



Harmonizing Innovation and Regulation: Swiss Health Insurance Navigates Digital Health Technologies for Enhanced Patient Engagement

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Abstract: We investigate the innovative domain of digital health technologies (DHTs) within the unique and highly regulated context of the Swiss health insurance system, focusing on the pragmatic approach adopted by Sanitas, a leading health insurance provider in Switzerland. Drawing on an insightful interaction with Birte Jörn, manager for innovation and venturing at Sanitas, the following position statement underlines the strategic integration and adoption of DHTs to enhance customer engagement, reinforce patient self-management, and, subsequently, mitigate healthcare and insurance service costs. Among barriers such as rigorous regulations and reimbursement limitations, insights collected from various DHT pilot programs unveil certain tendencies, like notable customer interest in DHTs oriented towards lifestyle, mental well-being, and chronic disease management.


1 INTRODUCTION


The Swiss health insurance system represents a unique model that combines universal coverage with a regulated competitive market. Rooted in ensuring healthcare access for all, every resident living in Switzerland for more than 3 months must have basic insurance coverage (Obligatorische Krankenversicherung, 2022.). This coverage is standardized, offering essential health services to everyone, irrespective of their socio-economic status (Marks-Sultan et al., 2016). The Swiss healthcare system operates in a highly decentralized manner, each of the 26 cantons has distinct health legislations and plays a crucial role in healthcare provision, from emergency services to hospital planning, and is a significant source of public financing (Maurer et al., 2022).

In this context of a regulated competitive market, digital health technologies (DHTs) emerge as a

promising avenue for health insurance providers in Switzerland to differentiate themselves. By leveraging DHTs, such as clinical information systems, digital preventive care interventions, patient monitoring services, care support technologies, digital diagnostics, or digital therapeutics, insurers can enhance patient engagement and potentially reduce healthcare costs.

For instance, a chronic disease management platform can empower patients to manage their conditions more effectively, reducing the need for frequent doctor or hospital visits (Jacobson et al., 2023; Kowatsch & Fleisch, 2021; Kvedar et al., 2014; Wang et al., 2023). When integrated into the broader healthcare ecosystem, such DHT can improve patient outcomes and create a more sustainable healthcare system (Benis et al., 2021; *Digital Implementation Investment Guide (DIIG): Integrating Digital Interventions into Health Programmes*, n.d.). It is difficult to calculate long-term cost implications of digital health technologies when incorporating broad

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considerations, such as costs of the technology lifecycle and those to integrate technology into the clinical workflow (Mathews et al., 2019). However, in their literature review assessing the cost-effectiveness of digital health interventions, Gentili et al. found that 32 out of 35 studies demonstrated gains in Quality-Adjusted Life Years (QALYs), with most also reporting notable cost savings (Gentili et al., 2022a).

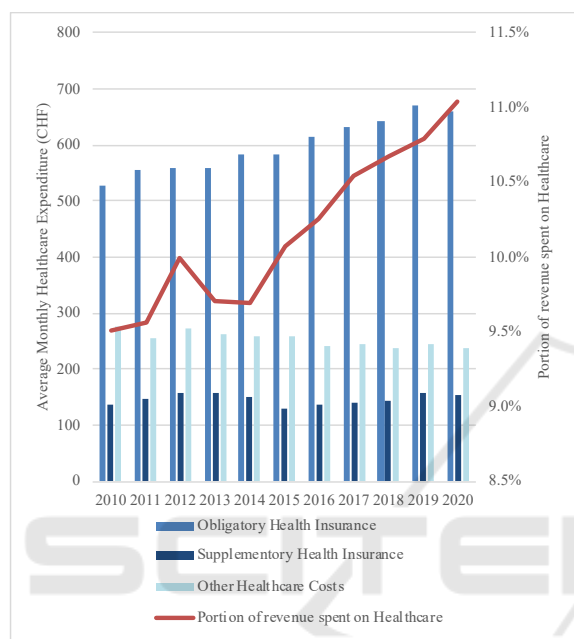


Figure 1: Average Monthly Healthcare Expenditure per Swiss Household (*Household Expenditure | Federal Statistical Office, n.d.*).

The increase in healthcare costs per household is evident when comparing data from 2010 to 2020, as depicted in Figure 1. During this decade, households experienced a rise of more than 100 CHF per month in their healthcare expenditures. Interestingly, expenses associated with supplementary health insurance remained relatively stable throughout these years. Conversely, other healthcare costs encompassing medication, dental services, and laboratory analyses have seen a decline. The primary contributor to the escalation in expenses is the obligatory health insurance, which has shown a pronounced uptick. This trend emphasises the importance of leveraging DHT to mitigate healthcare expenses (Gentili et al., 2022b).

Sanitas, founded in 1956, is one of Switzerland's leading health insurance companies covering basic and supplementary health insurance. To gain insight into the perspective of Swiss health insurers regarding digital health, this position paper outlines the results

of a conversation with Birte Jörn, manager for innovation and venturing at Sanitas. Questions focused on Sanitas' implementation of DHTs, specifically whether they are utilized for prevention or disease management, and if these were developed internally or through external collaborations. The conversation also touched upon the strategic aims of deploying DHTs, including revenue generation, cost-efficiency, and customer loyalty. Additionally, we explored Sanitas' experiences and outcomes with various DHTs, seeking insights into their relative effectiveness and areas for improvement.

2 POSITIONING STATEMENT

DHTs encompass various technologies and methodologies to improve healthcare delivery, outcomes, and personal wellness. While it primarily serves patients, DHTs also help a wide array of other stakeholders in the healthcare sector, like healthcare professionals and hospital administrations, with operational and clinical software systems (Keasberry et al., 2017). For patients, DHTs can be broadly classified into five main categories. The first category is health and wellness solutions, designed to promote overall well-being and proactive health maintenance (Thai et al., 2023). These DHTs are complemented by the second category, patient monitoring technologies, emphasizing real-time health metrics tracking (Le Goff-Pronost & Bongiovanni-Delarozière, 2023). Third, care-supporting technologies facilitate disease management and self-management. Furthermore, digital diagnostics harness technology for early detection and diagnosis of diseases, ensuring timely treatment (Parikh & Helmchen, 2022; Vasudevan et al., 2022). Finally, digital therapeutics offer technologically driven treatment to directly address health concerns (Jacobson et al., 2023; Wang et al., 2023).

Sanitas has not developed or is directly offering any DHTs with clear medical purpose and relevant medical certification. Since, as an insurance company, they cannot prescribe medication. However, more lifestyle-oriented applications in the category health and wellness for prevention are of great interest to health insurers but also the most challenging area due to very limited possibilities for reimbursement. It is also difficult to reach and engage the low socioeconomic status population with preventive solutions, although they suffer from the most non-communicable diseases and would benefit from these lifestyle DHT solutions the most (Kowatsch et al., 2019).

While medical doctors mainly oversee disease management, Sanitas employs a deliberate strategy to engage with DHTs and enhance customer experience and offers solutions covering different categories:

1. **Non-Health system software solution:**
Sanitas provides a portal accessible via a web browser or mobile application, enabling customers to manage their insurance details autonomously. The Sanitas Portal offers a comprehensive coverage view, facilitates reclaim voucher scanning, and highlights exclusive health offers. The mobile application won second place at the Best of Swiss App Awards 2022 in both “Business Impact” and “User Experience & Usability”.
2. **Care Support:** The insurance as developed its own mobile applications for care support. They are not classified as medical devices, like one featuring a "health navigator," to disseminate valuable health-related information. Through a strategic partnership with Medgate, a leading telemedicine provider specializing in remote consultations and digital health services, customers can address medical inquiries using a digital assistant and directly access Medgate doctors for teleconsultations or appointment bookings via the Sanitas Medgate app.
3. **Health and Wellness:** Sanitas offers a white-labelled app for individuals managing chronic conditions. The Sanitas Digital Health Coach addresses widespread issues such as stress and unhealthy living, which can culminate in conditions like high blood pressure and type 2 diabetes. The interactive platform enables users to evaluate vital health metrics, such as heart age and diabetes risk, through self-tests but also ensures meticulous tracking of key health parameters like blood pressure and sleep data via a health diary. Furthermore, the coach provides actionable and medically substantiated recommendations, aiding users in navigating their health data toward actual health improvements. Coupled with timely reminders for medications and health measurements, the Sanitas Coach promotes a sustainable transition towards healthier living.
4. **Recommendations on DHTs:** In addition to the above, Sanitas gives recommendations and links to other DHTs for specific customer journeys, guiding clients toward beneficial digital resources. In collaboration with leading DHT startups, Sanitas suggests the following:

- **Aepsy:** A Swiss platform connecting users with selected psychotherapists through online chat, video telephony, or in-person meetings.
- **Pathmate Technologies:** An online platform designed for individuals with chronic diseases, offering personalized healthcare management and coaching.
- **TOM:** A mobile application that provides medication reminders to assist users in maintaining consistent medication regimens.
- **Pregnolia:** A company that has developed a technique to predict the risk of premature birth. Notably, Sanitas is the first health insurer in Switzerland to cover the Pregnolia test for those with supplementary outpatient insurance (Stone & House, 2023).

2.1 Strategic Objectives

As DHTs evolve, Sanitas pursues a strategy that aligns with multiple, well-defined goals. Firstly, the company aims to enhance customer loyalty by delivering pertinent and engaging offerings. This involves providing digital tools that empower patients to actively manage their health (Iglesias et al., 2018). This strategy fosters self-management and can reduce overall medical costs (Awad et al., 2021). Additionally, a calculated shift towards a self-service model for insurance-related queries and processes supports Sanitas' approach. This move enhances customer convenience by simplifying interactions and reducing costs related to insurance services. Overall, offering DHTs enhances the appeal of health insurance for patients, enabling them to manage their health and potentially lower their medical costs and health insurance expenses.

2.2 Challenges and Insights

Exploring the deployment of DHTs presents challenges and insights for Sanitas. Significant barriers have surfaced through various pilots of DHTs. The main challenges identified are limited reimbursement options and targeted customer engagement (Reinhardt, 2004). Despite access to extensive customer data, strict sector regulations significantly limit targeting opportunities within the customer base.

While deriving a one-size-fits-all success pattern is complex due to variables like usability, customer age, and cost, certain tendencies emerge. For

instance, DHTs aiming at prevention, health, and well-being, such as general fitness or mental well-being applications, show the highest Sanitas customer interest. It is also observed that DHTs for chronic patients, e.g., medication adherence apps, generate big interest, especially when integrated into a frame program (overarching healthcare management and support strategy) by the insurance company. This underscores that embedding DHTs within a well-orchestrated, structured program enhances patient utilization, amplifying its viability and impact.

3 CONCLUSION

Navigating the challenging path of DHT implementation, Sanitas combines strategic adoption with encountered hurdles and important insights within the strictly regulated Swiss health insurance framework. The journey clearly shows DHTs' vital role in increasing customer loyalty, helping efficient disease self-management, and potentially reducing costs while being influenced by various impactful variables like usability and customer demographics. The balance between technological progress and regulatory and operational alignment emerges as crucial, paving the way for synergistic advancements in patient outcomes and operational efficacy within the structured competitive market. Future explorations may focus on ensuring that regulatory frameworks are flexible and evolving to foster the development and integration of emerging DHT pertinent to health insurances, technological improvements like increasing interoperability among different health care stakeholders, and forming strategic alliances with promising DHT companies. DHT hold significant potential for reducing healthcare costs, benefiting health insurance providers. However, a standardized metric for evaluating cost-effectiveness is essential and still needed to identify the most financially impactful solutions within the Swiss healthcare system.

4 CONFLICT OF INTEREST

EP and TK are affiliated with the Centre for Digital Health Interventions (CDHI), a joint initiative of the Institute for Implementation Science in Health Care, University of Zurich, the Department of Management, Technology, and Economics at ETH Zurich, and the Institute of Technology Management and School of Medicine at the University of St.

Gallen. CDHI is funded in part by CSS, a Swiss health insurer, the Swiss growth-stage investor MTIP, and the Austrian health provider Mavie Next. TK is also a co-founder of Pathmate Technologies, a university spin-off company that creates and delivers digital clinical pathways. However, CSS, Mavie Next, or Pathmate Technologies were not involved in this research. EP works at MTIP, a Swiss healthtech growth equity firm that helps founders scale up successful and sustainable digital health businesses.

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