Medical fiction,
Design friction

Exploring the political power of design fiction on telemedicine

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design research dissertation
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Preface

17/04/2028, 5:44 PM
— Please, enter your symptoms.
I typed clumsily on the touchscreen keyboard: “sore throat”.
The booth answered me instantly.
— Intensity of discomfort?
At the same time, a graduated scale from 1 to 10 appeared on the screen.
— 6.
— Your answers have been taken into account. You will now see a series of adverts. Select the ones that match with your symptoms.

When the exercise was completed, and when I thought I was finally getting to my consultation, my prescription was printed before my astonished eyes. The interface asked me to give a score out of 5 stars to the quality of my appointment, indicating that it had indeed been completed.

19/09/2031, 8:21 AM
For some time now, I had noticed a new large mole on my shoulder. I had been thinking about consulting a doctor about it for a while, but I had to wait until I had enough points to see a qualified doctor. Today, with my 137 points, I can finally teleconsult.

— Reason for teleconsultation?
— Medical dermatology.
— General practitioner (less than 4 stars): 90 points
General practitioner (4 stars and more): 125 points
Dermatologist: 180 points

I chose the second option, hoping that I would not get sick again or I would have to pay myself for future appointments.

24/10/2034, 11:17 AM
— Reason for teleconsultation?
— Pregnancy monitoring.
— How many months pregnant are you?
— 5 months.
— How much weight have you gained since your pregnancy?
— Around 12 lbs.
—Your answers have been taken into account. We are looking for a specialist.

A loading bar floated on the screen for ten minutes, then the face of a mature woman replaced it.

— Hello, I notice that you've suddenly gained weight over the last 5 months. Have you just stopped dieting? Or is it linked to a period of stress? I'd also like to know whether you do any regular exercise.

Uncomfortable with her irrelevant questions, I was looking for an answer when I saw a short banner at the top of the screen: Vivien Holmes, nutritionist.

These three scenarios illustrate some of the threats we foresee in telemedicine. Indeed, because of the shortage of doctors and their uneven distribution across the country, many patients have to turn to these digital alternatives to maintain a health care pathway. However, the new nature of patient-doctor interactions through digital technology and the commodification of healthcare raise ethical and political questions. As a consequence, we plan to use design fiction to raise awareness among public authorities about the risks hanging over our health and private lives, but also about the fair conditions of access to health care in the face of companies that are gaining power and of interactions that are becoming digital.

Sommaire

Introduction

Between 2019 and 2024, the number of users of online medical consultations in the world more than doubled, from 57 million to 116 million.[1] According to the WHO, although digital tools have developed in recent decades, it is the Covid-19 pandemic that catalyzed the practice of telemedicine. In particular, it ensured the continuity of health services during periods of restricted mobility and treated populations living in remote areas.[2] Telemedicine can be defined as "The delivery of health care services, where distance is a critical factor, by all healthcare professionals using information and communications technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and the continuing education of health care workers, with the aim of advancing the health of individuals and communities."[3] However, even if this practice helps to equalize the distribution of doctors across the territories, it also has drawbacks. First, it may damage the patient-doctor relationship because communication is more difficult. Second, by outsourcing consultations, the risk of data leaks increases. In addition, this solution is unequal because it excludes people who have difficulty with digital tools. Finally, the development of digital technologies is harmful to the environment. While design does not have the power to increase the number of doctors, it can nevertheless foster debate on the desirability of the proposed solution: telemedicine. Indeed, design fiction is a creative approach that aims to question and imagine possible futures. It is a tool for dialogue. Rather than just focusing on innovation, it proposes speculative scenarios, sometimes utopian or dystopian and sometimes balanced, to explore the impacts of these innovations on society. Design fiction often takes the form of prototypes, films, objects or exhibitions that enable us to visualize these imagined futures, thus facilitating critical reflections and discussions regarding the choices to be made today. So, to what extent can design fiction alert public authorities about the dangers of the development of telemedicine?

Firstly, we will study a dystopian design fiction project that confronts the point of view of a patient with that of an insurance company. Then, we will be looking at a project that is technically feasible, but that disturbs political choices and our morals.

1. Conor Stewart, *Telemedicine - statistics and facts*, Statista, 2024

2. *Consolidated telemedicine implementation guide*, World Health Organization, 2022

3. *Global strategy on digital health 2020-2025*, World Health Organization, 2021,

I. Dystopian vision as a warning:
How does design fiction prompt debates?

I. Dystopian vision as a warning:
How does design fiction prompt debate?

The National Health Service is the United Kingdom's public health system, established in 1948 to ensure universal access to medical care, regardless of income. Its funding is just based on taxes. Patients do not have to pay directly for visits to general practitioners or hospitals. However, some services, such as prescriptions or dental care, require small payments. Patient identification is done by a unique number assigned to the patient via their general practitioner. The NHS covers almost the entire population without the need for supplementary insurance to access care. Nevertheless, a private sector offers faster or more specialized services to those who can afford them. Today, the NHS is in a major crisis: an underfunding has deepened the problems of staff shortages, facilities are dilapidated and there are long waiting times. Demand is increasing, partly due to both an ageing population and the increasing complexity of medical needs. This situation is exacerbated by staff strikes and widespread burnout. We can notice that underfunding is linked in particular to the financial crisis of 2008. British governments, in particular that run by David Cameron, imposed a strict austerity policy, limiting the growth of public budgets, including that of the NHS. So, in response to the shortage of medical staff leading to long waiting times, and following the covid-19 pandemic which imposed physical restrictions, the government and the NHS have invested in digital platforms to guarantee continuity of care. But this system contributes to financializing the health system because the platforms are managed by private companies. They can charge for services, turn the patient into a customer and prioritize profits over equitable access to care. So, let's look at a dystopian design fiction project that questions the rise of technologies in a context of commodification of care.

Dynamic Genetics vs Mann[4] is a design fiction project created in 2013 by the english design studio Superflux. It was commissioned by the Design Interactions Research Department at the Royal College of Art, and was realised as part of Studiolab; a three-year initiative funded by the European Commission.[5] This project critically explores the social, ethical, and economic implications of synthetic biology and gene therapy. The project takes the form of a mock trial with a view to imagining a future where genetic data plays a central role

4. Superflux, *Dynamic Genetics vs Mann*, 2013

5. Indeed, the project was commissioned and designed well before Brexit. As a reminder, the referendum that asked British citizens about their desire to leave the EU took place in 2016 and the country officially left the union in 2020.

Fig. 1 Superstudio, *The Continuous Monument:* On the River, 1969

Fig.2 Superflux, *Dynamic Genetics vs Mann*, 2013, Arnold Mann during his interrogation.

in the development of healthcare and insurance systems. The story follows Arnold Mann, an ordinary citizen whose health insurance premiums are rising. Indeed, after undergoing a mandatory genetic test conducted by a fictional national health insurance system, he is revealed to have a high probability of suffering from a chronic illness. Because he is unable to afford the high premiums or private treatments, Mann turns to an underground market for illegal gene therapy. Dynamic Genetics, a biotech company that controls patented genetic materials, discovers the deception and sues him. Thus, the project takes the form of an immersive exhibition, featuring evidence such as tissue biopsy samples, surveillance footage, genetic search warrants, and makeshift medical devices. In an email exchange one of the designers presented their approach as follows: "In this project we were exploring how new technologies find their way into the marketplace and have unintended consequences. We also wanted to explore the relationship between the medical industry, the legal industry and government. And How the relationship of these large bodies can impact

individuals' lives in unexpected ways." The project has been shown three times at exhibitions. It has also been presented more briefly at conferences held by the designers behind the project in order to present their approach. Finally, it is accessible on the design studio's website. In terms of the audience the project was meant for a design and art crowd but it was hoped that it would also be seen by policy makers.
The form of the project - photographs of evidence available to investigators - makes it special. It is a way of blurring the line between reality and fiction and immersing the viewer in a credible experience. In addition, it stimulates the minds of the viewers who must themselves reconstruct the scenario from the snippets provided by the designers. In this way, they are involved and immersed in the project. As the viewers are required to interpret proof, they are put in the shoes of the investigators, like in a role play. This avoids passivity and, instead,

Fig.3 Superflux, *Dynamic Genetics vs Mann*, 2013, facade of the Dynamic Genetics building.

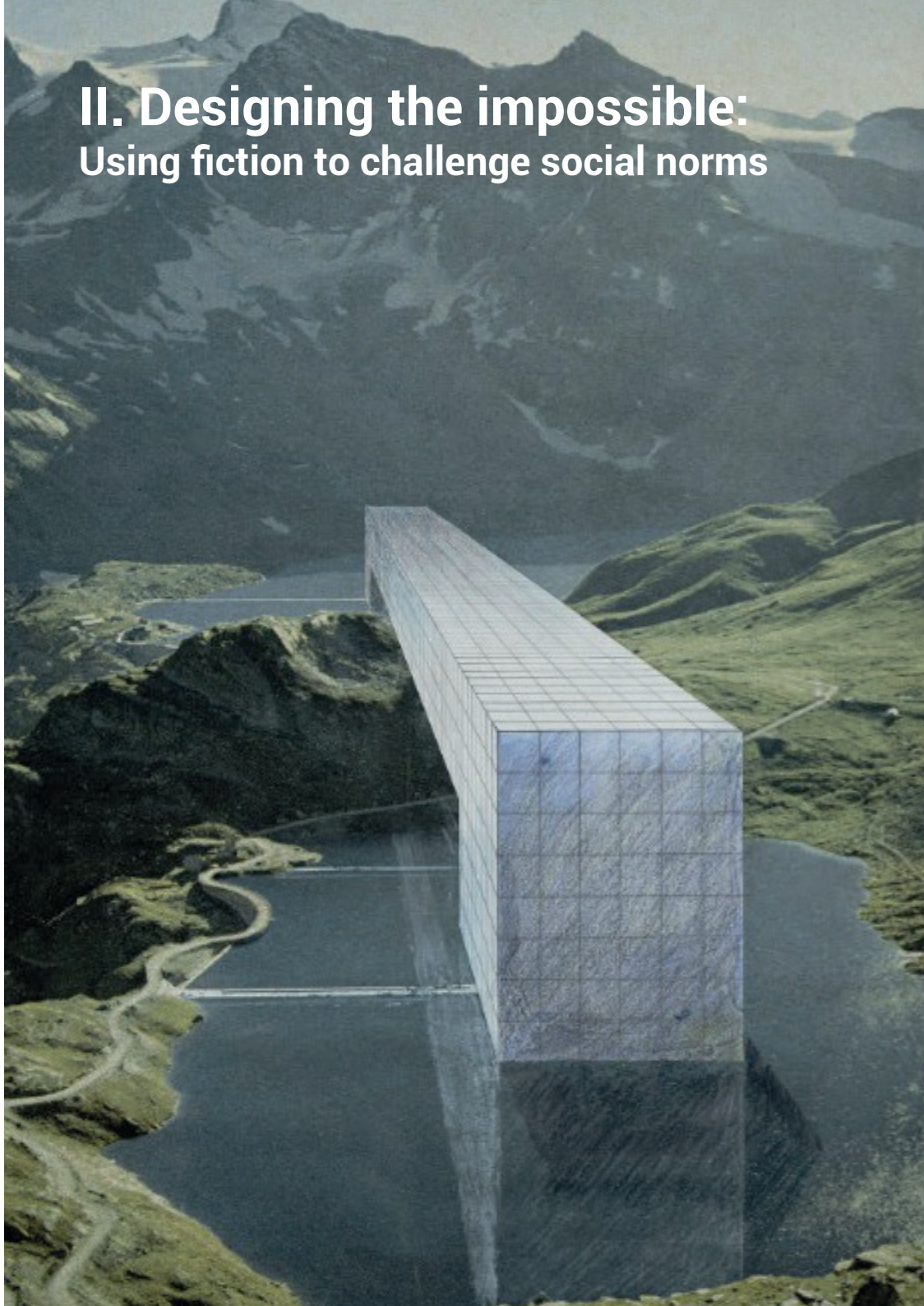
creates a situation active participation that encourages people to take a stand. Furthermore, in order for the viewers to understand the role of the photos as evidence, it was crucial to adopt the codes of investigation through framing, lighting and staging. Thus, the light source is often cold and artificial, white or bluish, which evokes the environment of a laboratory. This accentuates the impression that the photos are factual and objective documents. Then, the framing is tight and precise: the viewer knows what to identify in the photographs. In addition, the perspective is frontal. Once again, this conveys a feeling of neutrality, objectivity and distance from the subject. There is no emotional or artistic intention. The photos are obviously staged in a realistic manner: the environment is mostly white because we are in a laboratory, the furniture is covered to avoid any contamination of the evidence by external DNA, the protagonist appears anxious and tired. Nevertheless, we can notice that

Fig.4 Superflux, *Dynamic Genetics vs Mann*, 2013, evidence used during the Dynamic Genetics vs. Arnold Mann trial.

the designers have made an effort regarding the color palette, probably to guide the viewer's gaze. Yellow, red and blue intervene punctually through lighting, crime scene evidence markers or, for example, inscriptions. This creates a rhythm in the image to maintain the viewer's attention. Finally, let us note that the judicial register allows us to qualify the statement by proposing the arguments of both parties. The designer is in a position of impartiality so that his target can construct his own opinion.

To conclude, projects like *Dynamic Genetics vs Mann* can alert public authorities to the dangers of telemedicine by simulating scenarios where these technologies have a negative impact on society. By imagining a future where genetic and medical data are exploited for commercial purposes, the project highlights the risks associated with surveillance, privatization and medical discrimination. This approach makes it possible to make complex and abstract problems tangible, in this case by materializing them in the form of fictitious evidence. Policy makers are thus invited to reflect on the ethical, legal and social implications of the financialization of the health system. By provoking a critical debate, design fiction plays a preventive role and raises awareness. What's more, because it reveals worrying excesses such as the loss of confidentiality or the commercialization of medical data, the Superflux project presents a rather dystopian scenario. This enables it to provoke criticism and encourages viewers to question the systems in place in order to consider more ethical alternatives.

II. Designing the impossible:
Using fiction to challenge social norms



II. Designing the impossible:
Using fiction to challenge social norms

As we have seen with *Dynamic genetics vs Mann*, design fiction can take the form of dystopian scenarios that make the public become aware of plausible threats in dark futures. We could imagine a scenario based on the same levers about telemedicine. This approach would make it possible to target public authorities so that they make decisions while being aware of the latent dangers. However, this dystopian approach can have the following flaw: it exaggerates a situation to push it to the extreme but, this can represent a brake. Indeed, design fiction may deter decision makers who might consider it as irrelevant because too far from reality.

So, another strategy could consist in creating scenarios using fictitious but technically feasible projects in order to be more convincing for the audience. For instance, this is the case of *Afterlife*, a project imagined by the british design duo Auger and Loizeau.[6] These designers confront two issues: on the one hand, the challenge of producing energy to meet the increasing demand, and on the other hand, the growing atheism and its repercussions on the way we perceive the bodies of the deceased. The result is a project that envisages using the gastric juices of the deceased to make electric batteries. In this way, *Afterlife* invites us to discuss a social issue: the rational and scientific approach to life after death.

Therefore, this project aims to convert the energy from the decomposition of cadavers into electricity via a microbial fuel cell: a device that uses a chemical reaction to generate electricity from organic matter. The body is placed in a coffin designed for the project, and decomposes thanks to bacteria. The decomposition releases electrons that are captured by the electrodes of the coffin. The microbial fuel cell converts the electrons into electric current. This electricity can then be stored in a dry cell battery. It has the particularity of being able to be stored for a long time because it does not present any risk of leakage like wet or liquid batteries. It is also lighter and more compact, so more mobile. The interest of this project is to offer to future deceased people a form of reincarnation, by powering devices thanks to the energy that their decomposition has produced, which is likely to help their loved ones to grieve.

Indeed, for those who have no religion, those who do not believe in life after death, mourning can be difficult to accept.

6. Auger and Loizeau, *Afterlife*, 2009

Fig.5 Superstudio, *The Continuous Monument:* Alpine Lakes, 1969

Fig.6 Auger and Loizeau, *Afterlife*, 2009, 3d modeling of the coffin.

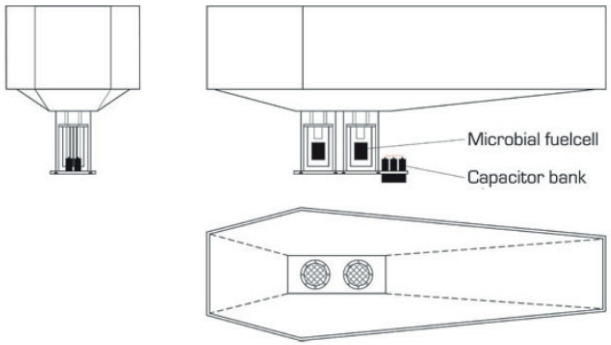


Fig.7 Auger and Loizeau, *Afterlife*, 2009, Technical plan of the coffin.

7. Harriet Sherwood, *Why is the Christian population of England and Wales declining?*, The Guardian, 2022

Especially since there is no real ceremony to organize the passage from life to death for deceased atheists. For the believers, there are not too many questions: heaven or hell. But for the more rational people, it is the void, the simple and definitive disappearance. And that is not reassuring. If *Afterlife* offers a solution, it however disrupts our morality by the perception of the very biological and functional body that it summons. It desacralizes the body of the dead. In addition, it is important to note that even if Great Britain is cosmopolitan, it is culturally very linked to Christianity. Indeed, the British monarch is also the head of the Church of England. Nevertheless, today the Christian population of England and Wales is a declining minority: "According to the most recent census data, taken in 2021 and published this year, 46.2% of the English and Welsh population say they are Christian, a decline of 13.1 percentage points since the last census in 2011."[7]

The desacralization of the body proposed by Auger and Loizeau is all the more marked as they allow themselves a morbid humor in their project. Thus, the battery used as an example in the project is engraved with the epitaph "John Adams, 1959 - 2001, Shine on Dad". Other touches of more touching humour are also present in the objects people choose to be reincarnated in. Indeed, the duo interviewed 15 couples and families to know what device "their" batteries would operate. One person answered (a battery for) an electric toothbrush, in memory of the kisses and mockery addressed to their partner about a possible bad breath. Another one would like to be part of a remote-controlled plane to perform a show. Another one prefers to power a euthanasia machine so that their romantic partner does not suffer from loneliness. Finally, we can cite the example of a person who wants to make a final trip in a red helium balloon that would carry a camera filming his loved ones saying a final goodbye.

Fig.8 Auger and Loizeau, *Afterlife*, 2009, Dry cell battery.

If designers allow themselves these crazy uses, it is because they reflect a very personal choices on users' part. These devices continue to transmit the temperament of the deceased, their last wishes or relaunch, post mortem, a private joke. However, if these wishes may seem anecdotal, and therefore weaken the credibility of the project, this is not the case with the coffin that is presented in a very rational way. The stainless steel, the lack of ornament, the detailed transformation machinery are realistic choices that agree with their scientific and technical language.

Ultimately, Auger and Loizeau's *Afterlife* project mixes different tones to get their message across: we can offer a form of life after death for atheists and we must consider every available resource, including the bodies of the dead.

So the designers use credible scientific explanations to explain how their juice-extracting coffin works, along with a rational, simple and effective aesthetic. At the same time, they draw on the touching humor of those who wish to reincarnate or on their pragmatic wishes to communicate the very personal nature of their project. Finally, they play with their epitaphs with a morbid sense of humour, to shake up the conscience and probably capture the viewer's attention.

This design fiction project could be aimed at decision-makers. First, like with telemedicine, the subject affects absolutely everyone. We are all faced with death (ours and that of our loved ones) and the growing demand for energy impacts all of us, both economically and environmentally, so it is a social issue. Then, the project could be technically feasible, which bans arguments questioning the technical credibility of the device. Finally, they highlight the fact that the only limit to the credibility of this project is our morality, and prove that there is no need for it. It allows us to combat preconceptions and simply places the spectators in front of a fait accompli. On the other hand, we can wonder whether, precisely, placing the spectators in front of the facts may not risk alienating them, unlike projects such as *Dynamic Genetics vs Mann* which, on the contrary, prompt a discussion.

Fig.9. Auger and Loizeau, *Afterlife*, 2009, euthanasia machine powered by a deceased person's battery.

Fig. 10. Auger and Loizeau, *Afterlife*, 2009, toothbrush powered by a deceased person's battery,

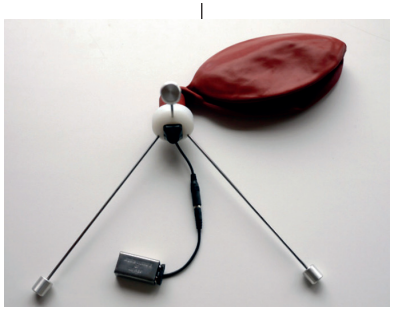


Fig. 11. Auger and Loizeau, *Afterlife*, 2009, helium balloon carrying camera powered by deceased's battery.

Conclusion

Thanks to our research, we can confirm that design fiction is a tool to alert public authorities to the consequences and threats of telemedicine. However, a paradox could alter its effectiveness in its ability to provoke a debate: should we exaggerate to alert, with the risk of losing credibility, or should we remain realistic, even if it means offending and shocking public opinion? On the one hand, *Dynamic Genetics vs Mann* proposes a dystopian future that invites reflection. The project functions as a warning: it imagines a world where synthetic biology serves logics of control and profit, an exaggeration that, although effective in provoking discussion, could be dismissed as a future that is not imminent enough. On the other hand, *Afterlife* is based on a technically plausible basis and directly confronts the viewer with a fait accompli: if such a project can exist, why not adopt it? But this radical approach that confronts us with our morality risks putting off its audience by preventing them from questioning the validity of the device. This paradox highlights a fundamental dilemma of design fiction: a project that is too speculative can be perceived as mere fiction with no impact on reality, while a project that is too credible may short-circuit the debate by seeming too obvious. Nevertheless, in both cases, the strength of design fiction lies in its ability to materialize a future, in order to sound the alarm as to present a solution.

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Fig.1 Superstudio,
The Continuous Monument: On the River
1969, cut-and-pasted printed paper, colored pencil, and oil stick on board, MoMA, 43.8 x 40 cm
Credit: gift of The Howard Gilman Foundation
<https://www.moma.org/collection/works/934>

Fig.2 Superflux,
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Fig.3 Superflux,
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Fig.4 Superflux,
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Fig.5 Superstudio,
The Continuous Monument: Alpine Lakes
1969, cut-and-pasted printed paper, colored pencil, and oil stick on board, MoMA, 45.7 x 47 cm
Credit: gift of The Howard Gilman Foundation
<https://www.moma.org/collection/works/937>

Fig.6 Auger and Loizeau,
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Fig.7 Auger and Loizeau,
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Fig.9 Auger and Loizeau,
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Fig.10 Auger and Loizeau,
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Fig.11 Auger and Loizeau,
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Telemedicine fundamentally impacts access to care, but its implications go beyond simple technical progress. Between promises of efficiency and risks of commercialization, it raises ethical and societal issues that public authorities cannot ignore.

Design fiction, by staging possible futures, offers them a tool to anticipate these changes. However, its effectiveness is based on a fragile balance: on the one hand, dystopian scenarios deliberately exaggerate the excesses to spark debate, but may lack credibility; on the other hand, realistic and technically plausible projections confront decision-makers with a fait accompli, which may put a halt to any discussion instead of prompting a debate.

This thesis explores this paradox and questions the designer's field of action to raise awareness among public authorities about the health system crisis that is looming.