.

The process is the following: the nursing homes which decide to put in place teleconsultation contact the MyGHT Télémédecine service provider to order the equipment and set up the system. Among the four nursing homes we have studied, two of them have spontaneously requested to join the project (VSB, BSS). The other two (ASA and BSA) have accepted to join the project after the leader of the MyGHT Télémédecine project insisted on their interest in joining the project.

The RHA gives 14k euros for each nursing home participating in the project. After purchasing the equipment (that costs less than 5k euros), the nursing home receives half of the amount (7k euros), and the RHA gives the second half at the end of the year at the condition that the nursing homes have scheduled 50 teleconsultations.

The number of 50 teleconsultations is an unrealistic goal (see Table 1) that was not clear for the nursing homes before they engaged in the project. As the coordinating doctor of BSS puts it:

“We had to start the experiment very quickly to get funding from the RHA. Besides, the proposal was not honest: we were given full funding on the condition that we would carry out 50 TCs between April and December!”

VSB nursing home is situated 40km away from Troyes hospital, an area that lacks medical care. Therefore, they saw the telemedicine project as an opportunity for better continuity of care for their residents. Besides, two of its three general practitioners (GPs) were about to retire, and the general manager did not find new ones for patients' follow-up and prescriptions, thus, she asked spontaneously to join the project. As the head of the nursing home of VSB puts it:

"We started (the teleconsultation project) out of need. In mid-2017, out of the three general practitioners following our patients, we knew that two had planned to retire in August 2018. We would, therefore, have one general physician and a half-time coordinating practitioner left. We had heard about a telemedicine project in preparation with the hospital of Troyes; we went to meet them."

As ASA nursing home has similar geographic limitations, the leader of the MyGHT Télémédecine project offered them to join. They were not lacking GPs but specialist doctors, so they agreed to try out the solution.

BSS and BSA are two nursing homes linked to their own local hospitals. General practitioners with private practice and specialists from the local hospital can see the nursing home's residents when needed. Therefore, the heads of these nursing homes have expressed few needs for the teleconsultation service offered by Troyes' hospital (apart for dermatology for BSS).

All the nursing homes bought (with the financial support of RHA) the basic package including a laptop with an integrated microphone, a couple of webcams, antivirus software, and a printer.

## Stage 2: Objectification

In VSB nursing home, telemedicine consultations take place at the infirmary or at the resident's room. To ensure privacy, nurses place a warning sign "teleconsultation in progress, do not disturb!" on the door. Wi-Fi connection issues occurred, so a 4G Internet dongle has been installed that allows telemedicine consultations everywhere in the nursing home.

ASA followed the same strategy as VSB, but we noticed when we came to visit the nursing home that the trolley for the telemedicine equipment was in storage for medical furniture, behind a vacant desk.

BSS and BSA both dedicated a room to telemedicine consultations. The residents must come to the "digital medical office" for their teleconsultations. Some of them needed a nurse with a stretcher-bearer to bring them to the room.

### Stage 3: Incorporation

In 2019, VSB organized 92 teleconsultations (47 in 2018), ASA only 2 (1 in 2018), and BSS and BSA only one (in 2018, 0 for BSS and 1 for BSA). Thus, VSB was finally the only nursing home we have seen, which has succeeded in routinizing teleconsultation and completing the incorporation stage.

We are now going to describe a case that we observed in VSB: A patient was suffering from a not healing pressure ulcer after two weeks of care. A nurse then decided to launch a telemedicine consultation with a surgeon from the hospital: She then scheduled an appointment directly into the surgeon's digital calendar. On the morning of the appointment, the nurse switched on the laptop, tested the connection and the equipment, and ensured that the surgeon accepted the appointment (or did not cancel it). On the 28<sup>th</sup> of May 2019, we attended this teleconsultation. The patient was sitting on a comfortable armchair in the infirmary, in front of the laptop (placed on a trolley). Waiting for the surgeon in an online waiting room, two nurses and a student were discussing the workflow of the teleconsultation. The referring telemedicine nurse said: "Before the surgeon comes in, you have to remove the bandage and read the medical record. Even if she can read it online, she always asks you to introduce the patient". The consultation lasted for 23 minutes, which included several connections and webcam troubles, and only 9 minutes of actual consultation time. The surgeon gave some recommendations on how to improve the healing of the pressure ulcer and added these recommendations to the medical record of the patient. Nurses ended the consultation and put back the bandage while administering the surgeon's advice. The nurses booked another teleconsultation for monitoring purposes in three weeks.

In the case of ASA, to accommodate the potential teleconsultation, the nurses have changed the organization of their work so that two nurses are always present in the nursing home during the day, whereas only one is there during the night. Then, if a teleconsultation happens, one of the two nurses can participate while the other one can still take care of the residents. However, for ASA's general manager, the telemedicine project rolled up too quickly with low quality but expensive equipment, so the telemedicine consultations did not become a daily practice. For him, the equipment is "absolutely not ready". We should prepare ahead for teleconsultations as the computer takes one hour to turn on and the update of the system is too complicated.

In the case of BSS, where two nursing homes are attached to a small hospital, a room has been dedicated to the teleconsultations. So, as we mentioned, a nurse is supposed to help the patient to reach the consultation room and to stay in the room for the whole teleconsultation. However, when the coordinating doctor of the nursing home saw a nurse using a stretcher-bearer to bring a patient to the "digital medical office" for teleconsultation he decided to stop the experiment saying, "this is not her job!". This simply ended the nursing home tentative to incorporate the teleconsultation solution.

Finally, in the case of BSA, a nursing home attached to a small hospital, a room next to the emergency service was dedicated to the teleconsultation, as the teleconsultation is planned to avoid the transfer of the patient to the major hospital in Troyes. This organization also requires carrying the patient to the consultation room.

In the case of BSS and BSA, the nursing homes share medical health actors with their attached hospitals. Thus, in both cases, the interviewees mentioned the lack of medical time (mainly nursing time) necessary to engage in the teleconsultation. For the interviewee of BSS (Coordinating doctor)

"We are already running out of medical time... Also, the doctor has to be present during the teleconsultation, which is a considerable waste of time. There is no protocol."

From the beginning, BSS and BSA have stated that the service does not match their demand: Troyes' hospital offers telemedicine consultations while BSS nursing home would prefer telemedicine advice (tele-expertise: where a doctor asks for another doctor advice for a patient's case). As the coordinator doctor of BSS puts it:

"the specialties offered were not aligned with our needs: we needed teleconsultation in dermatology. For 5 minutes of consultation (physical, classical), there is one hour and a half of preparation. It is necessary to write a letter to the dermatologist to explain what we need, but we are not in front of him, we cannot speak directly with him. So, we thought it would be more comfortable with telemedicine. "

Once a month, a dermatologist, a neurologist, and a surgeon come to BSA's hospital, so the nursing home does not need teleconsultations with specialists from Troyes' hospital. the coordinator doctor of BSA highlights this fact:

"The problem is that the telemedicine offers duplicates to our advanced hospital consultations. The benefit is unclear. We are a local hospital with an imaging service (radio, echo, mammography), a Mobile Emergency and Reanimation Service, a mother/child center, a psychiatry unit, a planned day hospital, and a network... Here we are not an isolated nursing home."

Once again, the service does not correspond to the need. When we asked the coordinating doctor in BSA if we can have a look at the dedicated consultation room, he answered: "I don't even know where the key is!". Incorporation in those nursing homes failed for the moment.

## Stage 4: Conversion

The fact that the project improved access to specialists from Troyes' hospital but not to general practitioners, VSB nursing home joined another telemedicine project using the same technology. They also responded to a call for projects from the RHA to become a public access center in which fragile people living at home could come for teleconsultation, instead of having to go to the hospital for a face to face consultation. They wrote a proposal, but the RHA did not agree to fund it, so the project stopped.

ASA is also considering the opening of the nursing home to the public so that any citizen could benefit from the teleconsultation service, but the general manager would like to buy a better laptop or even a tablet and accessories. For now, because of an internal reorganization, he stopped working on this topic. For now, BSS and BSA are waiting for a need's analysis. They have put the project on pause because MyGHT Télémédecine does not fit their current needs.

## Discussion

Observing these different situations, we are interested in examining how does the high-level discourse on equal access to healthcare impact the current deployment of a telemedicine solution, and in particular, to look at the role of policy in supporting the adoption of teleconsultation.

In terms of the domestication process, the four nursing homes we have observed have reached the objectification stage, which highlights that the RHA-East and GHT policy and funding supported the nursing homes in acquiring and installing the teleconsultation solution. However, only one of the four nursing homes we have studied (VSB) is regularly organizing teleconsultations.

Our findings show that the policy of equal access to healthcare triggered the initiation of the domestication process of the teleconsultation. In fact, for East-RHA, funding nursing homes to join MyGHT Télémédecine was a way to locally transpose the national political discourse about equal access to healthcare. Furthermore, The East-RHA tried but failed to force the incorporation and conversion steps by conditioning the payment of half of the funding with the execution of fifty teleconsultations in three months for each nursing home.

We argue that each case differed based on how the discourse of the policy promoted by the GHT resonated with their ambition to be part of the healthcare system.

Nursing homes mainly offer residential services for fragile people. Placing the telemedicine technology at the nursing home requires that the role of the nursing home evolves so that it becomes a partner in the provision of healthcare. Thus, while nurses in the nursing homes are used to take care of medical issues by organizing transfers to emergency services or by organizing specialist consultations, they never take part in any way in the medical act. However, with the use of telemedicine technology at the nursing home, they start playing this active role in the medical act, in our case, the consultation.

As we described above, the deployment of teleconsultation was conducted in a top-down manner, starting with expectations of East-RHA to improve healthcare in nursing homes. These expectations required nursing homes to adapt their work organization, which impacted the process, practice, and space. In ASA, the nurses changed the shifting organization, in the four places, nurses faced additional tasks like accompanying the patient the whole time of teleconsultation or helping the patient to reach the consultation room (in



BSS and BSA). In BSS and BSA nursing homes, a room was created for teleconsultation to take place.

Our findings also show that the need for teleconsultation is not homogeneous and depends on the local organization of healthcare. For instance, in VSB, they lack general practitioners. In contrast, in ASA and BSS, they rather lack specialist doctors, mainly dermatologists, and psychiatrists (not currently covered in MyGHT Télémedecine). Moreover, for BSA, the current offer of teleconsultation seems redundant with the service they already offer to their residents.

The use of the domestication framework allows us to analyze the difference in the effort put into integrating teleconsultation in the four cases. Initial observations suggest that there may be a link between the political discourse about the access to healthcare and the reception of the teleconsultation solution by the nursing homes.

In the case of VSB, the actors do not consider themselves as healthcare providers. They perceived the policy that promotes equal access to healthcare as a way to offer new services to their residents by becoming a partner for healthcare. Using telemedicine at the nursing home allows them to be proactive with solving the problem of accessing care and thus suffering less from being located in a rural area. This vision incentivized them to provide the necessary effort and thus to domesticate telemedicine. The head of the nursing home of VSB insisted in the interview that:

“nursing homes are evolving to become a new “hub” in the territories (like the post offices used to be before they closed) and that (telemedicine project) it is an essential step for them to become local health and medico-social relays”.

The head of the nursing home endorses the idea that teleconsultation gives access to healthcare, and his willingness to open his institution to the public emphasizes that this nursing home is becoming a genuine partner for healthcare, going beyond providing accommodation services solely and acting as a proxy for healthcare. This vision aligns with the political discourse on equality of access to healthcare.

In the cases of BSS and BSA, the main invoked reason for not using the teleconsultation solution is the lack of relevant specialist doctors. However, as the other nursing homes are also facing this issue, we hypothesize that being attached to a local hospital did not lead them to envision the use of teleconsultation as a way to become more effective as a partner for healthcare. The professionals in these nursing homes already consider themselves as part of the healthcare system, as they already work across the local hospital and the nursing home.

Finally, in the case of ASA, more time is needed regarding their ambition to become a public center for teleconsultation as they have joined the project lately.

In summary, in terms of domestication process, the four nursing homes we have observed have reached the objectification stage, which highlights that the RHA-East and GHT policy and funding supported the nursing homes in acquiring and installing the teleconsultation solution. However, only one of the four nursing homes we have studied (VSB) is regularly organizing teleconsultations.

Indeed, in this case of successful domestication, the head of the nursing home is convinced by the idea that teleconsultation gives access to healthcare, and his willingness to open his institution to the public emphasizes that this nursing home is becoming a genuine partner for healthcare, going beyond providing solely accommodation services.

These preliminary findings start contributing to the CSCW literature on the appropriation of technology as “the way in which technologies are adopted, adapted and incorporated into working practice” (Dourish, 2003, p. 466). Our contribution is related to the first step of the domestication process, and the importance of policies in the future incorporation of technology in existing work practices. This work will, of course, go on. Still, our preliminary results of this region-wide deployment of a teleconsultation solution in nursing homes already contribute to the study of the complex interplay between policy, technical systems development, and social practice (Jackson et al., 2014; Centivany, 2016).

## Conclusion

The research work reported here deals with the relationship between healthcare policy and technology adoption, and to what extent they impact and influence each other. The MyGHT Télémédecine solution has been developed within the context of a policy aimed at providing equal access to healthcare by providing a way to ease access to specialist doctors through teleconsultation. In this paper, we have presented preliminary results of our observation of the domestication of MyGHT Télémédecine in four nursing homes. These are the first steps in enlightening the way a healthcare policy can incentivize the use of a teleconsultation service.

MyGHT Télémédecine continues its deployment, and our study and fieldwork are ongoing. In the next steps, we plan to expand our fieldwork with several other nursing homes. We want to investigate further the link between policy and technology domestication, not only from the perspectives of the head of nursing homes but also from different professions’ perspectives (in particular the nurses and orderlies). For instance, the doctor in charge of MyGHT Télémédecine presents teleconsultation and easier access to specialists as a way to initiate a shift in practices towards a more preventive approach to healthcare, which could avoid the request to costly emergency care. We will also investigate the teleconsultation practices of the specialist’s doctors at the hospital.

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