## Navigating the Rhizomatic Revolution in E-Healthcare Access in France in the Post-2021 Era

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#### **ABSTRACT**

France's healthcare system is undergoing a significant digital transformation, exemplified by the Health Ségur initiative, which focuses on the digital revolution. This shift is revolutionizing access to medical information, improving efficiency, and streamlining healthcare processes. Emphasizing patient-centric care, this evolution integrates advanced technologies like telemedicine and Al diagnostics, reflecting a global trend

towards technologically enhanced healthcare. This transformation not only promises more efficient and accessible healthcare but also marks a step towards a future where digital innovation is fundamental to effective healthcare delivery and legal compliance.

#### **KEYWORDS**

Digital Health Transformation, Rhizomatic Healthcare, Health Ségur, E-Healthcare Accessibility, Data Security & Compliance, Telemedicine & mHealth, Digital Divide

#### 1. Rhizomatic Healthcare Transformation

This paper delves into the transformative impact of digitization on France's healthcare system, with a particular focus in the post-2021 era marked by the pivotal Health Ségur initiative. The paper explores the nuances of digitization and digitalization within the healthcare sector, emphasizing their roles in shaping a more efficient, patient-centric, and technologically advanced system. Drawing on the philosophical concepts of Deleuze and Guattari, it examines the rhizomatic nature of this digital transformation, highlighting how interconnected, non-hierarchical structures reshape healthcare delivery and management. The paper also addresses the critical issues of data security, patient privacy, and compliance within digital health platforms like "My Health Space." Furthermore, it scrutinizes

the challenges of accessibility and the digital divide, particularly for individuals with disabilities and older adults. Finally, the paper contemplates the future prospects of ensuring inclusive healthcare access in France, recognizing the potential risks and benefits of this digital shift. This exploration offers a holistic view of the digital revolution in healthcare, reflecting on its implications, challenges, and future directions.

## 2. Digitization's Impact on Healthcare in France

The digital revolution has fundamentally transformed the landscape of healthcare in France, operating much like a rhizome that tends to territorialize or deterritorialize, revolutionizing how medical data is managed and accessed. This transformation, marked by the advent of digitization, has brought about a seismic shift in the industry. Healthcare professionals and patients now enjoy rapid and secure access to crucial information, courtesy of digital platforms. This enhanced accessibility has significantly improved the efficiency of healthcare delivery, streamlined coordination among healthcare stakeholders, and empowered patients with readily available information. The advantages of digitization span various facets, including enhanced decision-making, improved communication among professionals, and active patient engagement.

The Health Ségur, a pivotal event in France's healthcare system in 2021,¹ emphasized the necessity of reinforcing the sector through various measures, notably accelerating digital transformation. It aimed to address challenges faced by healthcare professionals, enhance patient care, and lay the groundwork for substantial investments in digital health infrastructure. This push underscored the critical role of technology in modernizing healthcare services, aligning with the global trend towards digital integration in healthcare systems in Europe.²

Within this digital transformation, the concepts of digitization and digitalization play crucial roles. Digitization involves converting analog data into digital formats, while digitalization represents a broader integration

<sup>&</sup>lt;sup>1</sup> https://www.smart-rx.com/images/Livre-Blanc-Segur-du-numerique-pour-les-officines-Smart-Rx-Digital.pdf

<sup>&</sup>lt;sup>2</sup> https://health.ec.europa.eu/ehealth-digital-health-and-care\_en

and utilization of digital technologies to transform processes and systems. These concepts display characteristics akin to the rhizomatic nature of a constantly evolving network as "transformational multiplicities".<sup>3</sup> The synergy between these concepts in healthcare goes beyond mere data conversion; it encompasses leveraging technology to innovate and enhance healthcare delivery, ultimately reshaping healthcare into a more efficient, patient-centric, and technologically driven field.

The ongoing digital revolution in healthcare signifies the immense potential of technology to redefine patient care, optimize workflows for healthcare providers, and reform entire healthcare systems, all within the rhizomatic nature of constant transformation within the semiotic chain. This semiotic chain is defined as:

"a tuber agglomerating very diverse acts, not only linguistics, but also perceptive, mimetic, gestural, and cognitive".4

In this context, the notion of a "tuber agglomerating" implies that the semiotic chain, or the process of communication and signification in healthcare, gathers and consolidates diverse forms of communication and meaning-making. It encompasses not only language and text but also perception, imitation, gesture, and cognition. This multifaceted approach to communication within the healthcare context highlights the complexity and richness of the semiotic chain, which is further enhanced by the ongoing digital revolution.

This transformation is not only about enhancing efficiency but also about fundamentally improving outcomes, experiences, and accessibility for all stakeholders involved in the healthcare journey. The rhizomatic and multifaceted nature of the semiotic chain allows for a more comprehensive and inclusive approach to healthcare communication and meaning-creation, ultimately benefiting patients, healthcare providers, and the entire healthcare system.

<sup>&</sup>lt;sup>3</sup> See Deleuze & Guattari (1987, 32)

<sup>&</sup>lt;sup>4</sup> See Deleuze & Guattari (1987, 28).

#### 2.1. Rhizomatic Transformation: Healthcare Digitization in France

In the context of France's healthcare digitization, particularly with the Health Ségur initiative,<sup>5</sup> we can observe a rhizomatic transformation, a concept drawn by Deleuze and Guattari's philosophy.<sup>6</sup> This transformation reflects a non-hierarchical, interconnected approach to the evolution of healthcare systems through digitization.

In this rhizomatic transformation, the "substances" of the healthcare system – such as medical data, healthcare infrastructure, human resources, and technological tools – are not constrained by traditional linear or hierarchical structures. Instead, they interact in a more networked, interconnected manner. For example, medical data is no longer confined within individual departments or physical files but is accessible across various nodes in the network, including different healthcare providers, patients, and administrative bodies.

"Forms" in this rhizomatic landscape – such as data management protocols, regulatory frameworks, healthcare processes, and digital interfaces – do not impose rigid structures on the substances. Rather, they serve as guidelines or maps that can be navigated in multiple ways. This flexibility allows for more adaptive and responsive healthcare practices, where the flow of information and decision-making can take various paths, much like the multiple roots of a rhizome.

The process of territorialization, deterritorialization, and re-territorialization<sup>9</sup> in this rhizomatic model is less about imposing order and more about facilitating connectivity and adaptability.<sup>10</sup> For example, the territorialization of medical data in electronic health records is not solely about digitizing information but also about creating a network where these data can flow more freely and accessibly.<sup>11</sup>

Deterritorialization occurs when these networked structures break down traditional barriers, such as those between different healthcare departments

https://www.has-sante.fr/upload/docs/application/pdf/2019-07/rapport\_analyse\_ prospective\_20191.pdf

<sup>&</sup>lt;sup>6</sup> See Deleuze & Guattari (1987, 32-45)

<sup>&</sup>lt;sup>7</sup> See Deleuze & Guattari (1987, 63)

<sup>8</sup> See Deleuze & Guattari (1987, 62-67).

<sup>&</sup>lt;sup>9</sup> See Deleuze & Guattari (1987, 73-78).

<sup>10</sup> https://www.zeendoc.com/nos-conseils/dematerialisation-des-donnees-de-sante/

<sup>&</sup>lt;sup>11</sup> See L'Usine digitale (2021).

or between patients and providers. This leads to a more integrated and patient-centered approach to healthcare, where information and care can be coordinated across various points in the network.

Re-territorialization in this context involves the creation of new, more flexible and adaptive structures. These may include new collaborative platforms, integrated care models, and innovative data security measures that reflect the interconnected and dynamic nature of the healthcare system.

This rhizomatic transformation in healthcare digitization, therefore, represents a significant departure from traditional, hierarchical models of healthcare delivery and management towards a more fluid, interconnected, and adaptive system. It is a transformation that aligns with the evolving needs and possibilities of the digital age, promising improved accessibility, efficiency, and patient-centered care in the French healthcare system.

Digitization has brought about significant changes in administrative management within the healthcare industry. It has enabled meticulous tracking of medical records and examination reports, a transformation that has been embraced by healthcare professionals. This digital shift prioritizes centralized and secure data storage, while maintaining strict confidentiality regulations. Specialized softwares play a pivotal role in ensuring the security of healthcare data. Through data encryption, they ensure the highest level of confidentiality, even during email communications. Moreover, the Health Data Host (HDS) system<sup>12</sup> adds an extra layer of security to healthcare data systems, guaranteeing compliance with confidentiality and data protection regulations. It simultaneously reshapes the landscape of data, both in terms of territorialization and deterritorialization, ensuring functional adequacy to meet professionals' needs, fostering coordination, and promoting multidisciplinary collaboration, while efficiently managing operations. One noteworthy aspect of this comprehensive approach to digitization in healthcare is the enhancement of efficiency and security in medical data management. Additionally, it guarantees adherence to legal standards, facilitating improved coordination and collaboration among healthcare professionals.<sup>13</sup>

Patient care reaps substantial benefits from digitization, as it tends to deterritorialize the traditional boundaries of healthcare delivery.

<sup>12</sup> https://www.zeendoc.com/nos-conseils/dematerialisation-des-donnees-de-sante/

<sup>13</sup> https://esante.gouv.fr/offres-services/label-esante/solutions-labellisees

The integration of administrative and detailed medical information into the e-health card streamlines access to crucial patient data, empowering general practitioners with comprehensive insights into medical histories, examination results, and treatment protocols. This seamless digital transition facilitates medical prescriptions by providing physicians with essential medication details and optimizes the management of operating rooms and emergencies. As a result, it significantly improves e-health coordination and efficiency.

## 2.2. Ensuring Secure and Compliant Access: Monitoring "My Health Space"

"My Health Space" (Mon Espace Santé)<sup>14</sup> in France is a digital platform designed to provide individuals with secure access to their personal health information and medical records. It is part of the broader digital transformation efforts in the French healthcare system aimed at improving patient access, convenience, and engagement. Monitoring of "My Health Space" includes the following measures:<sup>16</sup>

- 1. <u>Data Security and Encryption</u>: The platform employs robust security measures to protect sensitive health information. Data is encrypted both in transit and at rest to prevent unauthorized access.
- 2. <u>User Authentication</u>: Secure authentication methods, often involving multi-factor authentication, ensure that only authorized individuals can access their health records.
- 3. <u>Audit Trails</u>: Detailed logs of user activities, including interactions, access, and modifications of health data, are maintained with timestamps and user identification for monitoring purposes.
- 4. <u>Compliance with Health Data Regulations</u>: "My Health Space" is designed to comply with France's strict healthcare data regulations, including the Health Data Host (HDS) certification.
- 5. <u>Regular Security Assessments</u>: Ongoing security assessments and audits identify and mitigate vulnerabilities to protect against data breaches.

<sup>14</sup> https://www.monespacesante.fr

<sup>15</sup> https://esante.gouv.fr/strategie-nationale/mon-espace-sante

<sup>16</sup> https://www.zeendoc.com/nos-conseils/dematerialisation-des-donnees-de-sante/

- 6. <u>User Support and Education</u>: Users are provided with guidance on how to use the platform securely, protecting their login credentials, and recognizing phishing attempts.
- 7. <u>Data Backups and Recovery</u>: Regular data backups ensure data integrity and the ability to restore data in case of technical failures.
- 8. <u>Access Control</u>: Strict access control mechanisms limit access to authorized healthcare professionals and individuals with a legitimate need.
- 9. <u>Data Privacy Measures</u>: The platform adheres to data privacy principles, giving users control over who can access their health records and providing transparency on data usage.
- 10. <u>Compliance Checks</u>: Regulatory bodies or third-party auditors may periodically assess the platform's compliance with data protection and security standards.

Monitoring "My Health Space" is crucial to maintain trust and confidence among healthcare providers and patients. By implementing robust security measures, adhering to data privacy regulations, and conducting regular assessments, the platform can continue to offer secure and convenient access to health information while minimizing the risks associated with handling sensitive medical data.

## 2.3. Rhizomatic Insights into Digital Healthcare Transformation

The concept from Deleuze & Guattari's philosophy adds an intriguing perspective to the discussion of the rhizomatic nature of digital healthcare transformation. According to them,

"the material or machinic aspect of an assemblage relates not to the production of goods but rather to a precise state of intermingling of bodies in a society, including all the attractions and repulsions, sympathies and antipathies, alterations, amalgamations, penetrations, and expansions that affect bodies of all kinds in their relations to one another."

<sup>17</sup> See Deleuze & Guattari (1987, 111).

In the context of digital healthcare transformation, this perspective aligns with the idea that healthcare is not just about isolated components but about the complex web of interactions, relationships, and exchanges among these components. The rhizomatic network of digital health solutions reflects these intermingling dynamics, including the attractions and repulsions (such as the adoption and resistance to new technologies), sympathies and antipathies (collaborative efforts and conflicts within the healthcare system), alterations (changes and adaptations in response to evolving needs), amalgamations (integration of various technologies and data sources), penetrations (accessibility and sharing of healthcare information), and expansions (the continuous growth and evolution of digital healthcare services).

The advent of digital transformation in healthcare, especially when the COVID-19 pandemic began, has brought about a significant shift with almost 80% increase. Similar to the interconnected and adaptable nature of rhizomatic networks, this transformation has reshaped the landscape. Critical to this transformation are Hospital Information Systems (HIS), which serve as vital nodes. They facilitate seamless connections among diverse healthcare professionals and break down traditional silos, enabling a general practitioner in a clinic to collaborate effortlessly with a hospital surgeon. This interconnectedness enhances overall patient care and efficiency by bridging communication gaps.

"Telehealth", a dynamic branch of e-health, exhibits characteristics reminiscent of rhizomatic networks. Telemedicine, one aspect of telehealth, allows healthcare professionals to deliver medical services remotely. Platforms like the Doctolib application exemplify this approach, enabling online medical appointment scheduling and consultations. The 2010 decree outlines five distinct rhizomatic acts within telemedicine: teleconsultation, tele-expertise, medical telemonitoring, medical tele-assistance, and tele-regulation.<sup>19</sup>

"mobile Health" (mHealth) is another rhizomatic facet of telehealth. It encompasses a wide range of medical and public health practices supported by mobile devices, including mobile phones, patient monitoring systems, personal digital assistants, and other wireless devices (Al Dahdha 2014). m-Health leverages the connectivity of mobile technology to enhance

<sup>&</sup>lt;sup>18</sup> See Touzani et al. (2023)

<sup>19</sup> https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000022932449/

healthcare accessibility and engagement, contributing to the rhizomatic expansion of healthcare services.<sup>20</sup>

The digital transition extends to various aspects of healthcare, including the dematerialization of the health insurance card. Its digital counterpart, the e-health card, is now operational in six departments in France, reflecting the rhizomatic nature of expanded digitization. Similarly, medical prescriptions issued by physicians are increasingly digitized, adopting the term "e-prescription".<sup>21</sup> These transitions represent rhizomatic shifts from traditional to digital forms, simplifying processes and improving accessibility.

One significant rhizomatic shift in healthcare is the digitalization of occupational health records, as mandated by Decree No. 2022-1434 of November 15, 2022. These records are securely stored in digital formats for individuals under individual health monitoring in an occupational health and prevention service. This digitalization encompasses identity data, professional histories, health information collected during occupational health visits, and exchanges among various healthcare professionals, forming a rhizomatic network of information.

Within this rhizomatic network of digital records, all actions performed by healthcare professionals are logged, secured, and recorded, ensuring transparency and accountability. Individuals also have the option to exercise their right to oppose specific information within these records, preserving individual agency within the network.

Furthermore, concerning the input and consultation of the occupational health medical record by healthcare professionals responsible for individual worker follow-up are stipulated below:

- in Article L. 4624-1, these actions are conducted in accordance with the confidentiality rules specified in Article I of Article L. 1110-4 of the Public Health Code, and in compliance with electronic identification and interoperability rules defined by the references mentioned in Articles L. 1470-1 to L. 1470-5 of the same code.
- The input and consultation of information from the occupational health medical record mentioned in paragraphs 1° or 2° of Article R.

<sup>&</sup>lt;sup>20</sup> https://www.apicrypt.org/files/communication/thesejdufrenne.pdf

<sup>21</sup> https://www.pointculture.be/magazine/articles/focus/la-sante-numerique-3-questions-alain-loute/

<sup>&</sup>lt;sup>22</sup> https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000046562060

4624-45-4 can also be carried out by personnel referred to in Articles R. 4623-38 and R. 4623-40, under the delegation of the occupational physician and under their responsibility, while adhering to the rules of electronic identification and interoperability as defined by the references mentioned in Articles L. 1470-1 to L. 1470-5 of the Public Health Code.

- The interoperability references mentioned in Article L. 1470-5 of the Public Health Code may be adapted to the specificities of the activities of prevention and occupational health services.
- It is important to note that all actions performed on the occupational health medical record, regardless of the author, are traced and retained within the occupational health medical record. This includes recording the date, time, and identification of the professional from the occupational health and prevention service involved in the action [my translation].<sup>23</sup>

In this ever-evolving rhizomatic landscape of digital health solutions, the inherent interconnectedness and adaptability of these technologies persistently reshape healthcare, going beyond established structures and boundaries.<sup>24</sup>

## 3. Accessibility Challenges in Healthcare Digitization

In the rapidly evolving landscape of digital health solutions, there is significant potential for reshaping healthcare delivery. However, this transformation comes with its own set of challenges, particularly in ensuring equitable access for individuals with disabilities. The adaptability and interconnectedness of digital health technologies, while promising, can inadvertently lead to disparities in access to essential healthcare services and information (Pinède 2022).

<sup>&</sup>lt;sup>23</sup> https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000046562060

<sup>&</sup>lt;sup>24</sup> See Deleuze & Guattari (1987, 407-410).

## 3.1. Philosophical Examination of Accessibility challenges

In the context of healthcare digitization and accessibility challenges, it is valuable to explore the concepts of territorialization and deterritorialization as proposed by Gilles Deleuze and Félix Guattari. These concepts provide a unique lens through which we can analyze the dynamics of digital health solutions and their impact on access to healthcare services for individuals with disabilities/impairments.

#### Territorialization can lead to:

- o Fragmentation of Healthcare: The rapid proliferation of digital health technologies can lead to territorialization, where healthcare services become fragmented into isolated digital territories. Different applications and platforms may focus on specific aspects of healthcare, creating silos of information and services that are inaccessible or challenging for individuals with disabilities to navigate.<sup>26</sup>
- o *Specialization and Medicalization*: Territorialization can also manifest as an overemphasis on specialization and medicalization in digital health solutions. While these technologies can be beneficial, they might exclude the holistic needs of individuals with disabilities, who may require a more comprehensive approach to healthcare that considers their unique circumstances.
- o *Exclusive Platforms*: The territorialization of healthcare digitization may result in exclusive platforms that cater only to certain user groups, potentially leaving out those with disabilities who need integrated and inclusive solutions.

## Deterritorialization, on the other hand, implies:

o *Universal Design*: Deterritorialization in healthcare digitization can be achieved through universal design principles. By designing digital health platforms with accessibility in mind from the outset, developers

<sup>&</sup>lt;sup>25</sup> See Deleuze & Guattari (1987).

https://www.essenburgh.com/en/blog/fragmented-care-the-causes-and-what-we-can-do-about-it/#:-:text=Fragmented%20care%20occurs%20when%20different,regulations%2C%20data%20management%20and%20training.

can create solutions that transcend territorial boundaries and cater to a broader user base, including individuals with disabilities.<sup>27</sup>

- o *Interconnected Ecosystems*: Deterritorialization encourages the creation of interconnected digital ecosystems where various health-related services and information seamlessly flow together. This approach can break down the barriers that individuals with disabilities often face when accessing healthcare services.<sup>28</sup>
- o *Inclusive Data Sharing*: Deterritorialized systems promote the sharing of health data across different platforms and providers while ensuring privacy and security. This enables individuals with disabilities to have a more holistic view of their health and make informed decisions.<sup>29</sup>

While territorialization in healthcare digitization can lead to fragmentation, specialization, and exclusivity, deterritorialization promotes universal design, interconnected ecosystems, and inclusive data sharing, ultimately fostering greater accessibility and inclusivity, especially for individuals with disabilities.

## 3.2. Legal Frameworks for Ensuring Accessibility in Healthcare

One of the primary challenges lies in the accessibility of digital health platforms themselves. Many of these solutions are designed with standard user interfaces that may not adequately consider the needs of individuals with disabilities. For instance, individuals with visual impairments may struggle to access information presented through visual graphics or interfaces lacking screen reader compatibility. Similarly, those with motor disabilities may face difficulties in navigating touch-based interfaces or using traditional input devices.

The rapid pace of innovation in digital health can outstrip the development of accessible solutions. As new technologies emerge and gain widespread adoption, it becomes increasingly important to ensure that they are inclusive

https://esante.gouv.fr/sites/default/files/media\_entity/documents/dns\_inclusion-by-design\_penser-linclusion-numerique-des-services-publics-numeriques.pdf

<sup>&</sup>lt;sup>28</sup> https://ue.esante.gouv.fr/sites/default/files/2023-09/Feuille-route-230907\_ENG\_PAP.pdf

<sup>&</sup>lt;sup>29</sup> https://www.has-sante.fr/upload/docs/application/pdf/2010-03/guide\_dm\_gb\_050310.pdf

and accessible to all. Failure to address these issues can result in individuals with disabilities encountering barriers to accessing critical healthcare information, services, and telemedicine appointments.

It is important to remember that accessibility, in the broad sense, is first and foremost a fundamental right of citizens declared by the United Nations in December 2006 with the Convention on the Rights of Persons with Disabilities,<sup>30</sup> especially when it states that:

- "(c) Reaffirming the universality, indivisibility, interdependence and interrelatedness of all human rights and fundamental freedoms and the need for persons with disabilities to be guaranteed their full enjoyment without discrimination [...]
- (e) *Recognizing* that disability is an evolving concept and that disability results from the interaction between persons with impairments and attitudinal and environmental barriers that hinders their full and effective participation in society on an equal basis with others [...]".

So, communication should remain accessible, and apps and companies should ensure that they provide equal access to all individuals, as expressed in Art.2 of the United Nations Convention on the Rights of Persons with Disabilities:

"Communication" includes languages, display of text, Braille, tactile communication, large print, accessible multimedia as well as written, audio, plain-language, human-reader and augmentative and alternative modes, means and formats of communication, including accessible information and communication technology" 31

Furthermore, the French Equal Rights and Opportunities Act of 2005<sup>32</sup> imposes legal obligations on a range of entities, including public and private organizations, with the goal of ensuring equal rights and opportunities for all individuals, regardless of their background or characteristics. These obligations encompass various aspects of non-discrimination, equal employment

<sup>30</sup> https://www.un.org/disabilities/documents/convention/convention\_accessible\_pdf.pdf

<sup>&</sup>lt;sup>31</sup> https://www.un.org/disabilities/documents/convention/convention\_accessible\_pdf.pdf

<sup>32</sup> https://accessibilite.numerique.gouv.fr/obligations/champ-application/

opportunities, accessibility, and reporting. Compliance is therefore essential to avoid legal redress.

Since June 23, 2021, mobile applications must comply with the General Accessibility Improvement Repository (RGAA) in France. However, for the technical method, since the RGAA does not define it for mobile applications, the European Directive 2016/2102 applies:<sup>33</sup>

"(2) In the context of this Directive, accessibility should be understood as principles and techniques to be observed when designing, constructing, maintaining, and updating websites and mobile applications in order to make them more accessible to users, in particular persons with disabilities."

This means that mobile applications must adhere to the accessibility standards outlined in the Harmonised European standard EN 301 549<sup>34</sup> and follow the accessibility declaration model specified in the implementing act.

## 3.3. Challenging the Digital Divide in French E-Healthcare

The digital divide in France's e-healthcare landscape is significantly influenced by age-related challenges. Older adults, often less adept with digital technologies, face substantial hurdles in accessing online healthcare services. This demographic, already vulnerable due to age-related health issues, confronts additional disadvantages when navigating digital healthcare platforms. The complexity and unfamiliarity of these platforms exacerbate existing health inequalities, as older individuals struggle more than their younger counterparts to access critical health information and services online (Aubouin 2022).

Another crucial aspect of the digital divide relates to individuals with impairments. Whether physical, sensory, or cognitive, these impairments can make digital interfaces difficult, if not impossible, to navigate. This inaccessibility results in further marginalization from essential health services.

<sup>33</sup> https://eur-lex.europa.eu/eli/dir/2016/2102/oj

https://www.etsi.org/deliver/etsi\_en/301500\_301599/301549/03.02.01\_60/en\_301549v030201p. pdf

In a world where digital solutions are increasingly becoming the norm in healthcare, these barriers represent a significant obstacle to equitable healthcare access for people with impairments.

Socio-economic factors also play a pivotal role in the digital divide. Lower-income families and individuals often lack the financial means to afford necessary technology and internet access, both of which are crucial for utilizing e-health services. Moreover, a lack of educational background can impede the effective use of these digital tools. The intersection of financial and educational limitations creates a formidable barrier to accessing digital healthcare, further widening the gap between different socio-economic classes.

Data security and privacy concerns add another layer of complexity to this issue. Many users, particularly those less familiar with digital technologies, harbor fears regarding the safety of their personal and health data. These concerns are more pronounced among older adults and those with limited digital literacy, who may not fully comprehend how their data is protected or the safety measures in place. The healthcare sector's handling of sensitive information, if compromised, could have severe consequences, reinforcing reluctance towards digital healthcare.

Addressing these fears is crucial in closing the digital divide in e-healthcare. It involves implementing robust cybersecurity measures and educating users about data protection. Transparency in data handling and clear communication about privacy policies can help build trust among users, while providing options for them to control their data and understand their rights can empower them to use digital healthcare services more confidently. This approach is key in mitigating fears related to data security and encouraging wider adoption of e-health services across various demographics in France.

The French government has initiated programs to address these issues, improving rural internet access, providing computers to disadvantaged students, and offering digital skills training. Collaborative efforts with telecommunications companies and internet service providers are also essential to provide affordable solutions and expand network coverage. These disparities are viewed through a normative framework that perceives inequality as unjust, conflicting with principles of equality.<sup>35</sup>

<sup>35</sup> See Granjon (2009, 22).

# **4. Ensuring Inclusive Healthcare Access in France:** Further Prospects

The dematerialization of healthcare in France indeed signifies a transformative shift in medical data management and patient care. This evolution brings with it the promise of improved efficiency and access to healthcare services. However, it is crucial to consider the broader implications of this shift, particularly in terms of its impact on different social status.

As healthcare increasingly adopts digital technologies, there is a growing concern that individuals from lower socioeconomic backgrounds may not have equal access to these advancements. This potential digital divide poses a significant risk of creating or exacerbating disparities in healthcare access and quality. Such a scenario could lead to a widening gap between different social groups, counteracting the benefits of digitalization in healthcare.

To effectively navigate this transition, it is necessary to adopt a multi-faceted approach. This includes the development of inclusive digital strategies that ensure equitable access to technological advancements for people from all socioeconomic backgrounds. It also entails significant investment in cybersecurity measures to protect sensitive medical data and uphold patient trust in the healthcare system.<sup>36</sup>

Proactively addressing these challenges will enable France to fully capitalize on the benefits of digital healthcare. This approach ensures that the advantages of digitalization are realized equitably and securely, enhancing patient care and efficiency while safeguarding the right to healthcare for all citizens, irrespective of their social status or digital proficiency. As the healthcare sector evolves, continuous vigilance and adaptation will be vital in ensuring that healthcare remains accessible and equitable in the digital era.<sup>37</sup>

<sup>&</sup>lt;sup>36</sup> See La Perrière (2023).

<sup>37</sup> https://ue.esante.gouv.fr/sites/default/files/2023-09/Feuille-route-230907\_ENG\_PAP.pdf

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