



Pivoting for Progress: Noah Therapies' Business Model Evolution

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Abstract

Title: Pivoting for Progress: Noah Therapies' Business Model Evolution

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This thesis examines the strategic evolution of Noah Therapies, a German digital healthcare startup, as it navigates the complexities of its market. Initially focused on a breast cancer companion app, Noah faced challenges securing investor funding, exposing gaps in its business model. In response, Noah implemented four strategic shifts: expanding its focus to holistic women's health, transitioning from performance marketing to healthcare professional partnerships, bootstrapping operations, and adopting a service-oriented model, leading to a B2B contract to be acquired.

Using a case study methodology this thesis analyzes Noah's strategic pivots, showcasing it enabled Noah to overcome scalability, funding, and sustainability challenges. The Dissertation includes a Literature Review on topics related to the issues raised by the Case and a Teaching Note with an analysis of the challenges of the company. The findings emphasize the importance of iterative adaptation in navigating market complexities to build a sustainable business model, thereby contributing to the knowledge of business model innovation. Conclusions highlight the need for balancing scalability with mission-driven care to ensure long-term viability.

Keywords: Business Model Innovation, Digital Healthcare Start-up, Strategic Pivots, Germany.

Resumo

Título: Pivotar para o progresso: Evolução do modelo de negócio das terapias Noah

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Esta tese examina a evolução estratégica da Noah Therapies, uma startup alemã de saúde digital, à medida que navega pelas complexidades do seu mercado. Inicialmente focada numa aplicação de acompanhamento do cancro da mama, a Noah enfrentou desafios para garantir o financiamento dos investidores, expondo lacunas no seu modelo de negócio. Em resposta, a Noah implementou quatro mudanças estratégicas: expandir o seu foco para a saúde holística das mulheres, fazer a transição do marketing de desempenho para parcerias com profissionais de saúde, iniciar operações e adotar um modelo orientado para os serviços, o que levou a um contrato B2B para ser adquirido. Utilizando uma metodologia de estudo de caso, esta tese analisa os pivots estratégicos da Noah, mostrando que permitiram à Noah ultrapassar desafios de escalabilidade, financiamento e sustentabilidade. A Dissertação inclui uma Revisão da Literatura sobre temas relacionados com as questões levantadas pelo Caso e uma Nota de Ensino com uma análise dos desafios da empresa. Os resultados enfatizam a importância da adaptação iterativa na navegação das complexidades do mercado para construir um modelo de negócio sustentável, contribuindo assim para o conhecimento da inovação do modelo de negócio. As conclusões destacam a necessidade de equilibrar a escalabilidade com os cuidados orientados para a missão, a fim de garantir a viabilidade a longo prazo.

Palavras-chave: Inovação do modelo de negócio, start-up de cuidados de saúde digitais, pivots estratégicos, Alemanha.

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1. Case Study

On a late afternoon in September 2024 Dr. Kai Berner, founder of Noah Therapies, sat in his consulting room in Berlin. With 5051 active monthly users, the German digital healthcare startup had undergone significant changes over the previous year. Dr. Berner reflected on whether these strategic shifts were setting the company on a path to long-term success.

In May 2023, Noah Therapies completed a series of investor meetings with high hopes of securing funding for their fully developed breast cancer companion application (app). The team believed they were well positioned to secure the much-needed capital to scale the business. However, the meetings revealed cracks in their business model. Investors questioned the app’s scalability and profitability, raising concerns about the company’s ability to achieve significant growth with such a niche product.

For Dr. Berner, this was a pivotal moment. The feedback from investors illuminated the business model’s shortcomings and the team's lack of financial acumen and strategic focus. With these challenges brought to light, Noah Therapies needed a fresh perspective. That was when Jan-Philipp Dreier, a former management consultant, was brought on board as the new CFO. His mission? To connect the missing pieces within Noah Therapies’ business model and help guide the company toward a stable and effective path for growth.

Would Dreier’s fresh perspective unlock Noah's needed potential? Could the company find a business model able to withstand the challenges of Germany’s increasingly competitive digital healthcare market?

1.1. Noah Therapies: the foundation

Noah Therapies was born in late 2021 from Dr. Berner’s experience as a medical specialist in gynaecology and oncology. When dealing with repetitive tasks related to chemotherapy management, he noted that patients were seeking more than just medical treatment. The realization that his time was consumed by clinical management—leaving little room for genuine patient care—prompted him to develop an app to automate routine treatment processes and patient journeys.

¹ Figures in this case study are disguised, excluding the section on Industry Landscape.

To bring his vision to life, Dr. Berner partnered with Anne Rupp, a marketing specialist he knew from university, and Florian Hofer, a freelance developer he met on a co-founder matching platform, establishing the core founding team of Noah Therapies in February 2022.

In April 2022, Noah Therapies joined the Vision Health Pioneers Incubator, a Berlin-based program supporting early-stage healthcare startups. Over 12 months, the incubator provided mentorship on legal frameworks, business development, and product refinement, while facilitating networking opportunities with key healthcare players, including investors and practitioners. This support helped strengthen Noah's business strategy, addressing the team's limited experience in this area.

Noah Therapies was officially incorporated in June 2022.

Over the 12 months at the incubator, Noah Therapies developed a mobile application named Noah, designed as a breast cancer companion to aid and guide patients through complex cancer treatments. The app's main features included a therapy appointment manager, a medication planner, timely reminders for appointments and medications, a personalized information section on breast cancer and treatment, a symptom tracker, and a dashboard overview of treatment progress and health status.

In February 2023, the team was geared up with high hopes for the company's first investor meetings seeking €20 million in funding. After months of development and preparation, the team felt confident they had a product that could secure the investment needed to propel them toward success. They saw this as the moment that could establish them as a rising star in the digital healthcare space.

They presented Noah as a reimbursable medical app, a DiGA (Digitale Gesundheitsanwendung or Digital Health Application). The concept was simple: doctors would prescribe the app, much like a medical device, and insurance companies would cover the cost. This business case seemed straightforward and appealing to the team, who thought it would resonate well with investors as a clear path to monetization.

1.1.1 Investor Feedback

However, after having completed the investor meetings, reality began challenging these assumptions. While the concept of the app was clear and easy to grasp, investors questioned its business model, particularly its ability to scale and attract paying customers, feeling that it was too niche-orientated and lacked innovation. Moreover, they expressed doubts about the entire DiGA model, pointing out the challenges it faced in terms of regulatory approval, slow timelines for insurance reimbursement, and profitability. One investor’s blunt remark, “I don’t invest in DiGAs—it just doesn’t make sense.” encapsulated the general sentiment, leaving the team with critical feedback but no funding.

The founders quickly realized that investors expected fast returns, typically within four to five years, pressuring startups like Noah to consider more lucrative alternatives. Suggestions included partnering with pharmaceutical companies to develop Patient Support Programs (PSPs)² or using their platform for data collection. As a first-time founder, Dr. Berner admitted that it was easy to be shaped by these investors, thinking they would know best. “You think they must know business, they know what works.” he reflected. Yet, he was wary of the trap many startups fell into chasing quick profits from pharma partnerships while losing sight of their original mission. “Once you take pharma money, you’re solving their problems, not the patients' problem.” he reflected.

By May 2023, Noah Therapies had fully developed its breast cancer companion app and formulated its market entry strategy. With renewed confidence, the team approached a fresh round of investor meetings, aiming for a breakthrough. This time they positioned the app as a dual-purpose solution: a patient navigation tool and a data collection platform. This pivot addressed investor concerns by showcasing a scalable business model with broader applications. The app would automate real-world data collection based on treatment guidelines, providing valuable insights to pharmaceutical and biotech companies while also reducing doctors’ workloads through seamless integration into clinical workflows.

² A Patient Support Program (PSP) was a structured initiative to enhance patient care by providing personalized support, education, and resources to improve treatment adherence and health outcomes.

However, the feedback they received was once again discouraging. Investors raised questions about the app's monetization potential, scalability, and the efficiency of their marketing strategy, exposing gaps in Noah's business model. Questions the team struggled to answer given their lack of business acumen. Investors also remained cautious about the underperforming German digital healthcare market, citing a lack of proven business models.

The challenges the team faced in this investor meeting served as a pivotal stress test for the company, underscoring the need for strategic realignment.

1.1.2 A New Perspective

In early 2023, Dreier, a former management consultant who had recently left the industry, was exploring new opportunities in the healthcare or education sectors. When he came across Noah Therapies online, he was immediately intrigued and reached out to Dr. Berner on LinkedIn, leading to an initial meeting over coffee. The meeting quickly revealed that Dreier possessed critical business and financial expertise the team lacked. Dr. Berner realized that Dreier's experience could address critical areas of concern for potential investors, such as financial planning and scalability, thereby strengthening Noah's strategic capabilities.

While the team was rethinking their approach to Noah based on the initial investor meeting's feedback, Dreier and Dr. Berner met a few times informally, exploring potential business models and strategies for Noah. Each conversation brought fresh ideas, and it became evident to Dr. Berner that Dreier's business expertise was exactly what the team needed to move forward.

Seeing the value Dreier could bring, Dr. Berner asked if he wanted to join as a co-founder. Without hesitation, Dreier accepted, officially joining as co-founder and CFO of Noah Therapies in June 2023.

With defined roles, Dr. Berner took charge of the medical and product aspects, Rupp led marketing and communications, Hofer managed technology and the website, and Dreier assumed responsibility for business operations, finance, fundraising, and legal matters. The team believed they had all the necessary perspectives and were ready to navigate the next phase of Noah Therapies' journey.

1.2 Industry Landscape

1.2.1 The German Digital Healthcare Sector

Germany's healthcare sector, traditionally robust and highly regulated, was undergoing gradual but essential digital transformation. Valued at €7.69 billion in 2023, it was projected to grow at a 15.8% CAGR, reaching €57 billion by 2025. This growth was driven by an ageing population, rising healthcare costs, and the prevalence of chronic diseases such as diabetes. A shortage of medical professionals further underscored the demand for digital solutions.

A significant trend in the market was the growing adoption of telemedicine services. Telemedicine enabled patients to consult with healthcare professionals remotely, minimizing the need for in-person visits. This segment saw substantial growth, with 3.5 million teleconsultations recorded in 2021, marking a 29% increase from 2020. Patient-centred care continued to rise, with patients accounting for 34.1% of the market's revenue share in 2023, driven by demand for personalized and data-driven healthcare. Digital Health Applications (DiGAs) empowered patients with tools for disease monitoring and treatment, offering greater autonomy in managing their health. By 2023, 19 apps were available for prescription in Germany, with the diabetes segment capturing the largest share (28.92% of DiGA revenue).

Despite these advancements, Germany lagged behind other nations in implementing comprehensive digital health solutions. A 2019/20 OECD study ranked Germany third from last globally in its ability to access and link healthcare datasets, with Nordic countries leading the way. The fragmented healthcare system, combined with its regulatory environment, slowed progress in digital health integration.

Germany's telematics infrastructure (TI) formed the backbone of its digital healthcare system, connecting over 90% of general practitioners, dental practices, pharmacies, and hospitals to facilitate secure patient data exchange. However, paper-based processes remained prevalent, creating ongoing challenges in achieving seamless data exchange, particularly between hospitals and outpatient providers.

1.2.2 Legislative Efforts to Drive Digital Health Transformation

To address these challenges, Germany introduced a series of legislative measures. The Digital Healthcare Act (DVG), implemented in 2019, allowed doctors to prescribe DiGAs covered by statutory health insurance. It also introduced the Fast Track Process, simplifying regulatory approval for healthcare apps. Later laws, such as the Digitalisation Act (DigiG) and the Health Data Use Act (GDNG), aimed to enhance the use of electronic patient records (ePA) and anonymized health data for research.

Despite these measures, adoption had been slow. By 2022, only 0.7% of insured citizens had downloaded the ePA app. Automation efforts under the DigiG were expected to improve adoption by 2025, but challenges persisted. The DigitalRadar initiative in 2021 revealed low digital maturity in hospitals, with a score of just 33 out of 100, highlighting gaps in patient engagement and data exchange.

Additionally, many healthcare providers remained hesitant to prescribe DiGAs due to insufficient training and unclear benefits. A 2024 report by BARMER, one of Germany's largest statutory health insurance providers, revealed that 44% of providers had not prescribed DiGAs in the previous year, and one-third of patients discontinued use within 90 days, citing lack of engagement and unclear benefits. These barriers underscored the ongoing need for education and systemic support to drive digital health adoption.

Germany's digital healthcare landscape presented a dual reality: significant opportunities for startups addressing inefficiencies and demand for innovation, but persistent systemic and cultural barriers requiring careful navigation.

1.3 Key Strategic Shifts

Exhibit 1: Strategic Shift Diagram (Self-developed)

Dreier jumped in by launching a series of what he called NorthStar Workshops. These workshops were intended to critically evaluate Noah Therapies' business model and define a clear strategic direction. The newly formed team started by asking difficult questions about market size,

willingness to pay (WTP), go-to-market strategy, and financial sustainability. While some of the conversations around potential strategic shifts had already begun within the founding team, Dreier's structured, business-focused approach played a critical role in making visible the disconnect between the product, marketing, and overall business strategy of the company. His arrival offered a fresh perspective to help reassess key aspects of the company and focus on addressing investor concerns.

1.3.1 Shift 1: Expanding from Breast Cancer to Holistic Women's Health

Throughout the summer and early autumn of 2023, the team mapped out future possibilities for growth. One core decision was to target consumers directly, without relying on B2B insurance, advertisers, or pharmaceutical companies.

The team conducted market research to determine how many patients could be reached across various categories. Using online databases and performing their internal market sizing, they assessed which age groups and population numbers would support their B2C business model. The data revealed that focusing on women's health provided a significantly larger market opportunity compared to breast cancer alone. Younger age groups (18–39) emerged as the most promising segment, demonstrating both a proactive approach to health and a higher willingness to pay for digital health services such as telemedicine (44–46%) and health coaching (46–39%). Additionally, 67% of the population expressed a desire to live healthier lives, and 61% frequently worried about health issues, signalling strong consumer demand. Investor feedback further highlighted the limitations of breast cancer as a niche focus, reinforcing the need to expand into a broader market to ensure the viability of their B2C strategy.

After exploring broader oncology and chronic diseases, the company considered that women's health emerged as the most natural and logical direction due to its scalability and alignment with long-term growth. The growing recognition of women's health as a lifelong journey, both within the healthcare and investment sectors, added further momentum. Dreier explained, "It seems reasonable to focus on a target group, which you can then accompany throughout their lives."

The discussions led to deeper questions about how to adapt the company's offerings, spanning product design, communication strategies, website messaging, and strategic partnerships. These

conversations, however, brought internal disagreements to light. The team found itself divided: Dr. Berner and Dreier envisioned expanding into broader women's health, while co-founders Rupp and Hofer were committed to the original breast cancer focus. This strategic misalignment eventually led to Rupp and Hofer's departure by December 2023.

The departure, however, allowed the remaining co-founders to align the company with their new strategy fully and to start implementing the changes discussed during the NorthStar workshops.

Dr. Berner realized that while the app was effective for managing breast cancer treatment, it failed to address the deeper needs of patients, such as holistic support and personalized care. Consultations with patients and thorough feedback analysis revealed that they wanted more than just a digital tool—they sought genuine care that catered to their entire well-being, not just their medical conditions. This insight prompted Noah Therapies to pivot from a narrow focus on breast cancer to a broader, more inclusive women's health platform. Embracing a holistic approach, the company aimed to address multiple aspects of women's health on the app, including emotional support and lifestyle changes. The new strategy would seamlessly integrate conventional medical treatments with complementary practices like nutrition, supplements, herbal remedies, and mindfulness, offering customized healthcare solutions tailored to each woman's life stage and specific needs. This pivot transformed Noah Therapies into a comprehensive provider of holistic healthcare, offering support far beyond the confines of a clinical application.

This shift allowed the company to align its mission of delivering long-term, sustainable, and patient-centered care, setting itself apart in a competitive digital health market.

At that time, the company's market was focused on women between the ages of 25 to 65, interested in holistic health solutions, primarily within the DACH region (Germany, Austria, and Switzerland). This localized strategy leveraged the efficiencies of operating within Germany's healthcare system while aligning the product with a younger, tech-savvy audience more compatible with digital health platforms.

1.3.2 Shift 2: From Performance Marketing to HCP Partnerships

Initially, Noah invested heavily in performance marketing, spending over €4,000 per month on campaigns across AdWords, Facebook, and Instagram. While this approach generated traffic—averaging 6,180 website visits monthly—it failed to translate into sustainable revenue.

At that time, Noah offered two distinct product options: a free access plan and a premium subscription at €75. The free plan focused on broad topics such as general well-being, menopause, PMS, endometriosis, and pregnancy. This offering included limited content and minimal personalization, making it suitable for users seeking general information. In contrast, the premium subscription catered specifically to individuals with breast cancer, providing high-quality, tailored content. The premium service stood out for its level of personalisation, which was based on users' medical parameters, such as their specific therapy or medication regimen.

The majority of Noah's leads opted for the free plan, while premium subscriptions were rare. This highlighted two major challenges. Firstly, while free users were signing up, they did not generate any ROI. Dreier noted that the company's product was not strong enough at the time to effectively upsell these users to a premium plan, meaning the money spent on acquiring free subscribers was essentially a sunk cost. Secondly, the sporadic acquisition of premium customers resulted in a disproportionately high cost per premium subscriber, making the monthly ROI for these users unsustainable.

Recognizing the inefficiency, Noah shifted its strategy toward healthcare professionals (HCPs) as their primary marketing channel. HCPs, as trusted authorities, held significant influence over patient decisions, making their referrals more impactful than digital ads. Partnering with around 20 HCPs and clinics, Noah accessed a targeted, pre-qualified patient base, improving conversion rates and building a more engaged premium user base. Not only did this lead to cost savings—it also strengthened Noah's brand and integration within the healthcare ecosystem.

To further enhance engagement, Noah hosted webinars and events on topics like longevity and hormonal balance. These efforts increased visibility and positioned Noah more prominently within the healthcare community. Although it was still in the early stages, Dreier noted that these

initiatives had already contributed to increased engagement and bolstered Noah’s presence within the healthcare community.

1.3.3 Shift 3: Bootstrapping as a Source of Funding

Despite presenting a promising new strategy—expanding from a breast cancer focus to broader women's health and refining their marketing approach—investors remained sceptical and still pushed Noah towards alternative business models (partnerships with employers (B2B) or pharmaceutical companies). While these models promised faster user acquisition through large-scale deals compared to the gradual approach of attracting individual patients, Noah’s remained cautious about compromising their mission of patient-centred care. As Dreier put it, “If you start taking pharma money, you’re solving pharma problems, not patient problems.”

Dr. Berner explained that Noah Therapies was in a critical early phase, still engaged in significant pioneering work to develop a more sustainable and effective business model. The company was not yet positioned to deliver the rapid returns investors typically sought within a four-to-five-year window. Recognizing this misalignment, Dreier and Dr. Berner concluded that traditional investor funding was simply not a fit at this stage. By November 2023, Noah decided to pursue a bootstrapping³ strategy, which enabled the company to stay true to its mission and focus on patient needs without external pressures for quick financial returns. This decision was further validated by the broader funding landscape in 2023, which had become increasingly competitive for digital health startups.

Dr. Berner acknowledged that the company might reconsider external investment in the future once it achieved more predictable financial performance. However, for where they were at that stage, bootstrapping provided the flexibility and autonomy Noah needed to refine its business model and maintain its commitment to patient-first care.

³ Bootstrapping is the process of founding and running a company using only personal finances or operating revenue.

1.3.4 Shift 4: From an App to a Broader Service Offering

Noah Therapies' decision to pivot from an app-based model to a service-based offering marked a major strategic shift.

Many patients had begun reaching out to Noah Therapies directly, seeking additional guidance and support beyond what the app provided. This behaviour highlighted a deeper unmet need for human connection and tailored support. Dr. Berner emphasized that healthcare was in fact, fundamentally a service. While he acknowledged that while technology could streamline certain aspects of personalized healthcare, such as symptom tracking and data gathering, the emotional component and human touch remained irreplaceable. In his experience, doctors had often focused on efficiency and rapid treatments, which left patients feeling neglected and uncared for. “You don’t just want a diagnosis and treatment plan; you want to feel cared for.” Dr. Berner explained. This understanding influenced Noah's decision to offer a more comprehensive, hands-on service.

The new model featured direct consultations, personalized treatment plans, and ongoing patient follow-ups. Patients began with an in-depth online consultation and a case review by an interdisciplinary Health Board, which included specialists such as gynaecologists, endocrinologists, and nutritionists. This collaborative approach produced holistic care plans addressing medical, emotional, and lifestyle needs. Patients received one-on-one feedback calls, detailed PDF summaries, and follow-ups to monitor progress and adjust recommendations. These interactions brought the human element that the app lacked.

With a team of five, including Dr. Berner, Dreier, and Flora Hofmann, who took on technical responsibilities after Rupp and Hofer's departure, Noah maintained operational efficiency. Digitised parts of the onboarding process saved 30 minutes per patient, with plans to automate further steps, though these were still in progress.

The shift led to a notable increase in customers’ willingness to pay (WTP). While the app generated minimal paying subscribers, the service model secured €300 per customer as a one-off fee, along with clear growth in numbers. The team saw potential for a subscription-based model but chose to focus on refining their offering first.

By prioritizing personalized care and human interaction, Noah Therapies differentiated itself from competitors relying solely on digital tools. Dreier highlighted that the Health Board approach not only enhanced patient trust but also strengthened partnerships with HCPs, resulting in increased referrals and credibility within the healthcare ecosystem.

1.4 Future Challenges

Reflecting on the previous six months, Dreier expressed cautious optimism about Noah Therapies' progress. The strategic shifts—expanding beyond breast cancer and transitioning to a comprehensive service model—had shown promising results, with clinics engaging more actively and Noah strengthening its presence within the healthcare community.

An unexpected milestone was Noah Therapies' first B2B contract—a significant departure from its B2C focus. The contract, with a mid-sized enterprise employing 500–700 people, aimed to address workforce stress management, catering to both men and women. Dreier explained that while the company remained committed to its B2C strategy, opportunities like this B2B contract could not be dismissed, as they presented a chance to generate immediate revenue and gain insights into new customer segments. He emphasized that projects like these, though divergent, were essential for sustaining growth and offered lessons that could inform future strategies, potentially influencing Noah's evolution to serve diverse market needs.

Despite these early successes, Dreier acknowledged areas that required improvement, particularly Noah's digital presence. The website and social media lacked clarity and consistency in communicating the company's evolving value proposition. He noted that even the team was still refining its service offerings, making this a complex but necessary task.

Dr. Berner shared a tempered optimism, recognizing the uncertainties that still lay ahead. He admitted the potential need for one or two additional strategic pivots, understanding that Noah was still evolving. Both Dreier and Dr. Berner agreed that refining foundational strategies was critical, with success dependent on solidifying these basics before scaling further.

Despite the challenges, the team believed they were laying the groundwork for a sustainable and impactful company. Noah Therapies remained committed to delivering holistic, patient-centred care and was prepared to navigate future uncertainties with resilience and purpose.

2. Literature Review

2.1. Introduction

Healthcare is a critical pillar of economies worldwide, representing one of the largest service industries globally. While digital innovation has revolutionized various industries, healthcare has historically lagged behind in adoption (Herrmann et al., 2018). The COVID-19 pandemic acted as a catalyst, accelerating the digitalization of healthcare systems by at least a decade (Deloitte, 2020). Faced with challenges such as social distancing and reduced in-person care, providers turned to digital health solutions to ensure service delivery and enhance system resilience.

Germany, renowned for its advanced healthcare system and universal health coverage, has encountered numerous structural and operational challenges, including an ageing population, rising healthcare costs, and workforce shortages. Despite its robust healthcare infrastructure, the nation grapples with slow digital adoption. Initiatives such as the Digital Healthcare Act (DVG) have driven progress, notably in telemedicine and electronic patient records, yet digital health adoption remains fragmented. Only 44% of healthcare facilities exchange medical data digitally, and scepticism persists among healthcare providers regarding the efficacy of digital tools (McKinsey & Company, 2020).

Amid these systemic barriers, digital health startups have emerged as critical players, addressing unmet needs through Business Model Innovation (BMI) and technological advancements. These startups leverage agile methodologies, iterative processes, and cutting-edge technologies such as telehealth, wearable devices, and artificial intelligence (AI) to deliver innovative solutions (Chakraborty et al., 2023; Rinsche, 2017). They are actively transforming Germany's healthcare landscape by bridging gaps in traditional healthcare and providing scalable, patient-centric models.

The literature review explores the theoretical underpinnings of BMI and its application in the digital health sector. It highlights the strategic role of startups in advancing healthcare innovation, with particular attention to their iterative adaptation processes, dynamic capabilities, and their ability to navigate Germany's complex healthcare sector.

2.2. Business Model Innovation (BMI)

2.2.1 Understanding BMI

The concept of a **Business Model (BM)** represents the framework through which organizations create, deliver, and capture value. Teece (2010) describes a BM as the architecture that articulates the logic behind value delivery to customers and the mechanisms for converting this value into profits. In the evolving business landscape, the traditional static view of BMs has shifted toward dynamic innovation, giving rise to the concept of **Business Model Innovation (BMI)**.

Foss & Saebi (2018) define BMI as the purposeful reconfiguration of an organization's value creation and capture mechanisms to adapt to changing market conditions. Unlike product or process innovations, BMI redefines business architecture by altering how value is created and captured (Foss & Saebi, 2018). Essentially, it encompasses the entire value chain of an organization (Babatunde, 2024). Businesses can create innovative models through several approaches; such as adjusting individual aspects, implementing multiple changes at once, or rethinking the interactions among various components (Ramdani et al., 2019). Huang & Ichikohji, (2023) emphasize that BMI enables firms to respond effectively to technological disruptions, globalization, and increasingly competitive landscape by transforming their operational and strategic structures.

Key Dimensions & Components of BMI

BMI has become increasingly vital as businesses navigate the pressures of global competition, digital transformation, and shifting consumer needs (Ghezzi & Cavallo, 2020; Wirtz, 2019). Two key frameworks—Ramdani et al. (2019) and Huang & Ichikohji (2023)—offer valuable perspectives on the iterative nature and essential components of BMI, highlighting different but complementary approaches.

Ramdani et al. (2019) present a **practical** roadmap to BMI, focusing on four key components: the **value proposition** (creating offerings that meet specific customer needs), **operational value** (ensuring processes support efficient delivery), **financial value** (innovating revenue models and pricing strategies), and **human capital** (leveraging leadership and fostering a culture of

innovation). This framework helps organizations structure their BMI efforts to drive tangible outcomes.

On the other hand, Huang & Ichikohji (2023) take a broader **theoretical** approach, emphasizing BMI as a continuous, adaptive cycle. Their framework identifies three dimensions: **antecedents** (triggers like market demands or technological shifts), **processes** (experimenting and iterating to reconfigure resources), and **outcomes** (e.g. achieving greater market adaptability and competitiveness). This perspective frames BMI as an ongoing learning journey, where companies must experiment and evolve.

While Ramdani et al. (2019) focus on a systematic, actionable approach, Huang & Ichikohji (2023) stress the importance of flexibility and adaptability. Together, these frameworks underline that BMI isn't a one-time effort but a balance between structured execution and agile learning. For businesses, this means addressing immediate needs while staying open to change and innovation (Ramdani et al., 2019; Huang & Ichikohji, 2023).

2.2.2 Pivots as Strategic Adaptations in BMI

Startups often operate in high-uncertainty environments characterized by dynamic market conditions, regulatory complexities, and increasing competition. Within this context, **strategic pivots** serve as a vital tool in BMI, enabling startups to realign their business models with emerging opportunities and evolving market needs (Ries, 2011; Banerjee et al., 2024).

As a subset of BMI, pivots are crucial for testing and validating hypotheses about products, strategies, or growth engines in response to market feedback or unforeseen challenges (Bandera & Thomas, 2019). Initially introduced in the context of lean startups, by Eric Ries, a pivot is defined as a "structured course correction designed to test a new fundamental hypothesis about the product, strategy, and engine of growth" (Ries, 2011, p. 149). It involves making course corrections based on insights gained from experimentation, market feedback, or external circumstances. Grounded in lean principles, pivots emphasize efficiency by minimizing wasted resources and prioritizing efforts that yield the highest potential value (Comberg et al., 2014).

Pivots in startups are influenced by both external and internal triggers, each shaping strategic changes. **External triggers**, usually beyond an organization's control, such as regulatory challenges, market competition, technological disruptions, financial constraints, and shifting consumer preferences, often force startups to reassess strategies to remain competitive (Banerjee et al., 2024). For instance, changes in customer behaviour or emerging competitors may drive adjustments to value propositions or market focus. Comberg et al. (2014) found that funding constraints played a significant role in either triggering or enabling a pivot. De Reuver et al. (2009) emphasize the sensitivity of smaller businesses to technological and market shifts during early stages.

Conversely, **internal triggers** originate within the organization and are linked to flaws in the business model or strategic misalignment. Banerjee (2024) notes issues such as unclear value propositions, poor understanding of the target problem, or mentor-driven opportunities as common catalysts. Furthermore, limited market potential or low profitability can necessitate pivots to maintain viability (Comberg et al., 2014). Founders play a critical role in leading pivots, leveraging their deep business insights. However, overcommitment to the original vision can become a barrier to necessary change, complicating the pivot process (Banerjee et al., 2024).

Pivots reshape key business model aspects by adjusting products, markets, and revenue strategies to adapt to new realities (Comberg et al., 2014). **Product pivots** involve refining offerings to meet evolving customer needs or incorporate emerging technologies. **Market pivots** shift the focus to different demographics or regions to explore untapped opportunities. Meanwhile, **revenue model pivots** revise pricing strategies or transition from B2C to B2B models to improve financial viability (Banerjee et al., 2024; Comberg et al., 2014).

2.2.2.1 Iterative Processes of Pivots in Startups

Pivots are iterative rather than reactive, fostering better alignment between a startup's offerings and market needs while supporting scalability and long-term sustainability (Ghezzi & Cavallo, 2020; Kuratko, 2009). Flechas Chaparro & de Vasconcelos Gomes (2021) outline **four key stages of this process**: recognizing the need for change, generating strategic alternatives, testing viability through Minimum Viable Products (MVPs), and reconfiguring resources to implement new models

effectively. These stages enhance startups' ability to innovate, navigate uncertainties and capitalize on emerging opportunities in rapidly changing markets.

Strategic pivots play a transformative role in enhancing a startup's adaptability, scalability, and competitiveness. For healthcare startups, these adjustments are crucial for addressing systemic inefficiencies, navigating complex regulatory environments, and delivering patient-centric solutions. Banerjee et al. (2024) emphasize that pivots empower startups to recalibrate strategies and unlock growth opportunities through innovative solutions. Similarly, Huang & Ichikohji (2023) highlight that strategically executed pivots foster resilience and create long-term value by aligning business models with evolving market demands.

The iterative nature of pivots allows startups to test assumptions, refine models, and reduce resource waste through experimentation. This improves operational efficiency and responsiveness to challenges Dhir et al. (2024). Successful pivots also build customer satisfaction and investor confidence, offering a solid foundation for sustainable growth (Comberg et al., 2014; Huang & Ichikohji, 2023).

However, pivots must align short-term changes with long-term goals to avoid missteps. Bandera & Thomas (2019) caution that while pivots are essential for startups to stay agile and responsive, excessive pivoting can be harmful. Their study reveals an inverted-U relationship between the frequency of pivots and revenue performance, indicating that startups perform best when they pivot a moderate number of times. Over-pivoting risks draining financial and human resources, disrupting stakeholder confidence, and delaying a stable market position. To avoid these pitfalls, startups must strike a careful balance between remaining committed to their core mission and staying flexible enough to adapt to external pressures. This approach ensures pivots are strategic and purposeful, rather than reactive responses to short-term challenges.

2.3. The Healthcare Sector: A Context for BMI

The healthcare sector globally is under immense strain due to factors such as rising costs, aging populations, and the increasing prevalence of chronic diseases. BMI has emerged as a critical enabler to transform traditional healthcare systems, by offering strategies to address structural

inefficiencies while enhancing care accessibility and quality (Herrmann et al., 2018; Tersago & Visnjic, 2011; Trincanato & Vagnoni, 2024). Unlike product innovation, BMI focuses on rethinking the core logic of healthcare operations (Tersago & Visnjic, 2011).

2.3.1 BMI's Strategic Importance in the Healthcare Sector

In a complex, regulated sector like healthcare, BMI holds strategic importance due to its potential to overcome entrenched inefficiencies. Babatunde (2024) highlights, successful BMI involves not only delivering superior care but also ensuring financial sustainability. By introducing innovative business models, healthcare organizations can better address unmet patient needs, and expand care access, quality, and affordability. With the integration of digital tools like telehealth, wearable devices, and AI-powered diagnostics, BMI offers even greater potential to transform the sector. These advancements not only help healthcare organizations adapt to uncertain times but also ensure care is delivered more efficiently and equitably, benefiting both providers and patients (Raimo et al., 2023; Tersago & Visnjic, 2011). However, Chesbrough (2007) argues that technological advancements alone are insufficient without corresponding business model transformations to capture and deliver value effectively.

Key Dimensions of BMI in Healthcare

Babatunde (2024) outlines five key dimensions of BMI tailored to address the healthcare sector-specific challenges:

- **Service innovation** tackles accessibility issues by introducing new delivery models such as telemedicine and integrated care, which expand reach and ensure continuity of care.
- **Technology innovation** addresses diagnostic challenges and patient engagement by leveraging advancements like artificial intelligence (AI) and wearable devices, enabling faster, more accurate diagnoses and real-time monitoring.
- **Financing innovation** focuses on the persistent issue of healthcare affordability by adopting mechanisms such as value-based pricing and subscription models to ensure sustainable and equitable funding.

- **Organizational innovation** helps overcome inefficiencies by restructuring governance systems and fostering interdisciplinary collaboration, enhancing adaptability in dynamic market environments.
- Finally, **regulatory innovation** addresses barriers to digital transformation by advocating for policy reforms that accelerate the adoption of digital tools and ensure interoperability across systems.

Real-World Application: Belgium's Case Study

In their study, Tersago & Visnjic (2011) illustrate how BMI was strategically implemented to tackle significant challenges in Belgium's healthcare system, including rising costs, fragmented services, and the increasing demand for specialised care. BMI was implemented through **three grouping strategies**: within-discipline, across-discipline, and competitor-grouping networks. **Within-discipline** grouping involved hospital mergers, consolidating nine hospitals to centralize specialized services, reduce redundancy, and lower operational costs, which allowed reinvestment in advanced technologies. **Across-discipline** grouping established multi-disciplinary centers, enabling collaboration among different specializations to provide holistic, patient-centric care. Lastly, **competitor-grouping** networks fostered partnerships among competing hospitals, promoting knowledge-sharing and collaborative research.

These BMI strategies streamlined healthcare delivery, improved financial sustainability, and enhanced patient care through better coordination and access to advanced services. As Babatunde (2024) underscores, fostering interdisciplinary collaboration and aligning innovations with patient-centred goals is key to achieving sustainable, high-quality healthcare systems. Through BMI, healthcare providers can transform care delivery, improve outcomes, and ensure long-term viability in a competitive, dynamic market.

2.3.2 Technology as a Pillar of Business Model Innovation in Healthcare

Technology plays a pivotal role in BMI by enabling healthcare providers to tackle systemic challenges, enhance operational efficiency, and improve patient outcomes. Digital technologies, such as AI, telemedicine, and wearable devices, are integral to reshaping value creation and service

delivery in the healthcare sector (Herrmann et al., 2018; Kraus et al., 2021). These innovations allow healthcare organizations to overcome traditional barriers by offering data-driven, personalized solutions that address patient needs more (Trincanato & Vagnoni, 2024).

AI has emerged as a transformative force in healthcare, enhancing clinical decision-making, improving diagnostics, and supporting predictive healthcare models. AI-powered tools not only assist in diagnosing complex conditions with greater accuracy but also help automate routine tasks, freeing up valuable time for healthcare professionals to focus on patient-centric care (Herrmann et al., 2018). Furthermore, digitized patient records managed by AI systems have been shown to reduce prescription errors and streamline workflows, ensuring safer and more reliable care (Wang, 2022).

Wearable technology is empowering patients to take an active role in managing their health. Devices such as fitness trackers and biosensors provide real-time data on key health metrics, enabling early detection of potential issues. For chronic disease management, wearables offer continuous monitoring solutions that facilitate timely interventions by healthcare providers. Personalized data from these devices enhances preventive care, improving the quality of life for patients (Trincanato & Vagnoni, 2024; Wang, 2022).

Telehealth platforms have gained significant importance, particularly during the COVID-19 pandemic, by facilitating remote consultations. These platforms have proven invaluable in expanding healthcare access to underserved and remote populations, reducing the need for hospital visits, and ensuring that critical resources are allocated to those who need them most (Kraus et al., 2021). The ability to offer healthcare services remotely has not only increased convenience for patients but also helped relieve pressure on overburdened healthcare systems.

Strategic Integration of Technology

The strategic integration of technology into healthcare BMI lies in scaling high-quality solutions while maintaining a human-centred approach. Rather than replacing healthcare professionals, technology enhances their ability to deliver personalized care, fostering trust and improving patient engagement (Herrmann et al., 2018). Collaboration between various stakeholders is crucial in

realizing the potential of technology-driven BMI. Startups, healthcare providers, and tech firms must work together, sharing knowledge and resources to accelerate innovation. Successful partnerships have demonstrated the value of such collaborations, as seen in alliances between AI startups and large hospital networks, which have improved both efficiency and care delivery (Kraus et al., 2021).

Despite its immense potential, implementing technology in healthcare isn't without its challenges. High implementation costs, strict data privacy regulations, and complex legal requirements can slow down adoption. In Germany, fragmented healthcare systems and a lack of interoperability among digital platforms add another layer of complexity (Raimo et al., 2023). However, agile startups that focus on iterative development are better equipped to navigate these hurdles, aligning technological innovations with broader healthcare goals (Trincanato & Vagnoni, 2024).

2.3.3 Germany: Challenges and Opportunities for Digital Healthcare Start-ups

Germany presents a paradox for digital healthcare startups: a globally renowned healthcare system with significant barriers to digital transformation. While initiatives like apps on prescription highlight its innovative potential, Germany lags in digital maturity, providing a unique context for analyzing BMI within its advanced but unevenly digitized system.

Technological Infrastructure

Germany lags in digital health adoption due to inadequate IT infrastructure, poor interoperability, and reliance on analog systems (McKinsey & Company, 2020; Taglinger et al., 2022). Despite advancements in telematics infrastructure, reliance on analog systems, such as paper-based communication, remains widespread, limiting the potential for real-time data exchange and seamless integration (Scaler8, 2022). For startups, outdated infrastructure presents integration hurdles that are resource-intensive but also creates an opportunity to drive modernization efforts.

Regulatory and Systematic Challenges

Germany's regulatory framework poses both opportunities and obstacles for digital healthcare innovation. The Digital Healthcare Act (DVG) of 2019 enabled the integration of digital health

applications (DiGAs) into statutory care, allowing prescribable digital tools to support disease management and patient care. While the fast-track process under the DVG offers a 12-month provisional listing period for apps to demonstrate clinical efficacy, many developers face challenges meeting these evidence requirements within the set timeframe due to resource constraints, prolonging the approval process and increasing barriers for startups (Goeldner & Gehder, 2024; McKinsey & Company, 2020).

The General Data Protection Regulation (GDPR) adds another layer of complexity by mandating strict data privacy and security standards. While critical for patient protection, these standards require significant investment in compliance. This often limits startups' agility and complicates their scalability efforts (McKinsey & Company, 2020; Taglinger et al., 2022). Despite these challenges, the DVG has driven progress, with initiatives like DiGAs demonstrating the potential to modernize Germany's healthcare system.

Additionally, one of the unique challenges faced by digital healthcare startups in Germany is navigating the highly fragmented Statutory Health Insurance (SHI) system. Unlike centralized systems such as the UK's National Health Service (NHS), the German SHI system comprises approximately 110 individual SHI companies, each operating independently. This fragmentation requires startups to negotiate with multiple insurers to integrate their solutions into standard care.

Despite these barriers, the DVG has driven progress by offering a structured framework for reimbursement and encouraging innovation, demonstrating the potential to modernize Germany's healthcare system.

Market Complexities and Cultural Nuances

Germany's demographic trends, particularly the ageing "Silver Ager" population (individuals aged 50+), are creating demand for innovative healthcare solutions such as chronic disease management and personalized care. While telemedicine adoption among this group is growing, a significant portion remains hesitant to move away from in-person consultations, primarily due to concerns over whether digital services are fully reimbursed by health insurance (Scaler8, 2022; Taglinger et al., 2022).

Many healthcare providers also resist digital tools due to perceived administrative burdens, hindering widespread adoption (McKinsey & Company, 2020). Furthermore, Germany's strong cultural emphasis on privacy fuels scepticism toward digital tools, making transparent and robust data protection measures essential for startups to build trust and foster adoption (Scaler8, 2022).

Addressing disparities in digital literacy is another critical challenge. Vulnerable groups, including the elderly and low-income individuals, often lack the digital skills necessary to access these solutions. Bridging this gap is crucial to ensure equitable access to digital healthcare and to prevent these populations from being further marginalized in an increasingly digital healthcare environment (Scaler8, 2022).

Funding Landscape

Securing financial resources remains a key challenge for digital healthcare startups in Germany. While venture capital (VC) surged in 2021, it declined by 46% in 2022, pushing startups to seek foreign investors, particularly in the U.S. and U.K. This reflects Germany's underdeveloped late-stage VC ecosystem, compounded by banks' hesitance to fund high-risk ventures like R&D (Hamburg Business, 2024; SeedBlink, 2023). Public funding programs exist but are often bureaucratically complex, creating barriers for smaller firms (Hamburg Business, 2024). These constraints have forced many startups to shift their focus from rapid scaling to achieving profitability earlier in their lifecycle (SeedBlink, 2023).

Despite these challenges, initiatives like the High-Tech Gründerfonds (HTGF), offering up to €3 million per startup, and Berlin's Techstars Accelerator, with its global mentorship network, provide vital support for early-stage startups, especially in technology and digital health sectors. These programs underscore Germany's commitment to fostering innovation and position Berlin as a hub for entrepreneurial growth (Fieldfisher, 2022; SharpSheets, 2024).

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2.4. The Role of Start-ups in the Digital Healthcare Sector

2.4.1 Unique Characteristics of Startups

Startups are characterized by agility, resourcefulness, and a strong focus on innovation. Operating in dynamic, high-uncertainty environments, they must quickly adapt to market shifts and technological changes (Ghezzi & Cavallo, 2020). Despite minimal initial resources, startups leverage creative solutions, novel business models, and advanced technologies to unlock significant growth potential (Dhir et al., 2024; Herrmann et al., 2018).

Unlike larger firms that often have rigid hierarchies, startups benefit from lean, flexible structures that enable faster decision-making and responses to market needs. A common approach used by startups, especially in fast-evolving sectors like digital healthcare, is the Lean Startup Approach (LSA). This method focuses on developing Minimum Viable Products (MVPs) and iteratively improving them based on user feedback, which accelerates innovation and adaptability (Ghezzi & Cavallo, 2020; Ries, 2011).

Startups are also inherently risk-tolerant, often venturing into uncharted territories and pioneering disruptive technologies. While larger corporations primarily focus on incremental improvements to existing models, startups aim for transformative innovations by redefining conventional industry practices. This approach enables them to create diverse value propositions and address unmet needs or overlooked niches in healthcare (Herrmann et al., 2018). Moreover, the constraints of limited funding and small teams push startups to maximize efficiency, resulting in scalable, cost-effective business models (Trincanato & Vagnoni, 2024).

2.4.2 Startups as Drivers of BMI in Healthcare

Startups are key players in driving BMI in healthcare by introducing novel, scalable solutions that enhance accessibility, affordability, and patient outcomes. Digital healthcare startups, in particular, have emerged as key disruptors by developing novel solutions that address long-standing inefficiencies in healthcare. From telehealth platforms that enhance access to care to AI-driven diagnostics that improve accuracy, these startups are transforming how healthcare services are

delivered, making them more accessible, personalized, and cost-effective (Chakraborty et al., 2023; Rinsche, 2017).

Digital healthcare startups address critical gaps in care by offering solutions that improve accessibility, affordability, and personalization. For instance, telehealth platforms enable virtual consultations, reducing the need for in-person visits and increasing access to care in underserved areas (Chakraborty et al., 2023). Similarly, digital therapeutics startups provide software-based treatments for conditions such as mental health disorders and chronic diseases, improving patient engagement and adherence (Rinsche, 2017). These innovations illustrate how startups are not merely enhancing existing healthcare models but actively creating new ones that better meet patients' needs.

In addition, a significant aspect of digital health startups' impact on BMI is their development of multisided platforms, which connect key stakeholders—patients, providers, and payers—within the healthcare ecosystem. These platforms facilitate seamless interactions between various stakeholders, including patients, providers, and payers. These platforms enable integrated care delivery, promote data sharing, and open new revenue opportunities beyond traditional healthcare offerings (Still et al., 2017).

Emerging technologies are another critical enabler of BMI. Startups are at the forefront of applying AI for diagnostics and decision support, IoT for real-time health monitoring, and blockchain for secure data management. These technologies help startups create value by improving the accuracy of care, enhancing patient safety, and reducing operational costs (Ghezzi & Cavallo, 2020; Raimo et al., 2023).

Despite their potential, startups face challenges such as complex regulations, funding constraints, and the need to build credibility. Nevertheless, their ability to innovate rapidly and adopt flexible business models underscores their critical role in improving healthcare (Zaheer et al., 2022).

2.5. Conclusion

The literature review highlights the transformative role of startups in healthcare, with a specific focus on digital healthcare startups driving Business Model Innovation (BMI). Startups, through their agility, lean structures, and iterative approaches, are uniquely positioned to address

longstanding inefficiencies in traditional healthcare systems. Pivots emerged as a crucial mechanism for startups, allowing them to adapt to market changes while balancing short-term adjustments with long-term goals. The analysis also highlighted the importance of technology integration, including AI and telehealth, in reshaping business models and driving innovation. Despite facing barriers like regulatory complexity and funding constraints, digital healthcare startups continue to reshape healthcare delivery by offering scalable, patient-centric solutions that enhance both accessibility and outcomes. In the context of Germany's healthcare system, startups are emerging as vital agents of digital transformation, overcoming systemic hurdles to modernize care delivery. These findings provide a basis for understanding how startups like Noah Therapies navigate systemic challenges and leverage BMI to create sustainable solutions.

3. Teaching Note

3.1. Learning Objectives

This Case Study provides the ground for a discussion that allows students to:

1. Understand the Role of Business Model Innovation (BMI) in Startups.
2. Evaluate Strategic Pivots as a Tool for Startup Growth.
3. Assess the Impact of Digital Transformation on Business Strategy.

3.2. Assignment Questions

The following questions are suggested in order to help students prepare for the in-class case discussion:

1. What immediate and fundamental challenges does Noah Therapies face in sustaining its current business model, and how can these be addressed through strategic pivots or operational changes?
2. Evaluate Noah Therapies' current business model. What are its strengths, weaknesses, and potential areas for improvement in navigating the healthcare market?
3. How can Noah Therapies leverage digital transformation technologies to address its current challenges and position itself for sustainable growth?

3.3. Analysis

Q1. What were the main triggers for Noah Therapies' strategic shifts?

Overarching Cause for All Shifts:

Investor Feedback (Main trigger)

The overarching trigger for Noah Therapies' strategic pivots was the feedback received from investors during their funding pitches. Their feedback illuminated the insufficiencies of Noah's initial business model and forced the team to rethink their entire approach to Noah. It acted as the overarching external trigger that cascaded into a series of strategic shifts or pivots to address these concerns.

Shift 1: From Breast Cancer to Holistic Women’s Health

1. Investor Concerns (External)

Investors highlighted the breast cancer app's limitations, particularly its niche focus, and underscored the need to broaden Noah’s focus beyond breast cancer to achieve scalability and market relevance, since Noah was pursuing a B2C model, which needed a big customer base to be profitable.

2. Market Trends (Dual)

Primary Trigger (External): Market data highlighted a significantly larger opportunity in the broader women’s health sector, especially among younger women (ages 18–39) who exhibited proactive health behaviours and a high willingness to pay (WTP) for digital health services. Additionally, at that time, women’s health emerged as a prominent and growing sector within the healthcare industry, positioning it as a hot topic for innovation and investment.

Secondary Mechanism (Internal): Internally, the team’s market-sizing efforts and leadership reflections during the NorthStar workshops solidified the need to pivot towards a more scalable and sustainable target market reflecting an internal trigger of strategic reassessment.

3. Business Model Error (Internal)

Patient feedback revealed a misalignment between the app’s functionality as a therapy management tool and patients’ deeper desires for holistic care that catered to their entire well-being, not just their medical conditions. This insight led Noah Therapies to pivot, reimagining its product to align with patient expectations and provide more comprehensive, patient-centred solutions.

Clarifying Founders’ Perspectives and the Lessons Learned

The shift from focusing solely on breast cancer to holistic women’s health came with internal disagreements among the founders. While some prioritized scalability and financial sustainability, others wanted to stay true to the original focus. This tension led to a secondary pivot—the departure of Rupp and Hofer—which allowed the remaining team to align around a broader vision of holistic women’s health. This process underscored two key lessons:

1. Leadership alignment is crucial for successful pivots.
2. Balancing long-term goals with a mission-driven approach requires flexibility.

This shows how one pivot can trigger another.

Shift 2: From Performance Marketing to HCP Partnerships

1. Business Financials and Business Model Misalignment (Internal)

The shift was triggered by the financial strain of funding expensive performance marketing campaigns without ROI. Noah realized their marketing strategy was inefficient prompting a pivot to more cost-effective and sustainable ways to reach customers.

2. Consumer Trust and Market Preferences (External)

This shift was also driven by the healthcare system's trust-based nature, where patients value medical professionals' recommendations over digital ads. By leveraging healthcare professionals (HCP) partnerships, Noah tapped into a more credible, scalable, and trusted channel for patient engagement.

Shift 3: Bootstrapping as a Source of Funding

1. Investor Expectations (External)

Venture Capitalists (VC) demanded quick returns (within four to five years) on their investment, and this was not something that Noah could deliver as the company was still trying to find a sustainable business model. This misalignment made traditional funding avenues unsuitable. Additionally, with few proven business models in Germany's digital healthcare sector, investors viewed the market as underperforming causing them to be hesitant to invest, further adding to the difficulty in sourcing external funding.

2. Mission-Driven Approach (Internal)

Noah's commitment to its patient-centric mission prompted the shift toward bootstrapping. The founders resisted pressure to pursue short-term gains through pharmaceutical partnerships or B2B models, which didn't align with their vision. The team also realized that time spent seeking investments could be better used to improve internal operations and refine their business model.

Shift 4: From an App to a Service-Based Model

1. Regulation (External)

Due to the slow and stringent approval processes for DiGAs and insurance reimbursements, investors were sceptical of the DiGA model, with some stating, “I don’t invest in DiGAs.” Dreier called it a bad business model, prompting Noah to shift away from an app-only approach and focus on value-adding services. With the service-based model, Noah was better able to navigate professional law and medical product law, which govern how medical services which were more straightforward to address compared to the complexities of DiGAs. Although the scepticism came from investors directly, external regulation can be seen as an **indirect external trigger** for the company to make this strategic shift.

2. Customer Demand (External)

Patients using the app began reaching out directly to Noah Therapies, seeking additional guidance on their healthcare. This behaviour reflected an unmet need for more personalized, human-centred care and highlighted a desire that extended beyond the app's digital capabilities. The shift to a service-based model aligned not only with these external demands but also with the company’s original mission of providing holistic patient-centred care.

3. Economic Viability Through Service Models (External)

As Noah began offering services alongside the app, they observed a significant increase in customers’ WTP when human interaction was involved. The WTP increased from unprofitable app subscriptions to €300 per customer for the new service model. This economic insight underscored the scalability and financial viability of a service-based approach.

4. Alignment with Vision (Internal)

The fact that customers reached out to Noah for more information and personalized care highlighted a gap in their service offering and a misalignment with their original vision of delivering patient-centred holistic care. The app’s functionality did not fully address the patient’s need for genuine care Dr. Berner originally identified.

Q2. Evaluate the pivots Noah has made. What were the pros and cons of each, and which was the most impactful?

Pro's	Con's
Shift 1: From Breast Cancer to Holistic Women's Health	
<ul style="list-style-type: none"> • Aligned the offering with broader consumer health trends and long-term scalability. • Can serve a wider demographic, capturing younger, health-conscious women. • Enhanced ability to attract investors by demonstrating greater market potential. 	<ul style="list-style-type: none"> • Caused internal disagreements, leading to core members departure. • Required resource reallocation, leaving marketing responsibilities to Dr. Berner, who lacks specialized expertise in this area. • Additional resources would be needed for new content, marketing strategies, and features for women's health.
Shift 2: From Performance Marketing to HCP Partnerships	
<ul style="list-style-type: none"> • Strengthened the credibility and trustworthiness of Noah's offerings. • Reduced marketing costs significantly, while targeting a highly relevant audience. • Facilitates direct feedback loops improving product relevance and trustworthiness. • Fostered partnerships with clinics and professionals, creating sustained value. 	<ul style="list-style-type: none"> • Heavy reliance on HCPs' willingness to refer and promote Noah Therapies. • Less visibility in broader market. • Partnerships with HCPs take longer to establish and grow compared to direct-to-consumer approaches. • Risk of over-reliance on a smaller network of professionals, potentially limiting scalability.
Shift 3: Bootstrapping as a Source of Funding	
<ul style="list-style-type: none"> • Maintain control and autonomy over its mission and strategy. • Enabled Noah to focus on refining its business model without wasting 	<ul style="list-style-type: none"> • Limited financial resources for scaling and expanding operations. • Slower pace of growth due to budget constraints.

<p>resources on trying to convince investors.</p>	<ul style="list-style-type: none"> Limited resources could demoralize the team due to slower progress or limited benefits (e.g., competitive salaries, marketing budgets).
<p>Shift 4: From an App to a Service Based Model</p>	
<ul style="list-style-type: none"> Increased customer WTP. Improved differentiation from competitors who relied solely on digital tools. Created a higher-value offering aligned with Noah's patient-centered mission. Strengthened credibility among HCPs, leading to increased referrals. Human interaction adds a layer of accountability, potentially improving health outcomes and customer satisfaction. Secured B2B Contract – ensures cash flow. 	<ul style="list-style-type: none"> More specialized personnel (e.g., the medical board) would be needed at scales, which can be costly. Scaling a service-based model can be labor-intensive and less automated compared to digital-only solutions. As the business grows, it will require significant resource investment in operational adjustments and staff training. Revert focus to a segment beyond Noah's scope, potentially hurting original mission. Diluting resources.
<p>Impact Assessment: Shift 4 had the greatest impact. It directly addressed customer needs, improved revenue potential, and established more sustainable business model.</p>	

Q3. What are the key factors shaping Noah's operating environment?

Part 1: External Analysis Using Porter's Five Forces

1. Threat of New Entrants: Low

- Germany's strict healthcare regulations and fragmented insurance systems, make entering the digital health market resource-intensive and time-consuming, raising barriers to entry.
- The German government launched several funding programs, incubators, and accelerators to support healthcare startups and drive digital transformation in the healthcare sector. Also,

where Noah's operates, in Berlin is known for being a vibrant startup ecosystem, making it an attractive hub for startups. This lowers entry barriers over time.

- B2C-focused startups face greater entry challenges due to investor preferences for scalable B2B or pharma models. This limits competition in the B2C space for Noah.
- As the German digital healthcare market grows, international startups with advanced business models and greater funding may enter. This is a future risk.

2. Bargaining Power of Buyers: High

- Younger demographics support Noah's digital approach, but scepticism among older populations, who prefer traditional in-person care, creates a barrier to scaling.
- The expectation of free or low-cost healthcare services in Germany's public system makes it difficult for Noah to justify its paid offerings.
- Buyers' rising expectations for data-driven and personalized increases pressure on Noah to innovate, adding complexity to its operations and increasing buyer influence.
- Corporate buyers, such as those from the B2B stress management contract, hold considerable power over Noah, particularly regarding pricing and service customization. This means they can shape the terms of engagement, leveraging Noah's need for revenue to secure favourable conditions.

3. Bargaining Power of Suppliers: High

- HCPs are critical to Noah's marketing strategy. Their endorsement is crucial for patient acquisition, and with only 20 HCPs currently involved, Noah's reliance on these partnerships is high.
- Health board specialists, essential for delivering Noah's service offerings, increase supplier power. Their specialised expertise makes it challenging to find replacements, and as the company scales, exclusivity demands, or higher fees could become a significant constraint.
- The lack of dedicated tech and marketing personnel increases reliance on remaining team members. This reliance increases risks and could lead to greater dependence on external specialists as Noah grows.

4. Threat of Substitutes: Medium to High

- Older generations and traditional healthcare providers prefer in-person consultations, making these a cultural and operational substitute for Noah's digital services.
- Germany's robust public healthcare system offers free services, posing a significant alternative for price-sensitive users.
- Competitor apps and AI-based tools tailored to women's health could replace Noah's service model if they offer greater cost-efficiency or convenience. These alternatives appeal to cost-conscious patients, especially in a price-sensitive German market.

5. Industry Rivalry: Medium

- Even with relatively few proven business models, Germany's digital healthcare market is rapidly growing, thus intensifying competition.
- Noah's unique positioning in holistic women's health provides differentiation, though limited funding and reliance on bootstrapping constrain its ability to compete with well-funded rivals.
- Despite these challenges, Noah's first-mover advantage in the holistic, patient-centred care niche provides a competitive edge, provided they can scale efficiently and continue differentiating their offerings.

Conclusion: The German digital healthcare industry offers both opportunities and challenges, making it **moderately attractive** for Noah. While growth opportunities exist, Noah must overcome key challenges, including buyer expectations, supplier dependence, and stiff competition. Success will require building strong partnerships, improving efficiency through technology, and staying agile in a fast-evolving market.

Part 2: Internal Analysis Using an adapted SWOT analysis

Strengths:

- Noah's focus on personalized, holistic service-orientated care aligns with growing market demand for integrated care, positioning it as a niche leader in women's health.
- The proven ability of Noah's services to increase WTP enhances revenue potential, supporting long-term financial sustainability.

- Dr. Berner’s medical background and Dreier’s financial acumen foster balanced decision-making, enabling Noah to navigate market complexities effectively.
- Trusted HCP partnerships boost credibility, streamline patient acquisition, and cut marketing costs, while webinars and events enhance visibility and engagement.
- Noah’s small team enables quick decision-making and adaptability, offering a competitive advantage in a rapidly evolving digital healthcare landscape.
- Noah reduced onboarding time by 30 minutes through process automation, showing commitment to innovation and proactiveness towards scaling its service offering.

Weaknesses:

- The small team forces founders to juggle multiple roles, such as Dr. Berner handling marketing tasks, which strains his capacity and limits time for strategic planning, potentially impacting growth.
- Despite efforts in HCP-related marketing, Noah lacks expertise in digital and growth marketing, limiting its ability to scale customer acquisition effectively.
- Relying on bootstrapping restricts Noah’s ability to invest in key growth drivers like product innovation and marketing, slowing growth.
- Taking on non-core contracts, like the B2B stress management contract, may dilute focus and create tension between short-term financial goals and long-term vision,

Opportunities (Internal):

- The B2B stress management contract presents an opportunity to diversify revenue streams, engage a broader audience, and ease financial strain.
- Further streamlining operations using AI-driven tools (e.g., for referral tracking or patient follow-ups) could improve operational efficiency, freeing team members to focus on growth and strategy.
- By adopting cost-effective marketing strategies—such as targeted social media campaigns, influencer partnerships, and content marketing—Noah can boost brand visibility and customer acquisition without significant financial strain.

Threats (Internal):

- While the B2B contract eases short-term financial pressure, bootstrapping limits Noah's ability to scale quickly or invest in new initiatives, posing risks of founder burnout.
- With only five employees, Noah risks operational bottlenecks and compromised service quality as demand grows, increasing the risk of burnout.
- Relying heavily on a few HCP partnerships risks disruptions if key partners disengage, making network expansion critical for stability and growth.

Q4: What challenges does Noah Therapies currently face in sustaining its latest business model?

Funding Constraints

- Bootstrapping enables Noah to maintain autonomy and focus on patient-centred care but limits growth potential, such as hiring specialized personnel, scaling operations, and investing in infrastructure improvements such as enhancing digital services.
- Founders like Dreier face financial strain due to the lack of income, affecting morale and potentially long-term sustainability.

Scalability of the Service-Based Model:

- Noah's highly personalized service model, including consultations and follow-ups, is resource-intensive, potentially limiting scalability as demand grows. Although Dreier noted that current internal resources are sufficient, scaling this model without compromising quality becomes challenging as demand and costs increase.
- Despite automating parts of the onboarding process (saving 30 minutes per patient), sustaining the balance between operational efficiency and the personalized care central to their value proposition remains critical.
- The interdisciplinary Health Board is pivotal for Noah's personalized care delivery, but it poses a scalability challenge. As Noah expands, ensuring the availability and affordability of specialist reviews may become difficult. Since these specialists are highly skilled, increased compensation demands could strain Noah's limited financial resources, making cost management essential to avoid undermining financial stability.

Balancing B2C and B2B Opportunities:

- Noah initially focused on B2C, but the acceptance of their first B2B contract for stress management services provided short-term financial relief. While this shift offers revenue diversification and learning opportunities, it risks diluting their focus on women's health and stretching their limited resources.
- Balancing both segments without clear strategic prioritization could lead to mission drift, weakening Noah's brand identity and core B2C offering.
- A well-defined strategy is necessary to manage this dual focus effectively, ensuring that B2B engagements support rather than detract from their long-term B2C mission.

Transitioning to a Subscription-Based Model:

- Noah's current revenue model relies heavily on one-off payments, which is unsustainable for a service that involves ongoing personalized care and follow-ups. A subscription-based model offers a more predictable income stream but introduces several challenges:
 - **Customer Sensitivity:** Shifting from one-off payments to a subscription model requires careful communication of added value to prevent dissatisfaction or loss of trust.
 - **Operational and Strategic Hurdles:** A subscription model demands consistent service quality to retain subscribers. Noah must partially standardize processes without sacrificing the personalized experience central to their value proposition.
 - **Pricing Strategy:** In Germany's heavily subsidized healthcare market, convincing customers to pay for a subscription service is difficult. Noah will need a carefully crafted pricing model and clear communication to overcome potential resistance.

Defining Their Unique Value Proposition (UVP):

- Noah's evolving business model complicates the clear definition and communication of their UVP. Dreier acknowledged that their digital presence lacks clarity, partly due to the frequent changes in offerings and strategic direction.
- This ambiguity hampers Noah's ability to attract and retain customers, with ongoing revisions to marketing materials and HCP communication further straining resources.

Strengthening HCP Relationships:

- Partnerships with healthcare professionals are critical for Noah’s growth and credibility. However, managing and strengthening these relationships requires ongoing effort and trust-building. Without dedicated resources, this channel may not reach its full potential.

Digital Presence and Communication:

- Noah’s weak digital presence hampers their ability to reach a broader audience beyond HCP referrals. Limited social media activity and a suboptimal website make it harder to communicate their value proposition and attract potential customers.
- Since Noah targets younger, tech-savvy consumers, a stronger digital presence is essential to remain competitive and credible in the digital health space.

Customer Engagement and Retention

- While webinars and events on longevity and hormonal balance have improved Noah’s visibility, relying solely on HCP referrals and initial efforts will not be enough for scalable growth.
- To build a loyal customer base, implementing structured retention strategies—such as a tiered subscription program offering exclusive content and discounted consultations—will be crucial for long-term sustainability.

Q5. What are the main aspects of digital transformation impacting Noah?

Immediate Impacts:

Telemedicine Growth and Hybrid Care Demand

- **Impact:** Digital healthcare is rapidly expanding, driven by the demand for accessible and remote care solutions, a trend that accelerated during the COVID-19 pandemic. Noah’s hybrid model—offering a blend of digital consultations and personalized, in-person care—positions it to benefit from this trend.
- **Challenge:** Maintaining a balance between technological scalability and personalized care, ensuring that increased automation doesn’t dilute the human-centred approach valued by their customers.

Fragmented Digital Infrastructure in Germany

- **Impact:** Unlike fully digital health platforms that depend on interoperable systems, Noah's model minimizes reliance on the fragmented healthcare infrastructure in Germany. This service-first approach allows them to sidestep many of the integration issues faced by digital-only solutions.
- **Challenge:** As Noah scales, potential integration with systems like electronic patient records (ePA) may become necessary, which could demand additional technical resources and partnerships.

Demand for Personalization and Data-Driven Insights

- **Impact:** Increasing demand for personalised, data-driven healthcare solutions in Germany aligns with Noah's pivot to a hybrid service model for holistic women's health. Patients using the app began requesting additional guidance and personalized interaction, highlighting unmet needs for holistic care that extends beyond digital features. This is a driver of digital transformation in healthcare. Digital tools, such as personalized health plans and data analytics, are critical to meeting these expectations.
- **Challenge:** Scaling personalized services while preserving the quality of interaction, which could require further investment in automation without compromising the personal touch.

Future Impacts:

Emerging technologies

- **Impact:** Artificial intelligence (AI) offers opportunities for Noah to enhance their services through predictive diagnostics, automated symptom tracking, and personalized health insights. For instance, AI could be used to streamline Health Board recommendations or provide patients with proactive health advice.
- **Challenge:** Patients may perceive AI-driven services as less valuable than human-led care, impacting their willingness to pay (WTP). Noah must balance AI's capabilities with human expertise to maintain high-value perceptions and willingness to adopt these technologies.

Wearable Technology and Real-Time Monitoring

- **Impact:** The growing adoption of wearable devices presents an opportunity for Noah to offer real-time health monitoring, particularly for hormonal and lifestyle-related metrics in women's health. This could provide more comprehensive and data-driven care plans.
- **Challenge:** Successfully integrating wearable device data into Noah's existing service will require reconfiguring its technical infrastructure and acquiring IT expertise—potentially a resource-intensive process.

Competition from Fully Digital Solutions:

- **Impact:** As the digital healthcare ecosystem in Germany matures, more app-based and AI-driven solutions may emerge. These tools, while not as personalized, could offer lower-cost alternatives. But also creates pressure for Noah to differentiate itself further through its unique blend of human-centred care and selective digital integration.
- **Challenge:** Differentiating itself through its human-centred approach and premium care services will be crucial to sustaining its market position. To remain competitive, Noah must continue innovating while reinforcing the unique value of its hybrid model.

Q6: What alternative paths are open for Noah?

Path 1: Focus on Solidifying Foundational Strategies for B2C Segment

Concentrate on refining and scaling the service-based model for the B2C segment to solidify Noah's value proposition and focus on its core mission of providing holistic women's healthcare.

Noah could:

- **Develop semi-standardized care pathways** to streamline common processes while maintaining personalization. E.g. Instead of manually tailoring every plan from scratch, Noah could use modular care plans pre-approved by the Health Board, which specialists can customize as needed.
- **Utilize AI-driven tools** and other automation technologies for onboarding, follow-ups, health monitoring, and post-appointment check-ins to alleviate the strain on human resources within the team. Additionally, harness AI tools to support the Health Board by automating routine tasks, such as case summaries and initial recommendations and AI-assisted recommendations to reduce manual workload.

- **Introduce a subscription model** for B2C clients for ongoing services, such as periodic consultations, personalized health plans, and access to other health insights. This may also involve:
 - Offer tiered pricing to cater to different customer segments, e.g., basic plans for general guidance and premium plans for intensive support.
 - For hesitant customers, offer pay-as-you-go options as an entry point to Noah's services. This approach can help attract users who are not yet ready to commit to subscriptions but may convert later.
 - Implement loyalty programs to retain customers and justify recurring payments, strengthening customer relationships over time.
- Focus on **specific life stages or health needs**, such as mental health management for students, hormonal health monitoring, or menopause management. These targeted communication strategies can attract specific customer segments, making Noah's offerings highly relevant and actionable., strengthening Noah's appeal and alignment with its holistic women's health mission.
- **Strengthen HCP relationships** by ensuring proper account management. Assign a dedicated team member to conduct regular check-ins with HCPs, providing updates on Noah's innovations and offerings to maintain engagement. Additionally, implement an incentive system to motivate HCPs to refer patients actively. Build a referral portal to simplify the referral process, enhance tracking of partnerships, and foster trust and credibility in Noah's services.

Pros:

- Automating and semi-standardizing services helps Noah maintain care quality while increasing efficiency enabling the team to handle a higher volume of customers without compromising quality.
- A subscription model creates recurring income, supporting growth in operations, marketing and innovation efforts, and workforce.
- Loyalty programs improve customer satisfaction and retention. Tiered pricing and pay-as-you-go options lower barriers for hesitant customers, converting hesitant users into subscribers over time.

- Life-stage-specific packages and targeted marketing boost relevance, increasing Noah's appeal to diverse customer segments.
- Tailored Marketing campaigns specific life stages are more effective than generic promotions.
- Regular HCP check-ins and referral incentives build trust, positioning Noah as a preferred partner.

Cons:

- Implementing semi-standardized pathways, AI tools, and a subscription model requires significant initial investment in technology and training.
- Shifting to recurring payments may be difficult in Germany's cost-sensitive healthcare market.
- Managing tiered pricing, loyalty programs, and pay-as-you-go options adds administrative overhead.
- Reliance on AI and automation could lead to concerns about losing the human touch that differentiates Noah's personalized care model.
- Implementing account management, incentives, and a referral portal requires investment in staff, technology, and time, which could strain Noah's small team.
- Over-relying on HCP referrals could expose Noah to risks if partnerships falter.

Path 2: Adopt a Hybrid B2C and B2B Model (Dual Revenue Strategy)

Focus on balancing efforts between B2C and B2B by leveraging existing resources, piloting new offerings, and strategically exploring B2B opportunities. This approach not only ensures B2C growth but also allows Noah to explore potential new markets.

Noah could:

- **B2C Focus:** Continue prioritizing and strengthening foundational strategies as outlined in Path 1, ensuring these remain the core focus while building a sustainable base for growth.
- **B2B Development:** Utilize the initial B2B stress management contract as a learning opportunity to refine offerings and explore a potential new market. This approach allows Noah to test scalable stress management and mental health programs for corporate clients,

such as workshops, and webinars, which could evolve into a complementary service line and open pathways for a stronger B2B focus in the future.

- **Recommendation:** Explore external funding sources, such as government grants or EU healthcare programs, to secure the resources needed for managing dual priorities effectively. This would enable investments in technology, marketing, or additional personnel without straining the core team.

Pros:

- Diversifies revenue streams, mitigating financial risk and reliance on a single market segment.
- Utilizes insights from the B2B pilot to generate immediate cash flow, creating resources to fuel B2C growth.
- Enhances Noah's market credibility by establishing expertise in both individual and corporate healthcare segments.
- Broadens market reach by addressing mental health and wellness needs for both consumers and businesses, showcasing flexibility and adaptability.
- Access to external funding sources could facilitate investments in technology, marketing, and team expansion, supporting sustainable scaling while staying mission-focused.

Cons:

- Concurrently managing B2C and B2B initiatives could overextend a small team, risking inefficiencies and slower progress in both areas.
- Aligning short-term B2B revenue goals with the long-term B2C mission may create conflicts, requiring careful prioritization and strategic decision-making.
Potential dilution of the core mission of holistic women's health if B2B offerings grow disproportionately, diverting focus and resources.
- Developing and managing corporate wellness programs alongside personalized healthcare solutions may necessitate additional expertise and infrastructure, increasing operational complexity.

Q7: What are your recommendations for the management of the company?

I recommend that Noah Therapies adopt the hybrid B2C and B2B model as it ensures both immediate financial stability and long-term B2C growth. Dreier captured this balance well: “opportunities like this B2B contract could not be dismissed, as they presented a chance to generate substantial revenue and gain insights into new customer segments.” This approach aligns with the iterative nature of startups, which thrive on constant learning, testing, and adapting to market realities.

By pursuing the B2B stress management contract, Noah can stabilize cash flow while exploring the corporate wellness market, a potential new avenue for growth, without deviating from its core focus on holistic women’s healthcare. Startups risk failure when overly committed to a single vision, as highlighted in the literature review. Dreier’s openness to change reflects the flexibility needed for sustainable growth: “the iterative nature of a startup’s journey, marked by continuous learning, testing, and adapting” is essential. The hybrid model enables Noah to maintain its differentiation in personalized healthcare while leveraging B2B opportunities as a learning and revenue-generating strategy. This balanced path provides resilience, allowing Noah to evolve strategically and remain competitive in a dynamic market.

4. Conclusion

The completion of this Dissertation on Noah Therapies highlights the transformative role of Business Model Innovation (BMI) in navigating challenges within Germany's digital healthcare industry. The study explored how strategic pivots, triggered by internal and external pressures, helped Noah adapt to market demands, showcasing the importance of flexibility and resilience in startup ecosystems. Noah's journey underscores themes such as technology integration, customer-centricity, and iterative refinement in achieving scalability and sustainability.

A key takeaway is the value of aligning business models with immediate customer needs and long-term trends. Noah's pivot from a niche app-based model to a comprehensive service-oriented offering underscores the importance of adaptability in addressing unmet needs while maintaining the integrity of its mission. Additionally, leveraging partnerships with healthcare professionals and adopting a hybrid B2C and B2B model demonstrated the significance of strategic diversification in stabilizing revenue streams.

The Dissertation process revealed several challenges. One significant difficulty was finding credible sources on German-specific digital healthcare startups. Time constraints further limited the ability to include real-life examples of German start-ups implementing BMI, which would have enriched the analysis. Similarly, the focus on Belgium as a comparative example to showcase BMI's strategic importance in healthcare is another limitation. Expanding this across more countries would have strengthened the argument. Further limitations include the lack of comprehensive financial data and patient outcome metrics. Further exploration of Noah's pivots, supported by detailed financial and operational data, could provide a richer understanding of the impact of its strategic decisions. Future research could explore digital transformation in healthcare startups, focusing on AI and predictive analytics. Monitoring Noah's progress in scaling its hybrid model could offer actionable insights for academics and practitioners.

This Dissertation contributes to the understanding of BMI in digital healthcare, emphasizing the need for startups to embrace iterative processes, balance mission-driven goals with market realities, and adapt to the dynamic digital healthcare landscape.

5. Exhibits


Shift	Trigger	Outcome
Shift 1: From Breast Cancer to Holistic Women's Health	<ul style="list-style-type: none"> • External: Investor concerns about scalability and market relevance • Internal: Market-sizing efforts and leadership reflections 	Larger market to sell product to, thus enhancing financial sustainability
Shift 2: From Performance Marketing to HCP Partnerships	<ul style="list-style-type: none"> • External: Trust-based nature of the healthcare market prompted • Internal: High costs and low ROI from performance marketing 	Cost-savings; improved credibility; and greater patient engagement
Shift 3: Bootstrapping as a Source of Funding	<ul style="list-style-type: none"> • External: Investor hesitancy and misaligned expectations regarding return timelines • Internal: Commitment to a patient-centric mission, resisting pressure for short-term gains through pharmaceutical partnerships 	Greater strategic and operational control; not wasting resources
Shift 4: From an App to a Service-Based Model 	<ul style="list-style-type: none"> • External: Stringent approval processes for DiGAs model and unmet customer demand for personalized care • Internal: Recognition of a misalignment with the original mission of holistic patient care 	Greater differentiation in market; enhanced credibility and increased customer willingness to pay (€300 per customer)
B2B Stress Management Contract Secured	<ul style="list-style-type: none"> • External: Growing interest from corporate clients • Internal: Need for income and a potential new line of business 	Ensured cash flows, knowledge gain; support core mission operations

Exhibit 1: Strategic Shift Diagram (Self-developed)

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