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Siemens Healthineers: A Digital Journey

*Considering the challenges of an aging population
and the need to reduce costs, the digital transformation
of healthcare is crucial.*

—BERND MONTAG, CEO
SIEMENS HEALTHINEERS

At the end of 2023, the leadership at Siemens Healthineers (SHS) reflected with a sense of achievement on their strong position in the Medical Technology market. "We have delivered a very strong final quarter of another successful year [2023] at Siemens Healthineers. I am very proud of the team and the trust we have earned with our customers," said Dr. Bernd Montag, CEO of Siemens Healthineers, summarizing the year's financial success.[1]

In 2023, SHS entered the third phase of Strategy 2025[2] with New Ambition,[3] built on the unique capabilities of Siemens Healthineers, such as "patient twinning," "precision therapy," and "digital, data, and artificial intelligence (AI)." The New Ambition emphasized that "the ever-stronger link between these three capabilities is the prerequisite for the company to take advantage of the numerous opportunities in the healthcare sector."

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[1] https://www.siemens-healthineers.com/press/releases/2023q4
[2] https://www.siemens-healthineers.com/press/releases/pr-2018010132co.html
[3] https://www.siemens-healthineers.com/press/releases/new-ambition

Professor David Teece, Visiting Scholar Professor Asta Pundziene, Professor Tobias Gutmann, Frank Konopka and Marc Schlichtner prepared this case, with assistance from case writer Amy Handlin, as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation.

The SHS dream was to "elevate the healthcare system" by uniting healthcare stakeholders for accessible and value-based healthcare. At the Executive Summit 2022, CEO Montag stressed the importance of being a pioneer and facing challenges to achieve this goal. He said that healthcare leaders, with joint efforts, can combat diseases, streamline operations, and expand access to care. Together, they can address the question of "how to scale medicine" by promoting "systemness in healthcare," making a collective impact that surpasses individual efforts and ensuring that "50 hospitals together become better than 50 individual hospitals."[4]

In March 2019, Montag elaborated on what he had in mind by "elevating" the healthcare system. "Considering the challenges of an aging population and the need to reduce costs, the digital transformation of healthcare is crucial to come to solutions. Siemens Healthineers is willing to work with companies in the healthcare industry to build up a digital healthcare ecosystem and promote the development and application of healthcare big data and artificial intelligence in the field of medical diagnostics and treatment." He also addressed the role of the company's digital platform "teamplay" within his vision: "teamplay is a significant cornerstone of Siemens Healthineers' layout of a digital healthcare ecosystem. Through this open, innovative platform, AI+imaging applications, such as lung nodule image-assisted diagnosis and cancer screening, are available so we're able to provide users with convenient, efficient, and diversified solutions. It's like an APP store in the digital healthcare area."

However, this shift towards a digital-first mindset had not been easy, and trouble loomed ahead. Despite the exponential user growth and adoption of their digital products, SHS's core businesses in the MedTech sector remained its financial backbone. This dependence posed strategic concerns, especially as competitors such as Philips HealthSuite, IBM Watson Health, and GE Healthcare amplified their digital offerings with increasing vigor and market aggression.

Moreover, the stakes were high in this digital evolution. The global digital healthcare market, valued at \$233.5 B in 2022, was projected to grow by 15% over the coming decade, despite high inflation and increased energy costs.[5] In developing the teamplay digital health platform, SHS wasn't merely augmenting its product line. The goal was to redefine the competitive landscape by transitioning from isolated product and service offerings to a comprehensive, seamless digital experience. Teamplay was envisioned as more than just a digital healthcare platform; it was set to be a focal player in the global digital healthcare ecosystem.

The imperative for the SHS leadership was clear: whether or not teamplay remained their flagship digital product, the SHS team needed to learn from their digital transformation journey if they wanted to maintain momentum. That meant taking stock of where they had been, how far they had come, what obstacles they had faced, and how the digital transformation journey could benefit Siemens Healthineers' core products, such as imaging, diagnostics, Varian, and advanced therapeutics.

SHS History and Response to Industry Change

Siemens Healthineers evolved from an early twentieth-century merger of three small German healthcare companies. Despite the challenges posed by two world wars, SHS business leaders

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[4] https://www.siemens-healthineers.com/insights/news/executive-summit-2022-affordable-accessible-healthcare-for-everyone-everwhere
[5] https://www.gminsights.com/industry-analysis/digital-health-market

maintained a tight focus on the development of medical technology and aggressively sought expansion opportunities outside of Europe. By 2007, Siemens had become the first manufacturer and supplier of medical imaging, laboratory diagnostics, and healthcare information technology such as magnetic resonance imaging, ultrasound machines, laboratory testing systems, artificial intelligence, and many more[6] under one roof and had opened production facilities in the US and China.

In the mid-2000s, Siemens recognized a need to boost operational flexibility. In 2014, the medical technology division was spun off as a separate business branded as Siemens Healthineers.[7] Its emphasis on flexibility and technology innovation served the company well; by 2018, Deutsche Bank analysts described SHS as a "global health care powerhouse…with leading positions in large and structurally growing markets." On every measure, it was a highly successful enterprise; based on shares of its three global markets, it was number one in Imaging (31%) and Advanced Therapies (32%) and number two in Diagnostics (15%).[8] In fiscal 2017, the year of its first foray into the SaaS/PaaS market, its revenue was €13.8 billion, up from €13.5 billion in 2016; its profit margin of 18.3% had increased from 17.2% in 2015.[9]

In 2018, SHS went public, offering 15% of the company to shareholders. Siemens Healthineers heavily relied on imaging, constituting €9 billion (62%) of its revenue in 2019. With over 230,000 devices installed worldwide, the company held a significant position in the sector. Revenue from servicing these machines represented 40% of the segment total and was growing at a rate of 5% per annum (**Figure 1).**

Figure 1 Healthineers' market position in 2020[10]

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[6] https://www.siemens-healthineers.com/products-services

[7] https://www.medmuseum.siemens-healthineers.com/en/company-history

[8] Deutsche Bank Markets Research report, 2018, as quoted in Healthineers: A Strategic IPO, Harris R. and C. S. Sheppard, Darden Business Publishing UV 7866 March 9, 2022

[9] Siemens Healthineers lays out strategy to bolster market leadership beyond 2025 (siemens-healthineers.com); https://www.siemens.com/investor/pool/en/investor_relations/Siemens_AR2016.pdf

[10] https://seekingalpha.com/article/4349829-siemens-healthineers-excellent-company-valuation-doesnt-scan

Siemens Healthineers' financial results hit a five-year high in 2022 due to the sales of rapid COVID-19 antigen tests. However, imaging equipment still drove the company's market leadership positions. In 2023, these products contributed even more to the company's bottom line (**Exhibit 1**).[11]

Siemens Healthineers' customers were hospitals of all care categories and sizes, medical care centers, doctors' offices, rehabilitation facilities, diagnostic centers, and the pharmaceutical industry.[12] SHS introduced a concept of value partnership to focus on more than selling medical devices and equipment by first creating tailored value for each customer.[13]

"At Siemens Healthineers, we use our full suite of capabilities and expertise in medical technology, process optimization, and digitalization to improve patient outcomes and experience. Ultimately, our partners trust in our ability to manage change in their respective healthcare organizations because we are as invested as they are in making things better for patients," said João Seabra, Head of Enterprise Services from Siemens Healthineers, explaining the meaning of the value partnership concept and SHS customer-centered approach.

As a part of a customer-centered approach, SHS supported a variety of business models for customers, such as 1) milestone-based model, 2) unitary payment model, 3) pay-per-use model, 4) subscription model, and 5) performance-sharing model. These diverse payment models allowed customers to best address policy requirements and regulations, technology advances, market dynamics, healthcare transformations, and, as a result, advance value-based care.[14]

"At Siemens Healthineers, we support a wide variety of sustainable business models for our customers with clinical and operational expertise enabling healthcare providers to deliver high-value care, expand patient access, and continue innovating," summarized Alexander Raiser, Global Head of Finance, Siemens Healthineers Enterprise Services.[15]

The need for continuous business model innovation was also addressed by prevailing digital technologies. Throughout the 2000s, digital technologies had been spawning new needs, expectations, and opportunities for all three participant segments of the healthcare ecosystem: patients,[16] providers,[17] and payers.[18] Many patients expected to access and utilize their health data online, but health records from different care sites were not always shareable or usable. Healthcare providers wanted to capture the vast amounts of data generated by cutting-edge medical devices and equipment, but it could be difficult to combine or synthesize that data due to various restrictions such as proprietary rights, lack of regulations, or overregulation. Payers faced new pressures around digital healthcare regulation, like the European Union's 2019 Digital Healthcare Act.

Failure to address those changes could seriously undermine SHS's competitive strengths. From a positive perspective, there was the potential to unlock tremendous value for all players by linking them in a single digital healthcare ecosystem that would support collaboration and shared solutions

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[11] https://www.siemens-healthineers.com/press/releases/2023q4
[12] https://www.siemens-healthineers.com/fr-ch/infrastructure-it/healthcare-consulting/the-profile-of-the-consulting-team/our-customers
[13] https://www.siemens-healthineers.com/services/value-partnerships
[14] https://www.siemens-healthineers.com/en-sg/services/value-partnerships/financing-models-asn
[15] https://www.siemens-healthineers.com/en-sg/services/value-partnerships/financing-models-asn
[16] https://www.forbes.com/sites/forbesagencycouncil/2022/11/17/digital-patient-experience-in-healthcare-a-necessary-game-changer/?sh=d0469865dac1
[17] https://www.ama-assn.org/press-center/press-releases/ama-physicians-propelling-health-care-s-digital-transformation
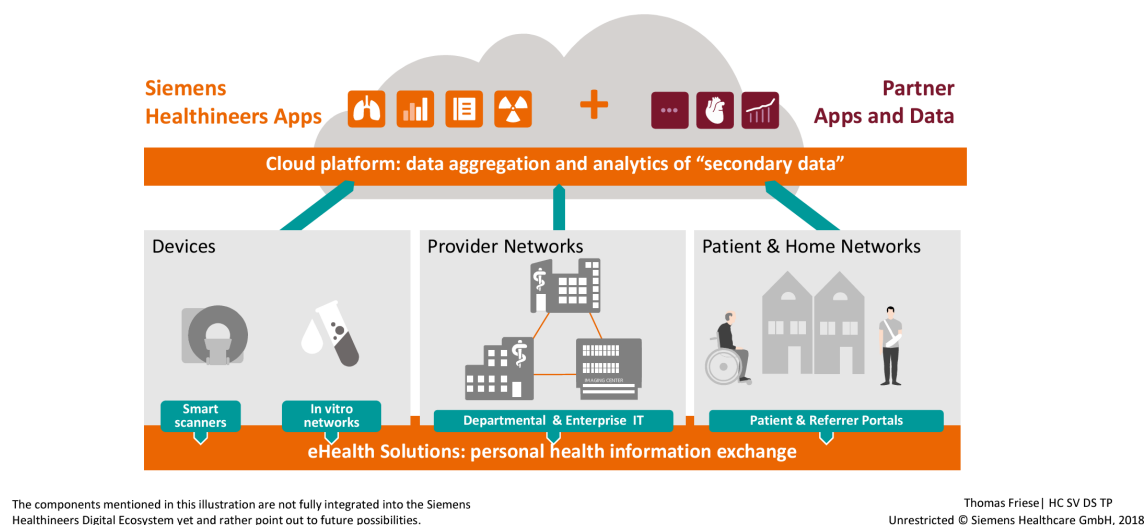[18] https://healthcareexecintelligence.healthitanalytics.com/features/how-3-policies-are-changing-the-healthcare-payer-landscape

among all related stakeholders.[19] In 2013, the decision was made to develop such a digital healthcare platform that, in the longer run, could serve as a focal entity in "elevating and scaling the healthcare system" as envisioned by Montag at Executive Summit 2022.

Teamplay Digital Health Platform

By May 2014, SHS had begun developing the prototype of a platform that would facilitate smarter decision-making across the patient pathway.[20] Featuring vendor-, system-, and device-neutral architecture, it would be a digital marketplace for SHS and third-party applications and software.[21]

In 2018, Dr. Thomas Friese, Head of Digital Ecosystem Platform, made a presentation visualizing how Siemens Healthineer's digital ecosystem (**Figure 2**) could operate as a digital marketplace integrating SHS, but also Partner apps and data, e.g., Arterys, Cranberry Peak, and Stroll Health.

The components mentioned in this illustration are not fully integrated into the Siemens Healthineers Digital Ecosystem yet and rather point out to future possibilities.

Thomas Friese| HC SV DS TP
Unrestricted © Siemens Healthcare GmbH, 2018

Figure 2 Siemens Healthineers Digital Ecosystem – teamplay as a marketplace[22]

SHS had a clear vision of how the Siemens Healthineers Digital Ecosystem marketplace could operate. In the decades before 2024, Siemens Healthineers had made significant advancements in AI, securing over 500 patents in machine learning and 100 in deep learning and introducing more than 40 AI-powered products. The "teamplay" platform was imagined to be a focal point in the digital healthcare ecosystem, functioning like an app store. This cloud-based big data platform facilitated AI+imaging applications, such as lung nodule diagnosis and cancer screening, offering convenient, efficient, and diversified solutions. In 2024, teamplay aimed to improve operational efficiency in medical institutions and promote industry-wide collaboration, addressing challenges in the healthcare sector globally, including the EU, the US, China, and beyond (**Exhibit 2).**

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[19] https://www.siemens-healthineers.com/products-services/value-partnerships-and-consulting
[20] https://www.siemens-healthineers.com/digital-health-solutions/teamplay-digital-health-platform
[21] https://marketplace.teamplay.siemens-healthineers.com/apps
[22] https://www.gdsd.statistik.uni-muenchen.de/2018/friese.pdf
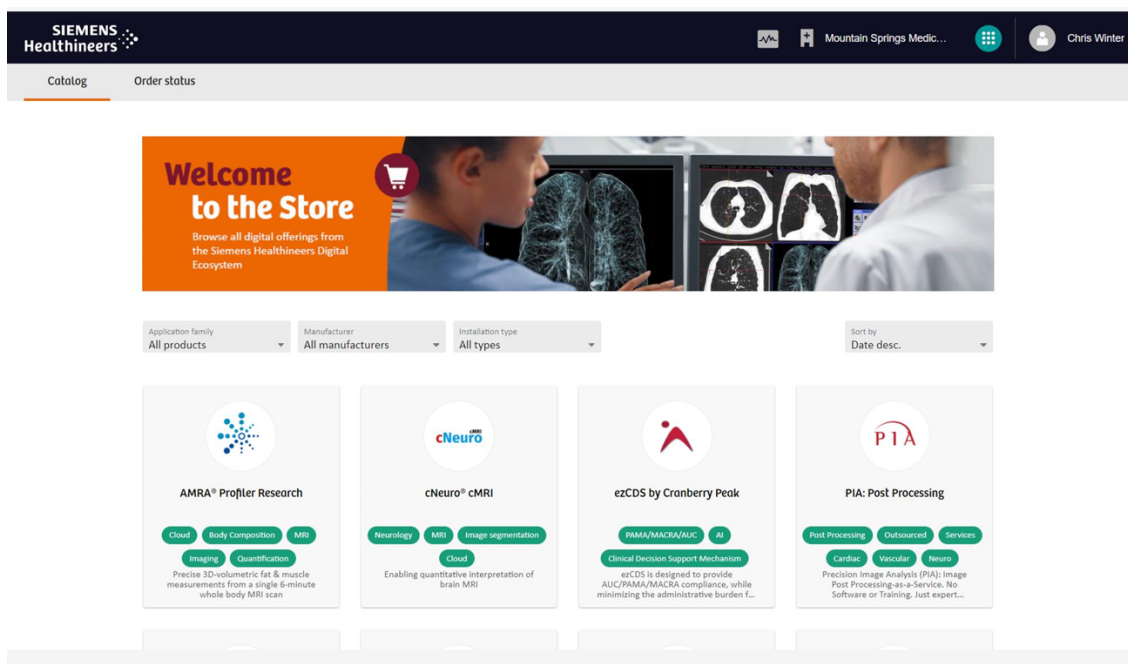
Figure 3 The illustration of the user interface of vendor-, system-, and device-neutral SHS digital ecosystem also integrates third-party applications.
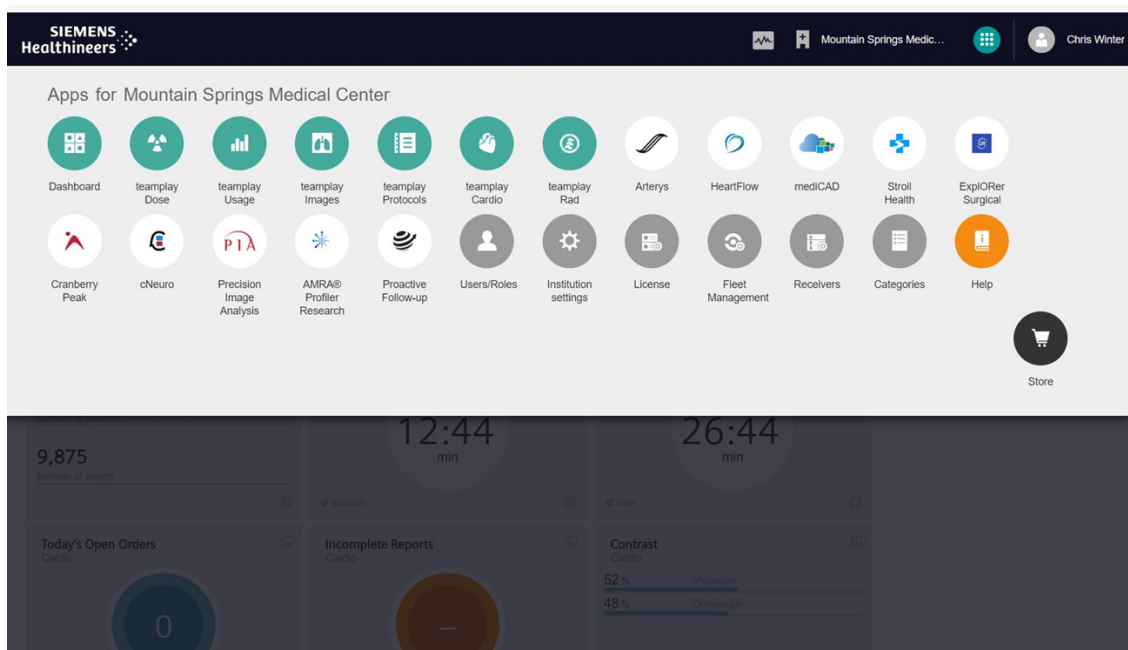
Figure 4 The illustration of the user interface of vendor-, system-, and device-neutral SHS digital ecosystem also integrates third-party applications.

The teamplay platform would provide services such as real-time data access, analysis, integration, and secure exchange to improve the patient and provider experience, remove workflow inefficiencies, and reduce costs for all stakeholders. As more and more data became available, platform participants would be able to co-create new solutions and collaboratively leverage new

opportunities. Digitalizing healthcare enabled providers to achieve better outcomes at lower costs. To make this possible, four steps were critical (**Figure 5**).
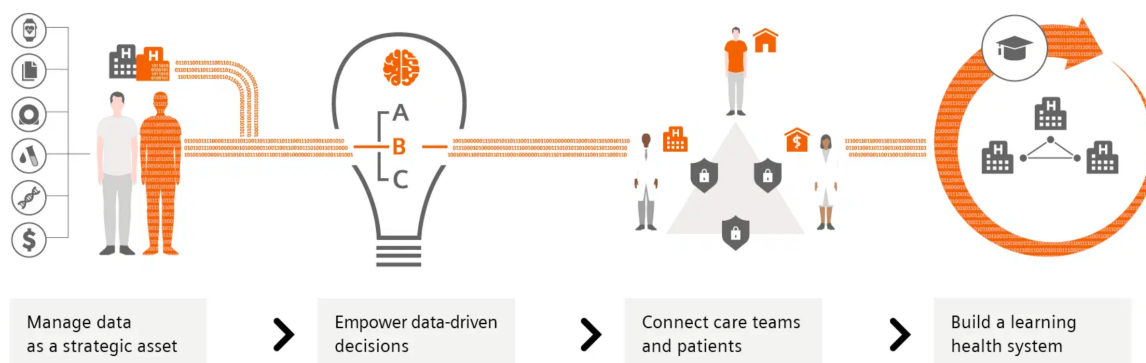
Figure 5 Digitalizing healthcare: how to create a digital enterprise in four critical steps.[23]

The digital journey towards realizing the SHS ecosystem vision started in 2015 with the release of the first formal product for teamplay - Dose and Usage (**Figure 6**). After the introduction, the teamplay team continued to prioritize speed, work in small teams, conduct pilots with early customers and partners, and establish trust with different management layers within the company.

teamplay Dose – Simplify radiation dose management. The application helps to identify areas of improvement and administer best-practice exams. All insights in teamplay Dose are based on data extracted from the radiation reports of scanners.
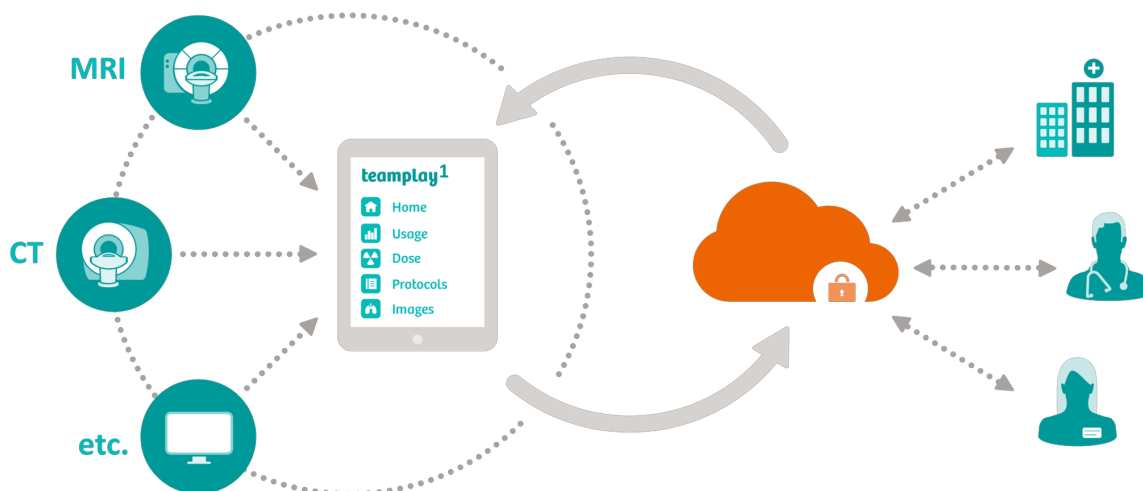teamplay Usage – Increase efficiency and expedite imaging fleet utilization Explore workflow-specific data on patients and exams and/or focus on the efficiency and performance of individual devices, identifying optimization potential.
teamplay Images – Share and discuss images in a secure environment. Teamplay Images can share images in a secure environment. Collaboration features help to engage with other peers.
teamplay Protocols – Speed up protocol management by remote access. Speed up protocol management by editing protocols remotely and the possibility of distributing protocols to the image fleet.

Figure 6 Teamplay cloud platform and applications.[24]

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[23] https://www.siemens-healthineers.com/en-ca/insights/digitalizing-healthcare
[24] https://www.slideshare.net/VladikUkis/enabling-continous-delivery-in-the-siemens-healthineers-digital-ecosystem-platform-and-teamplay-applications

After the formal release of Protocols (April 2016) and Images (July 2016), teamplay was officially launched as a SaaS/PaaS platform at the February 2017 HIMSS (Healthcare Information and Management Systems Society) Annual Conference and Exhibition. The SaaS/PaaS approach enabled customers to drive their own digital transformations with minimal investment of their resources. By October 2020, teamplay boasted 6500 connected institutions and 32,000 connected systems in 60 countries, up from 5000 institutions and 23,000 systems in March of that year.[25] More than 10 million patient records were accessible on the platform cross-institutionally, and the number of customers had tripled in just two years (**Exhibit 3**).[26] The platform had been awarded the European Privacy Seal for data protection, helping to address issues around data privacy in Europe and confirming that users could work with cloud-based solutions in full compliance with the EU General Data Protection Regulation.[27]

In March 2020, Siemens Healthineers introduced the teamplay digital health platform to the market, aiming to facilitate the digital transformation of healthcare providers. This platform connected data, people, institutions, systems, and applications, providing flexibility, scalability, and future readiness. Wido Menhardt, the head of Digital Health at Siemens Healthineers, highlighted the platform's role in supporting digital transformation by offering easy access to solutions for operational, clinical, and shared decision support. The teamplay digital health platform became a foundation for Siemens Healthineers' offerings, featuring secure data sharing, interoperability, and a digital marketplace. The marketplace integrated third-party AI applications and Siemens Healthineers decision support software for a comprehensive and advanced user experience.[28]

In June 2021, Siemens Healthineers unveiled new digital offerings on the teamplay Digital Health Platform Connect at DMEA, Europe's leading trade fair for digital healthcare. Five new partners joined Siemens Healthineers in providing digital services on this open platform, offering value-added services ranging from wound management to AI-based decision support. The platform, operated in collaboration with IBM, aimed to support the digitalization of the German healthcare sector (**Figure 7**). In lauding the enhancements, IBM partner Annika Grosse put special emphasis on the cutting-edge safeguards included to ensure patient and physician privacy. Even though teamplay was operated by the Siemens and IBM data centers, she stressed, "…Neither Siemens Healthineers nor IBM has access to the healthcare data."[29]

Dr. Christian Kaiser, Head of Digital Services Central Western Europe at Siemens Healthineers, highlighted the platform's advantage in reducing integration efforts for service providers, particularly for projects under the German "Krankenhauszukunftsgesetz" (KHZG - Hospital Future Act). The platform simplified the implementation of KHZG projects for hospitals, ensuring they were future-proofed and could easily access subsidized innovative solutions. Siemens Healthineers collaborated with Flying Health to identify and acquire new value-added services. Five partner companies offered digital services on the platform: imitoWound, Patient Journey App, ProCarement, RAMP, and Recare. The range of value-added services on the platform was expected to continually expand.[30]

[25] Siemens Healthineers lays out strategy to bolster market leadership beyond 2025 (siemens-healthineers.com), https://www.siemens.com/investor/pool/en/investor_relations/Siemens_AR2016.pdf

[26] https://cmr.berkeley.edu/2022/08/64-4-value-impedance-and-dynamic-capabilities-the-case-of-medtech-incumbent-born-digital-healthcare-platforms/

[27] https://www.hhmglobal.com/industry-updates/press-releases/siemens-healthineers-cloud-platform-teamplay-awarded-european-privacy-seal-for-data-protection; https://www.euronews.com/next/2022/10/13/explainer-everything-you-need-to-know-about-the-european-health-data-space

[28] https://www.itnonline.com/content/siemens-healthineers-introduces-teamplay-digital-health-platform;

[29] https://www.linkedin.com/pulse/siemens-healthineers-ibm-announcing-important-milestone-annika-grosse/

[30] https://gha.health/en/siemens-healthineers-expands-digital-healthcare-platform/

Figure 7 Teamplay Digital Health Platform Connect in collaboration with IBM.

To enhance digital data exchange, the system was designed to accommodate third-party offerings, allowing them to seamlessly integrate apps and other digital services into the platform. Examples of value-added services included integrating electronic patient records, structured or cross-institutional services, as well as virtual visits or online therapies. "We want to see as many value-added services as possible on our platform because we are convinced that the diversity helps our platform to be successful," said Dr. Christian Kaiser, Head of Digital Services Central Western Europe, Siemens Healthineers in 2021.[31]

Incumbent Platform Advantages

Teamplay was one of the industry's first incumbent-born platforms, developed not by a company with a digital core business like Amazon or Google but by an established conventional MedTech player. In any sector, incumbent platforms typically served customers upstream in the value chain (e.g., healthcare suppliers) rather than end users (e.g., patients).

Siemens leaders saw significant advantages to incumbency in the complex, high-stakes, knowledge-based healthcare ecosystem. Among them were domain expertise, existing relationships, a deep understanding of customers, and regulatory compliance experience. SHS also benefited from a vast installed base of imaging systems. Including some of the most advanced and

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[31] https://healthcare-in-europe.com/de/news/siemens-ibm-starten-gemeinsame-gesundheitsplattform.html

sophisticated in the world, these systems provided clear direction for exploring new value streams. The key question, as articulated by the CEO, was: "How can an individual customer benefit from being connected to the largest installed base of imaging devices in existence?"[32]

At the same time, a MedTech company designed as a non-digital enterprise could not necessarily, or rapidly, transform itself to operate effectively in a digital environment and embrace a platform mindset. Furthermore, the recalibration of the stand-alone product mindset is a subject of organizational learning latency and a source of digital transformation gaps—differences between the processes developed to support core non-digital products and the processes necessary to navigate digital services. Yet, such transformation would be essential for the company to capture value in the new digital healthcare ecosystem.

Competitive Failures

There was much to learn from the stumbles of other incumbents. For example, Microsoft's (MS) HealthVault and IBM's Watson Health were introduced with great fanfare in 2007 and 2010, respectively. Both were shuttered several years later.[33] While the reasons for the failures differed in some respects, both offerings suffered from a lack of interoperability and insufficient functionality for the price the customers were willing to pay. MS HealthVault stymied patients who tried to retrieve their records from providers or communicate with their treatment teams.[34] IBM Watson Health could not deliver on its promises to streamline and optimize cancer research and care.[35]

However, teamplay's most formidable challenges lay within the organization. To move forward, its leaders needed to confront the limited capacity of an established, successful company to benefit from disruptive innovation without major internal change, especially in mindset.

Recapping SHS's Digital Journey

Digital Transformation Gaps and the Risk of Value Impedance

For a non-digital business, making the strategic and operational leap to digital innovation involved far more than simply moving its core business online. It required a fundamental shift in focus: from delivering one type of offering to one type of customer toward providing a range of services to multiple participants in an ecosystem. Even the most effective core processes were rarely transferable; for instance, an R&D function may have generated successful core product innovation, but its experts were likely to lack the tools or vision to undertake co-innovation with internal and external partners. Without bridging these digital transformation gaps, the company risked value impedance.[36] Put differently, if the incumbent failed to subdue diverse parties (both internal and external) along the digital innovation value chain in a manner that satisfied their interests, the parties involved might disengage. Consequently, the digital innovation would not produce the desired value (despite all financial investments), and the incumbent would not yield the expected rents.

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[32] SHS internal communication
[33] https://www.fiercehealthcare.com/health-tech/watson-health-under-new-investment-firm-ownership-reborn-merative
[34] https://www.chilmarkresearch.com/healthvaults-demise-no-surprise/
[35] https://slate.com/technology/2022/01/ibm-watson-health-failure-artificial-intelligence.html
[36] We define value impedance as a comprehensive expression of any form of friction or barrier to value flow within organizations and across digital innovation value chain. It can limit the capacity of MedTech incumbents to benefit from their digital platform innovations, despite the perceived value to the customer.

Therefore, platform economics emphasized that multi-sided platforms emerge in situations with externalities and transaction costs, broadly defined as "preventing the two or more sides from solving these externalities directly." Moreover, cooperative or innovative multi-sided platforms required additional rules and regulations as the behavior of their members could impact the overall value of the platform.[37] Managing externalities and governing multi-sided platforms required new skills and complementary resources that, at a certain point, became a bigger burden than a gain for the incumbent.

SHS was not unique in running headlong into such gaps; however, its very success in the world of non-digital products meant that its leaders would need to unlearn many established processes even as they tried to master the new environment. They would be forced to confront four types of challenges or digital transformation gaps (**Exhibit 4**), each rooted in large-scale organizational change towards multi-sided platform logic and facilitated by dynamic capabilities.

The Role of Dynamic Capabilities

Dynamic capabilities enable an organization to address a new, rapidly changing environment. They include processes around scanning, detecting, integrating, orchestrating, and reconfiguring internal and external assets, which are critical to building competitive advantage under new business conditions. The teamplay journey revealed specific dynamic capabilities that SHS would need to sustain the platform's initial success.

A. Sensing the internal environment

SHS was experienced at deploying sensing skills in its core markets but not in its new digital markets. Equally important at the time it embarked on digital transformation, it would need to sense the magnitude and types of internal change required for such a fundamental change. This would require engaging all relevant internal constituencies and achieving collaboration among units that may not have previously worked together or even recognized value in doing so.

As a first and critical step, transformation leaders quickly set about obtaining manager buy-in, especially among those resistant to change. Unsurprisingly, some of the resistance stemmed from a reluctance to become beginners in a new enterprise after many years of being experts in the established business. Manager support would also discourage "power plays" from core product owners who knew they generated the money being invested in teamplay and who lacked enthusiasm for the platform business. As a business development expert observed, "I think this is also something that needs to be reflected in the mindset of everybody, from keeping and hiding information to sharing information and discussing things with people early on. Without that kind of mindset, you wouldn't be able to do this on a company scale."[38]

B. Value-capturing through connectedness

The business model gap can be especially wide in a highly successful incumbent like SHS. As one design thinking expert pointed out, "Whatever you do at Healthineers, it will always be compared

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[37] Evans, David S. 2011, Platform Economics: Essays on Multi-Sided Businesses. Competition Policy International (CPI); Evans, David S. / Schmalensee, Richard, 2016, Matchmakers: The New Economics of Multisided Platforms, Boston; Evans, Peter C. / Gawer, Annabelle, 2016, The Rise of the Platform Enterprise. A Global Survey, The Emerging Platform Economy Series, No. 1, The Center for Global Enterprise, New York

[38] Quoted in https://cmr.berkeley.edu/2022/08/64-4-value-impedance-and-dynamic-capabilities-the-case-of-medtech-incumbent-born-digital-healthcare-platforms/

to this billion [dollar] business of MRI [imaging], for instance, right? This is a huge, huge business, and it's very profitable. And it's very easy to say, let's do more of that because there the dollars come back; that's what we know."[39]

To bridge this gap, leaders needed to develop a compelling, concrete value proposition that placed teamplay as a digital healthcare platform front and center. To this end, they described teamplay as a platform that would facilitate the interaction of multiple actors who were otherwise unconnected, making valuable data accessible and usable to those actors (**Exhibit 5**). The emphasis on platform modularity and connectedness features and capabilities set managers up to shift focus from the core to a digital business model, engage customers, and capture new forms of value.

C. Orchestrating silos

Silos were baked into SHS's original design. They encouraged product owners to focus narrowly on building their own businesses. However, naturally evolved silos blocked information flows and prevented collaboration either internally or externally. Silos also encouraged fiefdoms, as described by an innovation expert, "They [core business managers] were all trying to optimize their silo, and they were not trying to optimize what the customer or the healthcare providers of the patients were getting as an experience from Siemens Healthineers."[40]

Bridging the organizational reconfiguration gap would require redesigning practices and assets to support intraorganizational collaboration. This could include efforts like abandoning traditional authority structures, formalizing mechanisms to support cross-functional knowledge exchange and communication, onboarding external partners smaller and more agile than a large, bureaucratic incumbent, and establishing dedicated transformation working groups as hubs for discussion. For example, SHS created the T-Club (the Transformation Club), a safe zone for people to discuss new topics, including platform business models and diverse scenarios for teamplay's future. The foundations for such efforts were laid by the Digital Company Office, a company-wide governance initiative charged with target setting, tracking, and reporting impact and driving cross-collaboration. Additionally, the initiative sponsored Digital Ambassadors across workstreams to lead digital programs within their business units. [41]

D. Transforming organizational boundaries of the core business

The continuous renewal gap is an extension of the organizational configuration gap, with significant managerial implications (**Exhibit 6**). The emphasis on ongoing renewal recognizes that there is no point at which a business can stop balancing the needs of its core business with those of the digital business, stretching or spanning its legacy organizational boundaries, and building a new culture focused on outside value creation.

Teamplay leaders recognized that one effective way to accelerate continuous renewal was to foster the type of entrepreneurial spirit expressed by a business development expert, "Things are changing here. I want to be part of it. That's why I'm here. I know I have to work somewhat more. This is a

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[39] Quoted in https://cmr.berkeley.edu/2022/08/64-4-value-impedance-and-dynamic-capabilities-the-case-of-medtech-incumbent-born-digital-healthcare-platforms/

[40] Quoted in https://cmr.berkeley.edu/2022/08/64-4-value-impedance-and-dynamic-capabilities-the-case-of-medtech-incumbent-born-digital-healthcare-platforms/

[41] (27) Drive Digital Company – The internal digital transformation at Siemens Healthineers | LinkedIn

small stress. It's not as relaxed. My career path is quite uncertain, but anyway, I'm doing it. This I admired very much, and this has a name as 'entrepreneurial spirit.'"[42]

An Uncertain Future

Despite successful collaborative projects, e.g., with IBM, Patient Journey App, and ProCarement, and a growing number of teamplay users, SHS leaders were concerned about platform revenue projections. They sensed some resistance among users to pay on an ongoing basis for the teamplay functionalities, at least at the price points that would be needed to build a sustainable business. They also learned that sales opportunities were uneven across countries because of differing maturity rates in digital healthcare ecosystems. For example, India constituted a large healthcare market but lagged behind Western Europe in funding and infrastructure for digital innovation. Even in some highly developed countries like Spain and Italy, the adoption of digital solutions was held back by diversity in languages, cultural attitudes, and regional needs. [43]

By late 2023, new obstacles were also taking shape. At least two global competitors, Philips and GE, had launched platforms with value propositions similar to that of teamplay; Philips' HealthSuite touted a partnership with digital engineering firm Cognizant,[44] while GE's Edison Digital Healthcare Platform featured an AI toolkit for running applications.[45] There was a growing risk that major hospitals or other healthcare institutions could choose to create proprietary digital networks within their regions or expertise domains, such as mental health or oncology.

The most pressing issue was that SHS digital leaders were faced with internal competition for resources. Notably, the diagnostics division was falling short of sales targets. By Q2 2023, this bedrock business had suffered a 39% year-over-year drop in revenue.[46] The company announced a drive for over $300M in annual savings starting in 2025, to involve streamlining the product line, shuttering locations, and shedding jobs. There would be a parallel push to innovate within the diagnostics space. [47]

It would be hard to make a case for teamplay as a top priority for "elevating the healthcare system" in the face of these SHS challenges. Besides, it was still unclear if teamplay should be inside or outside the SHS core value proposition. Either way, consumers had not yet demonstrated a willingness to pay for teamplay services. Thus, more investments would be needed.

In 2024, the platform focused on supporting imaging and other business lines by creating teamplay fleet functionality as part of teamplay performance management applications (**Figure 8**). Simultaneously, emphases on core business would benefit customers by creating continuity across and between digital offerings. As José Ricardo Silveira Pereira, General Manager of Engineering at ALLIAR Médicos a frente, observed approvingly, "Teamplay Fleet gives us so many details on our installed equipment. One example is the possibility of getting a quick overview on the age, so

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[42] Quoted in https://cmr.berkeley.edu/2022/08/64-4-value-impedance-and-dynamic-capabilities-the-case-of-medtech-incumbent-born-digital-healthcare-platforms/

[43] https://www.weforum.org/agenda/2022/08/countries-achieve-digital-maturity-healthcare/

[44] https://www.usa.philips.com/healthcare/innovation/about-health-suite

[45] https://www.gehealthcare.com/about/newsroom/press-releases/ge-healthcare-developing-a-digital-health-platform-to-help-providers-accelerate

[46] https://www.google.com/search?q=siemens+healthineers+outlines+changes+to+diagnostics+business+with+layoffs+focus+on+atellica&rlz=1C1SQJL_enUS844US844&oq=si&aqs=chrome.0.69i59l2j69i64j69i57j69i59j69i61l2j69i60.4742j0j7&sourceid=chrome&ie=UTF-8

[47] https://www.reuters.com/business/healthcare-pharmaceuticals/siemens-healthineers-announces-diagnostics-division-overhaul-2022-11-09/

when the installation date was. With this information, we can provide a much more precise estimate of the depreciation value. This helps us to provide a more accurate reporting to our shareholders."[48]
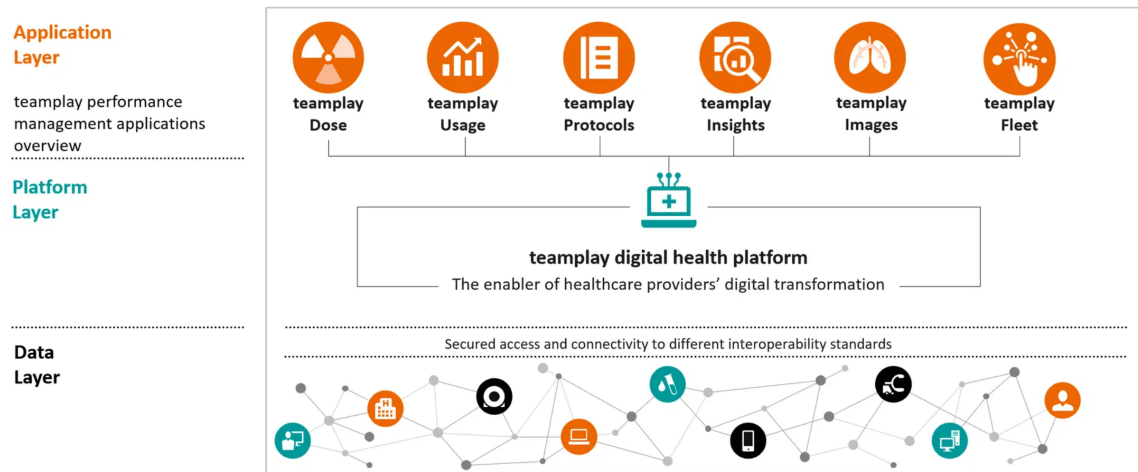
Figure 8 Teamplay Fleet functionality as a part of the teamplay performance management applications[49]

Case Discussion Questions

1. What is SHS's vision of the healthcare system, and how do they envision making it a reality?
2. What was the role of teamplay in "elevating the healthcare system," and how did it address SHS Strategy 2025 and New Ambition?
3. What major challenges are likely to arise during a MedTech incumbent's digital transformation?
4. What are dynamic capabilities? What is their role in building and sustaining a competitive advantage for the SHS digital business?
5. What is the competitive landscape faced by the teamplay digital health platform, and how does this landscape impact SHS strategic decisions that will guide teamplay's future?

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[48] https://www.siemens-healthineers.com/services/customer-services/connect-platforms-and-smart-enablers/teamplay-fleet

[49] https://www.siemens-healthineers.com/services/customer-services/connect-platforms-and-smart-enablers/teamplay-fleet

Exhibit 1 Siemens Healthineers financial statement Fiscal year 2023

Segments

(in millions of €)	Fiscal year 2023	Fiscal year 2022	Act.	%–Change Comp.[3]
Imaging[1]				
Total adjusted revenue[2]	11,842	10,867	9.0%	10.9%
Adjusted EBIT	2,569	2,221	16%	
Adjusted EBIT margin	21.7%	20.4%		
Diagnostics				
Total adjusted revenue[2]	4,528	6,065	−25.3%	−24.2%
Adjusted EBIT	−117	933	−112%	
Adjusted EBIT margin	−2.6%	15.4%		
Varian[1]				
Total adjusted revenue[2]	3,561	3,130	13.8%	14.8%
Adjusted EBIT	538	499	8%	
Adjusted EBIT margin	15.1%	15.9%		
Advanced Therapies				
Total adjusted revenue[2]	2,019	1,920	5.2%	7.8%
Adjusted EBIT	311	240	30%	
Adjusted EBIT margin	15.4%	12.5%		

1 Comparable based on the organizational structure effective October 1, 2022.
2 Total adjusted revenue is defined as total revenue adjusted for effects in line with revaluation of contract liabilities from IFRS 3 purchase price allocations.
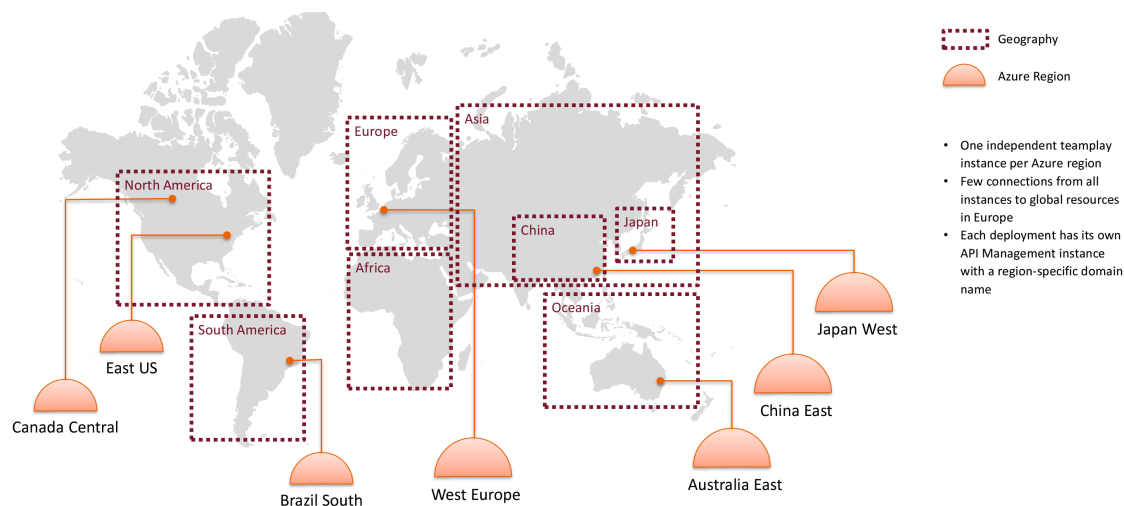3 Year-over-year on a comparable basis, excluding currency translation and portfolio effects.

Source: https://www.siemens-healthineers.com/press/releases/2023q4

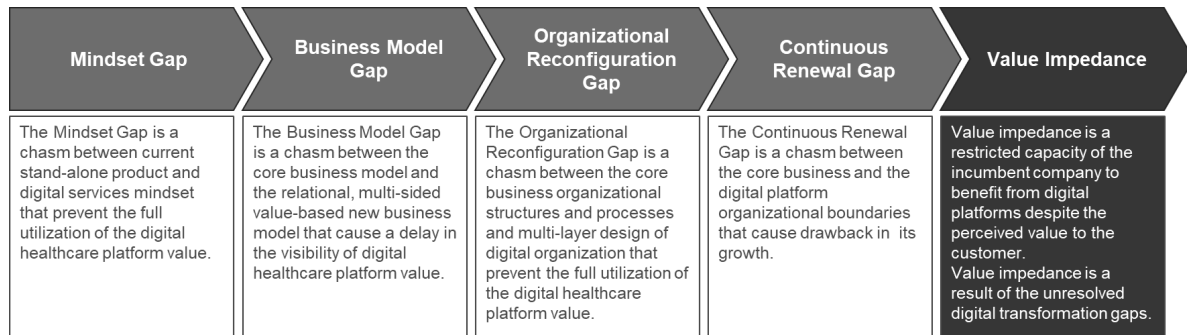**Exhibit 2** Global ambitions of SHS teamplay digital healthcare platform

Source: https://www.siemens-healthineers.com/digital-health-solutions/teamplay-digital-health-platform

Exhibit 3 Growth of the teamplay customer base
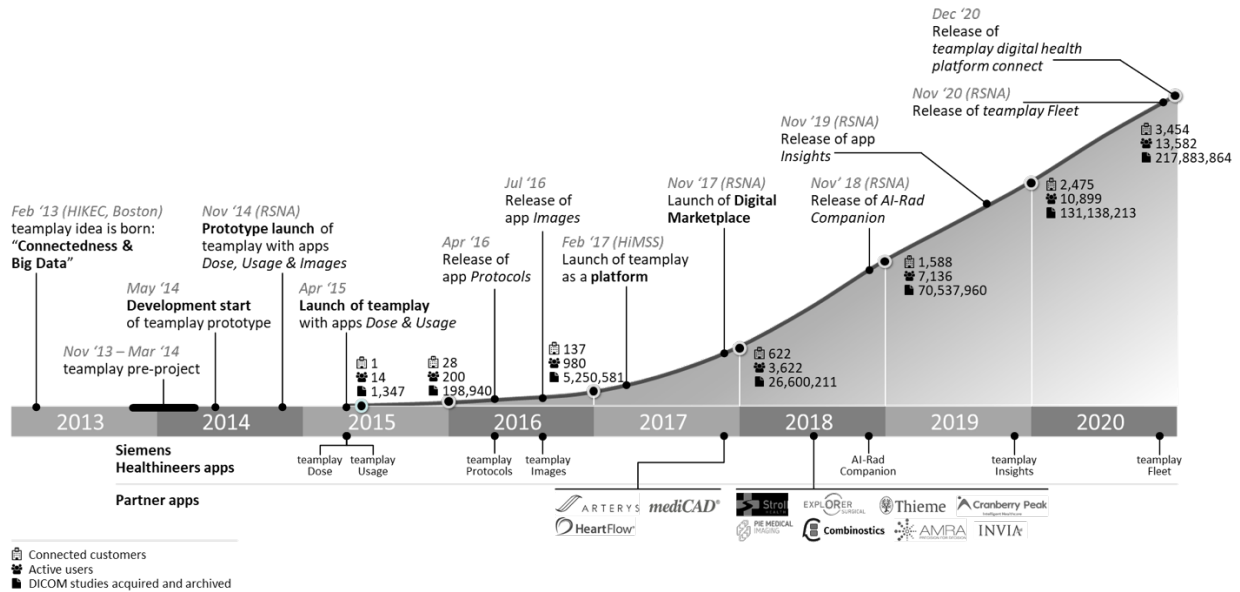
Exhibit 4 Digital transformation gaps that lead to value impedance

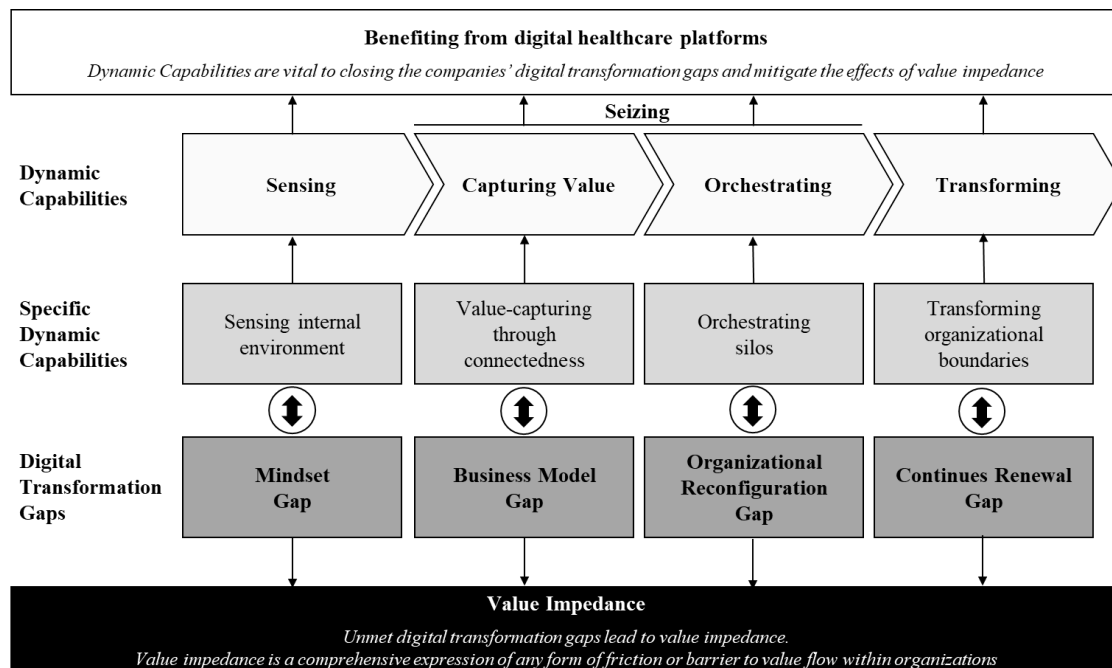| Mindset Gap	Business Model Gap	Organizational Reconfiguration Gap	Continuous Renewal Gap	Value Impedance
The Mindset Gap is a chasm between current stand-alone product and digital services mindset that prevent the full utilization of the digital healthcare platform value.	The Business Model Gap is a chasm between the core business model and the relational, multi-sided value-based new business model that cause a delay in the visibility of digital healthcare platform value.	The Organizational Reconfiguration Gap is a chasm between the core business organizational structures and processes and multi-layer design of digital organization that prevent the full utilization of the digital healthcare platform value.	The Continuous Renewal Gap is a chasm between the core business and the digital platform organizational boundaries that cause drawback in its growth.	Value impedance is a restricted capacity of the incumbent company to benefit from digital platforms despite the perceived value to the customer. Value impedance is a result of the unresolved digital transformation gaps.

Exhibit 5 Teamplay value proposition

Frost and Sullivan-SH White Paper "MedTech Industry Leverages Platform as a Service to Overcome Hurdles, Capitalize on Big Data and Truly Embrace Digital Transformation"

The teamplay digital health platform connects data, people, institutions, systems, and applications with its secure data sharing and connectivity service (developed and operated according to 27001 certified ISMS, supporting HIPAA-compliance, EuroPriSe awarded). Our platform is vendor-, device- and system-neutral to enable standardization and support seamless interoperability across departments and institutions. For example, it will enable the cross-institutional exchange of electronic health records and thus support collaboration between care teams and connect them to patients to facilitate successful cooperation.

The platform will be your central host of a broad range of transformative and AI-powered applications – both built in-house and developed by curated partners. You can access these applications via the Digital Marketplace that scales with your needs. Additionally, the Digital Marketplace provides state-of-the-art SaaS (software-as-a-service) business models as well as scalable computing power.

Source: https://www.siemens-healthineers.com/digital-health-solutions/teamplay-digital-health-platform

Exhibit 6 The role of dynamic capabilities in closing incumbents' digital transformation gaps and mitigating the effect of value impedance

Source:https://cmr.berkeley.edu/2022/08/64-4-value-impedance-and-dynamic-capabilities-the-case-of-medtech-incumbent-born-digital-healthcare-platforms/