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Future-proofing German healthcare: Three catalysts to accelerate change

Germany's healthcare system faces imminent challenges, including rising cost pressures, an aging population, and longer lifespans. To address these issues, the system could implement an "acceleration formula," focusing on swift digital transformation and preventive care.

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As we look toward the next two decades, Germany will witness a marked demographic transformation characterized by increased life expectancy and an aging population. By 2040, the average life expectancy of children born in Germany is projected to rise to approximately 83, up from today's approximate 81 years.[1]

With such a demographic shift, inevitable socioeconomic and healthcare issues arise, particularly regarding the German healthcare system. One of the leading healthcare issues is the escalating demand for nursing professionals. Projections suggest a need for around 1.9 million nurses by 2040, a considerable increase from the 1.6 million nurses currently in service. Today, the shortfall of nursing professionals is already at a minimum of 100,000, but with these ongoing demographic changes, this deficit could expand dramatically, potentially quadrupling.[2]

The aging population also introduces other notable healthcare challenges in Germany. The country faces a shrinking pool of healthcare professionals who must meet a growing need for services. This demand is driven by an increase in the number of senior citizens and their extended periods of poor health, which naturally accompanies longer life spans, especially in the form of age-related ailments. Consequently, these factors increase healthcare costs and heighten the need for medical services, compounding the financial strain on the German healthcare system, which already has the highest healthcare expenditure per capita in the European Union (EU).

To navigate these challenges, the German healthcare system could adopt an "acceleration formula," an approach that involves a rapid advancement in healthcare digitalization and a strategic pivot toward preventive care. Such transformative actions would require collaboration between the public and private sectors, involving entities of varying sizes. This strategy could be instrumental in reshaping Germany's approach to healthcare, making it more sustainable and responsive to the needs of its changing demographics.

Over the last century, life expectancy has increased considerably in most parts of the world. However, the proportion of life spent in poor health remains unchanged, with individuals still spending about 50 percent of their lives in less-than-good health, including approximately 12 percent in poor health.[3] Moreover, chronic conditions are becoming more prevalent globally, thus impacting the quality of these extended years. As the renowned French surgeon Alexis Carrel once poignantly noted, "Longevity is only desirable if it prolongs being young, not drags out being old."[4] Looking at Germany specifically, life expectancy has increased from 75 to 81 years since the fall of the Berlin Wall in 1989.[5] Such a demographic shift intensifies existing healthcare challenges in the country, where financial strains within the healthcare system are worsening. From 2017 to 2022, Germany's healthcare expenditure per capita grew by over 5 percent annually to €5,939,

accounting for 12.9 percent of its GDP in 2021—the highest proportion in the EU.[6] This escalation underscores the mounting cost pressures from rising expenses and the growing need for healthcare services.

Another critical area of concern is inpatient care. Financial instability and the need for service consolidation are leading to hospital closures across Germany. However, these closures are part of a broader hospital reform initiative to restructure the system to ensure sustainable financing and higher quality of care. The reform proposes a shift from the current fee-per-case payment model to a system of retention payments designed to support hospital operations, even with reduced treatment volumes. Nevertheless, these reforms have faced criticism for their lack of clarity and immediate financial relief, raising concerns about potential care gaps, especially in rural areas.

[1] Statistisches Bundesamt (Destatis), 2024.
[2] Statistisches Bundesamt (Destatis), 2024.
[3] Lars Hartenstein and Tom Latkovic, "The secret to great health? Escaping the healthcare matrix," McKinsey Health Institute, December 20, 2022.
[4] Alexis Carrel, *L'homme, cet inconnu,* France: PLON ET NOURRIT, 1935.
[5] Statistisches Bundesamt (Destatis), 2024.
[6] Statistisches Bundesamt (Destatis), 2024.

Furthermore, the German healthcare system is grappling with capacity constraints and talent shortages. Recruiting and retaining qualified healthcare professionals, including physicians and nursing staff, is becoming more difficult. According to a study by the Robert Bosch Stiftung, by 2035, there will be a shortage of approximately 11,000 general practitioners in Germany, with similar trends observed in other therapeutic areas.[7] The rising demand for healthcare services propels this trend, and with a significant portion of the workforce simultaneously approaching retirement, the shortage issue is further compounded. According to the Bundesärztekammer, approximately 50 percent of physicians in Germany are over the age of 50, and the prevalent trend toward part-time work models further diminishes the total working hours per physician. As a result, rural areas, in particular, are experiencing a pronounced shortage of physicians.[8] A reduced number of healthcare workers places additional pressure on the remaining staff, which can negatively affect the quality and availability of care. Initiatives to mitigate these challenges include reforms to enhance working conditions and more training and recruitment programs. However, these measures have yet to fully relieve the pressure.

It is thus clear that the German healthcare system is facing critical challenges. At first glance, the prospects for improvement seem promising, as various measures and actions are already in place, some of which have been implemented for a while. However, the situation is at risk of further decline due to inadequate prioritization, insufficient critical mass, and slow progress in implementing measures. Reversing this overall negative trend will necessitate a concerted effort from as many stakeholders as possible who will need to concentrate on the most important measures and employ a proven implementation strategy (see Text Box 1).

Text Box 1:

Advancing healthcare with an effective acceleration formula

The Stifterverband has unveiled a comprehensive acceleration approach to address complex, multifaceted challenges such as those confronting the German healthcare system.[9] This approach is structured according to three interconnected components:

Strategic levers as "catalysts" for maximum impact and acceleration. The careful selection of strategic levers is pivotal, as they will serve as the initial points of action within each prioritized field. They are designed to stimulate and accelerate growth, operating directly by laying the foundation for future expansion and indirectly by energizing the surrounding environment. Like catalysts in chemistry, these levers trigger or speed up reactions, thereby amplifying their impact.

Clear road maps for swift and measurable progress. A clear and detailed road map is crucial for rapid advancement in each action field. This road map enables progress tracking against well-defined criteria and facilitates optional direction changes and necessary adjustments along the way. Such structured planning ensures that milestones are both achievable and observable.

The coordination of relevant actors for focused collaboration. Transitioning from planning to execution is markedly improved when defining clear roles and responsibilities, thereby fostering effective communication among stakeholders and ensuring decisive leadership. Such coordination is challenging yet essential in a federated system like Germany's, which includes diverse institutions, networks, associations, and initiatives. Effective collaboration ensures that the healthcare system does not become stagnant. Moreover, the framework must allow flexibility and encourage innovation to adapt to changing needs and opportunities. Collectively, these components are engineered to catalyze a transformative shift in the German healthcare system, setting the stage for greater financial stability and improved staffing levels.

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[7] Robert Bosch Stiftung, Gesundheitszentren für Deutschland, 2021.
[8] Bundesärztekammer, Ergebnisse der Ärztestatistik zum 31.12.2022.
[9] Stifterverband für die deutsche Wissenschaft, Eine Beschleunigungsformel für Deutschland, March 24, 2023.

I. Three potential catalysts for advancing the German healthcare system

Three catalysts could be essential for top-tier medical care in Germany: the widespread use of health data in diagnosis and care, the digital transformation of healthcare coupled with enhanced health knowledge and digital literacy among patients, and incentives for increased prevention and healthy aging. These catalysts are not only effective in their direct impact but also pivotal in setting the stage for the large-scale changes necessary for continuous improvements. For example, establishing common standards, prerequisites, and guidelines for data sharing and comprehensive data exchange will accelerate the flow of information within the healthcare sector. This will ensure that all stakeholders—patients, doctors, hospitals, health insurance companies, and insurers—can access all relevant data anytime, thus facilitating the best possible care.

Catalyst #1: Digital transformation of the healthcare system through adequate IT infrastructure coupled with digital literacy

Historically, the healthcare sector has trailed other industries in embracing digital transformation. Unlike sectors such as finance and retail, healthcare has been slower in adopting cutting-edge technologies due to various factors, including regulatory hurdles, privacy concerns, and a traditional reliance on paper-based systems. However, the landscape is rapidly changing, driven in part by the COVID-19 pandemic and recent political initiatives. The pandemic laid bare the vulnerabilities and inefficiencies within healthcare systems worldwide, highlighting the urgent need for digitalization to enhance resilience and agility. In response, governments and healthcare authorities have ramped up efforts to accelerate digital transformation initiatives.

Homing in on Germany, the convergence of the pandemic's impact and political will have generated unprecedented momentum for digitalization in healthcare. Recognizing the imperative for change, policymakers have rolled out initiatives to modernize healthcare infrastructure and foster innovation. These efforts are intended to address immediate challenges and build a foundation for sustainable transformation.

One notable milestone driving digital adoption is the mandate for hospitals to upgrade their information systems by 2027, formalized in the Hospital Future Act. The deadline serves as an impetus for healthcare institutions to overhaul outdated systems and embrace new technologies. It creates a sense of urgency and provides a clear road map for modernization, incentivizing investment in digital solutions that streamline operations, improve patient care, and boost overall efficiency.

Moreover, the push to upgrade hospital information systems presents an opportunity to promote the widespread adoption of innovative healthcare technologies. With the groundwork laid for digital integration, stakeholders across the healthcare ecosystem are increasingly receptive to novel solutions that promise to revolutionize care delivery. This favorable environment encourages collaboration between industry players, policymakers, and healthcare providers, fostering an ecosystem conducive to innovation and growth. This is especially important for establishing a digital bridge between general and specialist outpatient practices and hospitals, where most communication is still largely non-digital, leading to disrupted patient journeys.

Still, the success of digital transformation does not hinge solely on technological upgrades—it also requires patients' active involvement and empowerment. Improving patients' digital literacy equips them with the knowledge and skills to navigate digital health platforms effectively, fostering trust and engagement with these technologies. Bolstering patients' digital literacy is also crucial for ensuring equitable access to healthcare innovations.

By bridging the digital divide, healthcare providers can make sure that everyone—regardless of socioeconomic status or technological proficiency—reaps the benefits of digital health solutions. Ultimately, empowered patients play a pivotal role in fully benefiting from their health data. By actively participating in their care and working with digital tools to monitor and manage their health, patients become partners in the healthcare journey, driving more positive outcomes and efficiency across the healthcare ecosystem.

Catalyst #2: Widespread use of health data

The regulatory landscape for health data usage—including frameworks like the European Health Data Space (EHDS), the law to accelerate digitalization in healthcare (Digital-Gesetz, DigiG), and the law for health data usage (Gesundheitsdatennutzungsgesetz, GDNG)—has recently seen some considerable improvements. These frameworks are aptly termed data usage regulations (rather than data protection regulations), reflecting a nascent shift from a rather protective stance on data to tapping into its potential to alleviate burdens on the healthcare system and strengthen public health. The evolution from an individualistic approach to data ("my data") to a collaborative model ("our data") among interconnected databases represents a crucial next step.

In addition to regulatory changes, a long-overdue innovation in the German healthcare system was the introduction of the electronic patient record ("elektronische Patientenakte" (ePA)) in 2021, which is set to be accessible to all patients by the end of 2025. The ePA facilitates the comprehensive storage of medical records across different healthcare providers, amplifying individual care and enabling data aggregation for research that can improve patient outcomes.

However, certain prerequisites must be met to gain momentum from this potential, such as the required IT infrastructure, as discussed in catalyst #1. First and foremost, ensuring that high-quality data is collected and properly curated is essential. Historical examples from various medical fields, from ophthalmology to spinal orthopedics, illustrate this point. Key enablers have included:

1. Defining data ownership clearly and aligning incentives by involving indication-related medical professional societies.

2. Starting with structured data from medical devices and employing standard protocols for claims data.

3. Ensuring a legally secure method for recording consent for both the collection and further processing of data.

4. Enabling the utilization of health data across various medical disciplines through advanced data linkage and high interoperability, all while upholding stringent data privacy standards.

To comply with the GDNG, the German Federal Ministry of Health is advancing FDZ Health (Research Data Center) so that it provides pseudonymized, structured, and representative data for healthcare and research. FDZ Health creates a secure processing environment for billing data for statutory health insurance. In the future, it will include data from the ePA to generate structured datasets and leverage artificial intelligence (AI). Other datasets, such as registry data, can be temporarily and partially linked to routine data.

Numerous start-ups in Germany are pioneering this initiative, bringing the necessary speed and agility to realize the benefits of health data utilization swiftly, for example, by developing platforms to enable data linkage, analysis, and collaboration across different systems. Many start-ups are at the forefront of demonstrating how innovative technologies can transform health data into powerful tools to better the healthcare system, improve patient outcomes, and streamline medical processes.

Catalyst #3: Increased focus on prevention

Digital transformation is central to making healthcare systems more efficient and improving patient outcomes. The most effective way to alleviate the system's burden is through prevention, which reduces demand and promotes better health.

In the last two decades, the prevalence of chronic conditions, such as diabetes and Alzheimer's disease, has surged, posing significant tests for healthcare systems worldwide.[10] To address this challenge, a paradigm shift, which moves beyond the traditional reactive treatment model to a proactive approach focused on prevention and holistic well-being, is necessary.

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[10] World Health Organization, "Leading causes of DALYs," 2024.

The urgency for this shift is highlighted by research showing that nearly 85 percent of health outcomes are influenced by modifiable behaviors and personal choices.[11] Moreover, interventions in this domain not only improve health but also offer substantial economic benefits. Previous analyses suggest that enhancing current health interventions—approximately 70 percent of which focus on disease prevention and health promotion—could generate an additional $12 trillion in global GDP by 2040.[12] By concentrating on these areas, healthcare systems can reduce the impact of chronic illnesses and unlock significant economic and societal gains.

Yet, despite their potential, preventive measures are often underutilized and underfunded. In OECD (Organization for Economic Cooperation and Development) countries, only about 3 percent of healthcare budgets are dedicated to these interventions. This gap highlights the need for a fundamental shift in healthcare priorities, emphasizing strategies that focus on maintaining health and vitality in the long term.

II. Implementing the three catalysts along a road map

In the dynamic world of healthcare, it is essential to merge strategic foresight with pragmatic implementation through well-defined road maps for transformative initiatives. The initial steps involve (1) creating clear road maps that benefit from key catalysts, such as health data usage, digital transformation, and prevention, and (2) circulating success stories that inspire and maintain momentum.

Establishing clear road maps to effect change
Developing clear road maps is essential for translating the three catalysts—health data usage, digital transformation, and prevention—into tangible outcomes. Recent regulatory changes in health data usage have opened new possibilities for data-driven healthcare solutions. Several start-ups have already begun to explore these opportunities, showcasing innovative business models that hint at

the potential ahead. However, the full advantages of digital transformation will unfold over time, with significant impacts anticipated in the medium term. Prevention, too, is a long-term commitment, given its extensive scope and comprehensive approach.

Road mapping involves more than just crafting project plans—ones that may not be viable regarding timelines, budgets, or resources. As such, effective road mapping focuses on the catalysts, directing investments toward these areas with clearly defined stage gates and allocated funding tranches.

Sharing success stories to overcome inertia
The different timelines associated with each catalyst mean that some benefits will become apparent sooner than others. Sharing success stories will promote optimism and sustain momentum for longer-term projects in this context. Showcasing examples where smaller-scale projects have delivered promising outcomes not only highlights the potential for innovation in healthcare but also stimulates further creativity and investment.

This approach is particularly relevant in areas like ophthalmology or spinal orthopedics. In these fields, collaboration with professional associations has facilitated transformative changes, leveraging today's data-based diagnostics and treatments that are recognized internationally. Here, a clear investment rationale combined with strong stakeholder alignment has been pivotal in advancing the field. This has been achieved by developing data-based assets that will serve future needs.

III. Orchestrating public and private stakeholders to achieve catalyst scope

Navigating the complex and fragmented healthcare landscape, where responsibilities and budgets are dispersed among various stakeholders, poses a challenge in implementing large-scale changes. This often hinders the translation of regulatory and technological momentum into tangible patient benefits. Therefore, a strategic blend is crucial, involving broad enablement, targeted actions along

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[11] Carlyn M. Hood et al., "County health rankings: Relationships between determinant factors and health outcomes," *American Journal of Preventive Medicine,* February 2016, Volume 50, Number 2.

[12] Lars Hartenstein and Tom Latkovic, "The secret to great health? Escaping the healthcare matrix," McKinsey Health Institute, December 20, 2022.

a clear road map, and stakeholder incentives as per the outlined "acceleration formula." Importantly, government and public-sector entities are well-equipped to establish the necessary frameworks for healthcare system reform, such as accessible health data repositories and conditions that support data sharing and new collaboration methods. However, swift and effective implementation is typically best accomplished by agile, innovative entities within the private sector or smaller consortia.

Empowering small-scale sector-specific initiatives to scale through interoperability

Small-scale initiatives, driven by various stakeholders, including healthcare providers, technology companies, and government agencies, benefit from greater agility and adaptability to specific challenges and opportunities within the healthcare system.

While these small initiatives are crucial for initial progress, their long-term effectiveness depends on their ability to integrate into a cohesive system. This integration is vital for ensuring smooth patient experiences and enhancing efficiency across the healthcare ecosystem. A key enabler of this integration is interoperability—the seamless exchange and utilization of data across different systems and platforms. To scale effectively, small initiatives must, therefore, ensure that their products and the underlying data are interoperable with the existing healthcare ecosystem.

Achieving interoperability involves adhering to standardized data formats and technologies, allowing for the free flow of information between healthcare entities. By adopting standards-driven approaches to data exchange, healthcare organizations can dismantle existing silos and enhance collaboration and integration throughout the care continuum. Moreover, aligning with EU data regulations ensures compliance and builds trust among stakeholders, further boosting data sharing and interoperability efforts. In particular, larger healthcare organizations, which hold valuable "health data treasures" and expertise, can leverage these resources in innovative, collaborative approaches to create new business opportunities

while simultaneously advancing the healthcare system.

Expanding beyond traditional healthcare boundaries

The journey to fully transforming healthcare reaches far beyond the industry's conventional boundaries. Research indicates that lifestyle factors, such as diet, sleep, and physical activity, have a profound impact on overall mortality and specific health conditions, underscoring the need to extend our focus beyond traditional healthcare settings.[13] Engaging with stakeholders within the broader healthcare ecosystem, such as pharmacies and nursing homes, and in adjacent industries, like food and nutrition, can greatly elevate the adoption and scaling of digital health initiatives. These sectors are important in influencing individual health outcomes and behaviors, positioning them as essential partners in developing and promoting comprehensive healthcare strategies. By synchronizing incentives and pooling resources and expertise, both traditional and non-traditional healthcare stakeholders can benefit from synergies across ongoing projects and explore new avenues for innovation, ultimately improving patient care and outcomes.

Developing new incentivization models

In many transformative endeavors, the initiation phase is often hampered by inadequate funding, primarily due to the not-yet-attractive risk-return profiles of new business ventures. For example, preventive healthcare measures typically involve long periods before financial returns are realized. The high risk associated with these investments often stems from a lack of transparency and predictability, which, in turn, is due to unavailable data or reference cases. One strategy to overcome these hurdles is to create well-defined, investable business cases and devise funding solutions that distribute the investment across multiple tranches, each tailored to a different risk-return profile.[14] This approach is particularly relevant in the healthcare system in Germany, where misaligned incentives frequently obstruct progress. At the heart of the solution is the creation of compelling business cases for stakeholders who stand to gain from activities

[13] Lars Hartenstein and Tom Latkovic, "The secret to great health? Escaping the healthcare matrix," McKinsey Health Institute, December 20, 2022.
[14] McKinsey, *Going all in for Germany: Financing the transformation,* 2024.

that align with their business models. For instance, insurers could see advantages from a decrease in policyholders needing healthcare services, while pharmacies could gain from placing greater emphasis on preventive healthcare advice. Hospitals could also see advantages from enhanced care provided outside of traditional settings. This is especially pertinent for preventive measures, which often have long payback periods, resulting in decreased healthcare utilization over the decades.

Still, simply mobilizing capital is not enough, and structural changes are necessary to realign incentives and facilitate the adoption of innovative business models. This could include gathering and analyzing data on the use of digital and offline services and correlating this with outcomes data, such as hospital visits over a specific period.

By linking payments to performance, it becomes feasible to create new incentives and business models that encourage innovation and participation from new players in the healthcare sector.

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Looking ahead to 2040, Germany will face a continuous demographic shift characterized by increased life expectancy and an aging population. This demographic trend underscores the urgency of setting a strategic direction now to ensure a robust healthcare system for the future. Germany must accelerate its transition toward a more data-driven, digital, prevention-focused, and patient-centric healthcare system, thereby laying the groundwork for a sustainable healthcare infrastructure that can meet the needs of its future population.

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