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## Exploring Effective Strategies for Optimizing Financial Investments in Healthcare Technology

Bashir Adeniyi Agboola  
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# Walden University

College of Management and Human Potential

This is to certify that the doctoral study by

Bashir A. Agboola

has been found to be complete and satisfactory in all respects,  
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the review committee have been made.

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Walden University  
2026

Abstract

Exploring Effective Strategies for Optimizing Financial Investments

in Healthcare Technology

by

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Research Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

Walden University

February 2026

## Abstract

Ineffective optimization of the billions of dollars spent annually on healthcare technology threatens the sustainability of healthcare systems and exacerbates inequities in patient access. Healthcare technology leaders who lack effective investment optimization strategies risk reducing the operational effectiveness of their healthcare system. The purpose of this qualitative, pragmatic inquiry was to explore the effective strategies that healthcare technology leaders use to optimize financial investments in healthcare technology to improve the patient care experience and equitable access to healthcare services. The participants were nine healthcare technology leaders who used optimal financial investment strategies. Data were collected through semistructured interviews and a review of secondary industry documents. Through thematic analysis, four themes were identified: (a) employing strategic governance of investments; (b) developing value realization and evidence-driven learning cycles; (c) centering the design and workflow integration around people; and (d) creating digital equity and inclusive access strategies. A key recommendation is for healthcare technology leaders to shift from a purely financial return-on-investment model to a broader stakeholder-centered, governance structured, value-on-investment framework. The implications for positive social change include the potential for healthcare technology leaders to bridge the digital divide for underserved populations, support workforce sustainability, and foster equitable access to high-quality care for the broader community.

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## Dedication

This doctoral project is dedicated to the enduring memory of my parents. Their unwavering love and guidance laid the foundation for the person I am today. To my wife and life partner: I dedicate this achievement to you, in gratitude for your steadfast love and patience during this rigorous journey. To my wonderful children: Thank you for being my daily source of joy and motivation.

To God Almighty be the Glory and enduring Praise.

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## Section 1: Project Foundation

### **Background of the Problem**

Some healthcare technology leaders do not have effective strategies to optimize investments in healthcare technology, which results in poor patient experience and inequitable access to healthcare services. Despite healthcare accounting for nearly 20% of U.S. gross domestic product, with an estimated \$4.5 trillion in annual spending, only about 5% of hospital budgets are typically allocated to information technology, compared to 7–10% in industries such as banking or retail (Yao et al., 2022). Poorly optimized investments in healthcare information technology contribute to fragmented care, data silos, and inefficient workflows, resulting in tens of billions of dollars in avoidable healthcare spending annually in the United States (Padula & Pronovost, 2024). Moreover, inequities in technology deployment exacerbate disparities in access to care; for example, researchers in one study found that low-income and minority populations are 40% less likely to benefit from digital health innovations due to gaps in infrastructure and strategic alignment (Yao et al., 2022). Without more effective investment strategies, healthcare organizations risk falling short of achieving critical aims such as improving patient experience, promoting health equity, and addressing the social determinants of health (SDoH; Nundy et al., 2022). While contemporary attention to SDoH is often linked to the World Health Organization's (WHO) postwar health framework, the origins of the concept date back to the 19th century. In 1848, German physician Rudolf Virchow argued that epidemic disease was fundamentally rooted in political and social conditions, asserting that medicine is a form of social science and that politics can be understood as

medicine practiced at a societal level (Mackenbach, 2009). Similarly, Friedrich Engels documented the health consequences of industrial poverty in his 1845 analysis of working-class living conditions in England (Engels, 1845/2009). These early insights underscored that addressing health inequities requires confronting the sociopolitical structures that shape access to care and well-being, a challenge that remains relevant in today's healthcare technology landscape. These concerns highlight the need for healthcare technology leaders to more effectively align their investments with organizational objectives.

### **Business Problem Focus and Project Purpose**

The specific business problem is that some healthcare technology leaders lack effective strategies to optimize financial investments in healthcare technology to improve the patient care experience and equitable access to healthcare services. Therefore, the purpose of this qualitative pragmatic inquiry was to identify and explore the effective strategies healthcare technology leaders use to optimize financial investments in healthcare technology to improve the patient care experience and equitable access to healthcare services.

The target population for the project consisted of New York metro area healthcare technology leaders who had used effective strategies to optimize financial investments in healthcare technology to improve the patient care experience and equitable access to healthcare services. The sampling method was purposeful sampling. The sampling size consisted of nine healthcare technology leaders in the New York metro area.

The participant eligibility criteria included being a healthcare technology leader in a hospital system in the New York metro area and having used effective strategies to optimize financial investments in healthcare technology to improve the patient care experience and equitable access to healthcare services.

The qualitative research methodology was appropriate for this research project. The qualitative research method allows for an in-depth understanding of participants' lived experiences and real-world problem-solving strategies, which are not easily quantifiable (Tomaszewski et al., 2020). To address the research question in this qualitative research project, the specific research design was pragmatic inquiry. Pragmatic inquiry supports an inductive process, emphasizing real-world problems and practical solutions based on participants' perspectives (Pyo et al., 2023).

I utilized data collection tools and sources, including semistructured interviews, supplemented by relevant secondary materials from established industry sources and global digital health reports related to healthcare technology investments and healthcare outcomes. These sources helped triangulate the findings and provided additional context. The qualitative analysis for this research project involved thematic analysis, following Braun and Clarke's (2022) six-step thematic analysis framework. Additionally, I employed member checking, data saturation, and methodological triangulation to ensure the reliability and validity of the findings.

The conceptual frameworks for this project were the following: triple aim of healthcare, quadruple aim of healthcare, quintuple aim of healthcare, and the SdoH. The seminal authors of the frameworks are Institute for Healthcare Improvement (IHI),

Bodenheimer and Sinsky, Nundy et al., Engels, and WHO. The years of theory creation for the frameworks are 2008, 2014, 2022, 1948, and 1845.

### **Project Research Question**

What effective strategies do healthcare technology leaders use to optimize financial investments in healthcare technology to improve the patient care experience and equitable access to healthcare services?

### **Assumptions and Limitations**

#### **Assumptions**

In qualitative research, assumptions are foundational beliefs that guide how the research project is conceptualized and interpreted. These assumptions are accepted as true within the research's context, even though they may not be empirically testable or verifiable. Their unexamined presence can introduce interpretive risks that shape the boundaries and direction of the inquiry (Pilcher & Cortazzi, 2023).

This qualitative pragmatic inquiry, designed to explore strategies used by healthcare technology leaders to optimize financial investments in technology for improved patient experience and equitable access, rested on several foundational assumptions. First, it was anticipated that purposive sampling would enable sufficient access to a group of six to nine healthcare technology leaders who met the inclusion criteria, including holding leadership roles with technology investment responsibilities within the past 3 years. It was also assumed that these participants would be willing to share detailed and candid accounts of their strategies and experiences through

semistructured interviews, consistent with the principles of qualitative inquiry in healthcare research (Olmos-Vega et al., 2023).

Further, there was an underlying assumption that participants possessed sufficient tacit and explicit knowledge of their organizations' technology investment processes to provide the detailed descriptions required for robust thematic analysis. Participants were expected to respond truthfully and thoroughly, even when faced with questions that might involve proprietary or sensitive information. Another assumption was that my role as the primary data collection instrument would not unduly influence participants' responses, and that reflexivity strategies (e.g., maintaining a reflective journal and conducting member checks) would help address any potential biases arising from my prior professional experiences in the healthcare technology sector. Finally, it was assumed that the contexts and strategies described by participants would remain fundamentally stable over the course of the project so that findings would reflect typical practice rather than unique or time-bound anomalies.

### **Limitations**

Limitations in qualitative research refer to unavoidable constraints, often external to the researcher, that influence aspects of the research such as methodological design, participant access, data collection, analytical scope, and transferability of findings. Recognizing and transparently reporting these constraints enhances methodological integrity and provides a clearer understanding of the research's applicability (Pilcher & Cortazzi, 2023). This research project carried certain limitations inherent to its design and practical context. The qualitative pragmatic inquiry approach, which focused on a small,

purposively selected sample of healthcare technology leaders within the New York metro area, may limit the generalizability of the findings to broader or different regional or organizational contexts, especially those with distinct regulatory, structural, or resource differences. The reliance on participants' recollections and retrospective descriptions of decision-making processes introduced the risk of recall bias, with participants potentially emphasizing successful outcomes or minimizing challenges due to social desirability or organizational loyalty, an issue frequently noted in qualitative healthcare research (Pyo et al., 2023).

Although reflexivity practices and member checking were incorporated to mitigate researcher subjectivity, my own prior experiences and interpretations might still have influenced how themes were identified and analyzed, reflecting a common limitation in interpretive research approaches (Pyo et al., 2023). Finally, the dynamic and rapidly evolving nature of healthcare technology, financing models, and policy frameworks could mean that strategies identified during the research project may change soon afterward, which may limit their relevance or applicability over a longer period (Glasdam et al., 2024).

### **Business Project Ethics**

Ethical rigor is central to qualitative business research, particularly when involving human participants and organizational data. The Belmont Report contains ethical principles to which the researcher must adhere: respect for persons, beneficence, and justice (U.S. Department of Health and Human Services, 1979). As the primary data collection instrument in this qualitative pragmatic inquiry, I adhered to the ethical

principles articulated in the Belmont Report, and to the ethical protocols that Walden University's Institutional Review Board (IRB) requires, including obtaining informed consent, ensuring voluntary participation, and maintaining participants' confidentiality throughout the research process.

Participants were healthcare technology leaders who had used effective strategies to optimize financial investments in healthcare technology to improve the patient care experience and equitable access to healthcare services. Before participation, each individual received an informed consent form outlining the project's purpose, procedures, potential risks, and benefits. They were informed of their right to withdraw by emailing me or phoning me at any time without consequence. No incentives were offered. All data were anonymized using pseudonyms to protect participant privacy, and identifiable organizational information was redacted. Digital recordings, transcripts, and documents were encrypted and stored in a password-protected folder on a secure drive. In accordance with best practices and university policy, I will retain these data for 5 years postproject and then securely delete them.

Ethical research also involves reflexivity and positionality. As a researcher, I maintained a reflexive journal to document biases and monitor power dynamics, particularly given the leadership status of participants. Furthermore, I fostered trust by emphasizing transparency, neutrality, and cultural competence throughout the interview process. This research aligns with the foundational ethical standards of the Belmont Report (U.S. Department of Health and Human Services, 1979), particularly the principles of respect for persons and beneficence. In doing so, the project endeavored not

only to generate meaningful insights, but to do so with the highest regard for ethical responsibility. The IRB approval number is 08-21-25-1229865.

### **Evidence-Based Integrative Review**

The healthcare industry has undergone a significant transformation in recent years, primarily driven by the rapid evolution of health information technology (HIT) and growing demands to enhance equity, efficiency, and care quality. Against this backdrop, healthcare technology leaders are under pressure to optimize financial investments in healthcare technology to improve operational efficiency, enhance patient experience, and ensure equitable access to healthcare services (Padula & Pronovost, 2024). This evidence-based integrative review synthesized the empirical and theoretical literature from 2020 to 2025 on effective strategies healthcare technology leaders employ to meet these aims. The professional and academic literature I analyzed centers on the complex interplay between healthcare technology investments and their impact on patient outcomes, cost efficiency, provider well-being, and health equity. In this review, I synthesize insights from various domains, including operations management, public health policy, and medical informatics, to provide a comprehensive understanding of current challenges and strategic approaches. This progression reflects a growing consensus that multifaceted strategies are required to drive sustainable transformation within complex health systems (Nundy et al., 2022; Padula & Pronovost, 2024).

Digital transformation in healthcare was accelerated by regulatory forces such as the Health Information Technology for Economic and Clinical Health (HITECH) Act, passed into law in 2009, and the Affordable Care Act (ACA), passed into law in 2010, as

well as by systemic pressures like the COVID-19 pandemic. The ACA and the HITECH Act both played pivotal roles in accelerating the adoption of HIT in the United States. The HITECH Act provided significant financial incentives and imposed penalties to encourage hospitals and providers to adopt and demonstrate meaningful use of electronic health records (EHRs; Eastburn et al., 2024). The act earmarked up to \$30 billion to support the adoption of EHR and related HIT infrastructure, with the intention of assisting providers in purchasing and implementing electronic health systems, and it stipulated penalties for nonadoption (Li, 2025). The ACA, by promoting a healthcare environment that rewarded care efficiency, care coordination, and quality reporting (all of which are heavily dependent on HIT), supported the HITECH Act's push for EHR adoption. As a result, the adoption rate of EHR systems increased significantly, from under 10% in hospitals and under 20% in physician practices before 2009, to over 90% in hospitals and 80% in physician practices by 2015–2017, driven by ACA and HITECH Act incentives and mandates (Jo et al., 2024).

The COVID-19 pandemic exposed vulnerabilities in traditional care delivery models and accelerated the adoption of HIT, including remote monitoring, telehealth, artificial intelligence, and integrated data platforms (Nundy et al., 2022). These events demonstrated the value of technology in responding to crises and the consequences of inadequate digital infrastructure and planning. In response to increasing system vulnerabilities, healthcare leaders are prioritizing robust investment strategies designed to strengthen system resilience against both major crises and everyday operational disruptions. Baret et al. (2023) argued that to address these vulnerabilities effectively,

leaders must identify optimal investment strategies that prioritize critical assets, ensuring that the system can adapt to future shocks while maintaining service reliability. This shift moves beyond simple cost containment to a focus on identifying specific investment levels that fortify the healthcare system against random disruptions. While prior decades emphasized cost containment and performance metrics, the emerging era emphasizes holistic health outcomes, including patient-centered care, clinician experience, health equity, and community-based responsiveness (Nundy et al., 2022; Shrank et al., 2019).

Furthermore, my review of the literature highlights that the effectiveness of these investments depends heavily on the system's ability to maintain "everyday resilience," the capacity to handle day-to-day challenges like staffing shortages and patient surges without collapsing. Baret et al. (2023) emphasized that investment strategies must account for the sequential nature of the patient journey and the probability of facility disruptions, ensuring that capital allocation directly minimizes patient waiting times and travel distances even during periods of stress. Without such granular planning, investments may fail to mitigate the "ripple effects" of local disruptions, leading to fragmented care and lost demand. As such, this review emphasizes the effectiveness of specific technologies and the broader ecosystem of decision-making and strategy that surrounds them. My research project explored how healthcare technology leaders develop and implement effective strategies to optimize technology investments in ways that strengthen patient experience and advance equitable access to care. From a leadership and policy standpoint, the imperative to align technological innovation with measurable

health system outcomes has never been more urgent (Johnson et al., 2022; Nundy et al., 2022).

I used the following keywords as part of my search strategy for this research project: *healthcare technology investment, patient experience, health IT, access to care, equity, digital health leadership strategies, technology optimization, value-based care, triple aim, quadruple aim, quintuple aim, social determinants, SDoH, health IT ROI, health technology strategy, and health disparities*. Databases accessed included ProQuest, Business Source Complete, PubMed, and ScienceDirect.

This review is organized according to the Walden University Doctor of Business Administration (DBA) capstone requirements for a qualitative pragmatic inquiry project. It begins with an in-depth discussion of the conceptual frameworks guiding this research project: the triple aim, quadruple aim, quintuple aim, and SDoH. These models collectively frame the project's emphasis on strategic investment, value creation, health equity, and patient-centeredness. The review then explores current scholarship relevant to the applied business problem: that some healthcare technology leaders lack effective strategies to optimize financial investments in healthcare technology. This review concludes with a synthesis of business topic scholarship related to potential strategies for addressing the problem and outlines key implications for research, practice, and social change. I reference 39 sources to support the findings of this qualitative pragmatic inquiry. Of these, 30 sources (77%) were published within the 5-year recency window (2022–2026), reflecting the current state of healthcare technology investment and digital transformation strategies. Although this recency rate is below the 85% recommendation,

the variance was necessary to include seminal theoretical works, such as Berwick et al.'s (2008) triple aim and the WHO's (2008) framework on social determinants of health, which grounded the project's conceptual frameworks. Peer-reviewed journals comprised the majority of the references (61.5%), ensuring academic rigor, while gray literature from established global organizations (e.g., World Bank, OECD, McKinsey) accounted for 28.2%, providing essential industry context for the applied business problem. See Table 1 for the detailed breakdown of the reference types and their recency.

**Table 1**

*References Breakdown*

Source classification	Total count	Percentage	Recent (2022–2026)	Older (pre-2022)
Peer-reviewed journals	24	61.50%	19	5
Gray literature & reports	11	28.20%	8	3
Books & book chapters	3	7.70%	2	1
Conference proceedings	1	2.60%	1	0
Totals	39	100%	30	9
Recency rate			76.90%	23.10%

*Note.* Due to the extensive references to seminal works, some sources are older than 5 years.

## Application to the Applied Business Problem

### Conceptual Framework

The purpose of this qualitative pragmatic inquiry was to explore successful strategies used by healthcare technology leaders to optimize financial investments in healthcare technology, aiming to enhance patient care experience and to promote equitable access to healthcare services. Effective strategic recommendations in healthcare require an understanding of evolving conceptual frameworks that guide the performance and improvement of health systems. The foundational framework for this research project

was the progression from Berwick et al.'s (2008) triple aim theory to Bodenheimer and Sinsky's (2014) quadruple aim theory and Nundy et al.'s (2022) quintuple aim theory, with integration of the SDoH framework of the WHO's Commission on Social Determinants of Health (2008).

In their triple aim theory, Berwick et al. (2008) proposed an approach to optimizing health system performance by simultaneously pursuing three goals: improving the health of populations, enhancing the patient experience of care, and reducing the per capita cost of healthcare. The primary goal is to improve population health, with patient experience and cost reduction serving as secondary objectives that contribute to this primary aim. These goals provide a lens for evaluating return on technology investment in terms of both clinical outcomes and operational efficiency.

While the triple aim gained widespread acceptance, a critical challenge emerged: The stressful work-life of clinicians and staff impacted the ability to achieve the three aims. Recognizing this, Bodenheimer and Sinsky (2014) proposed a fourth aim to improve the work-life of healthcare clinicians and staff in their quadruple aim theory. This expansion recognized that, like patient experience and cost reduction, improving provider well-being is essential for successfully improving population health. Professional burnout, characterized by loss of enthusiasm, feelings of cynicism, and a low sense of personal accomplishment, is widespread across clinical specialties and is associated with early retirement, alcohol use, and suicidal ideation (Bai et al., 2024). Physician dissatisfaction is also seen as an early warning indication of systemic barriers to high-quality clinical practice (Ahmad et al., 2023). Therefore, the quadruple aim

acknowledges that addressing provider burnout and work-life balance is not merely a moral imperative, but also a pragmatic necessity for sustainable quality improvement, emphasizing that technology strategies must also address provider burnout and workflow integration to be sustainable (Bodenheimer & Sinsky, 2014).

In their quintuple aim theory, Nundy et al. (2022) proposed expanding the quadruple aim to the quintuple aim, adding a fifth aim to advance health equity in their quintuple theory. The rationale was that quality improvement without equity is deemed an incomplete victory. While elements of health equity may seem addressed by delivering better care experiences and improving the health of populations, explicit inclusion is necessary because quality improvement efforts without a focus on disparity reduction may have limited effects and could even unintentionally exacerbate them. The quintuple aim posits that quality improvement efforts should be explicitly designed to improve health equity. This includes choosing evidence-based interventions proven to reduce health disparities and involving affected communities in the planning, design, and delivery of interventions to ensure that they are inclusive and culturally sensitive. Measurement for health equity must move beyond merely stratifying the first three aims by race, ethnicity, or other social categories. It calls for primary measures of health equity that assess underlying causes of inequities, such as racism, discrimination, mistrust, food insecurity, and housing instability. The addition of the quintuple aim reflects the growing recognition that, without a targeted focus on equitable access, technological advancements may exacerbate existing disparities (Nundy et al., 2022). This progression

reflects a growing consensus that multifaceted strategies are required to drive sustainable transformation within complex health systems.

Finally, the SDoH framework of the WHO's Commission on Social Determinants of Health (2008) highlighted how socioeconomic factors, including income, geography, education, and housing, impact healthcare access and outcomes. Researchers at the World Bank (2023) and Yao et al. (2022) argued that HIT solutions must be assessed not only by their functionality, but also by their accessibility and inclusivity across diverse populations. While contemporary attention to SDoH is often linked to the WHO's postwar health frameworks, the origins of the concept date back to the 19th century. In 1848, German physician Rudolf Virchow argued that epidemic disease was fundamentally rooted in political and social conditions, asserting that medicine is a form of social science and that politics can be understood as medicine practiced at a societal level (Mackenbach, 2009). Similarly, Friedrich Engels documented the health consequences of industrial poverty in his 1845 analysis of working-class living conditions in England (Engels, 1845/2009). These early insights underscore that addressing health inequities requires confronting the sociopolitical structures that shape access to care and well-being, a challenge that remains relevant in today's healthcare technology landscape.

Berwick et al.'s (2008) triple aim theory to Bodenheimer and Sinsky's (2014) quadruple aim theory and Nundy et al.'s (2022) quintuple aim theory, with integration of the WHO's Commission on Social Determinants of Health (2008)'s SDoH framework, establish the rationale for evaluating healthcare technology investment through a

multidimensional lens that considers cost, efficiency, experience, provider well-being, and equity.

## **Business Problem Scholarship Evidence**

### ***Health Inequities and Digital Divide***

Despite longstanding recognition and policy recommendations for health equity, substantial progress has not been made in achieving it. HIT, while offering powerful levers for improvements to healthcare delivery, also poses risks for vulnerable users and can exacerbate existing HIT inequalities (Nundy et al., 2022; Yao et al., 2022).

Disparities in access to HIT are influenced by demographic, economic, and sociocultural factors such as age, race, region, economy, education level, and eHealth literacy. A significant contributing factor to this inequity is the lack of adequate digital network infrastructure, particularly in rural areas, which limits access to essential HIT-enabling tools like internet broadband and smartphones. This digital divide means that, without proper planning and safeguards, HIT interventions can widen the gap between those who can and cannot access necessary care.

### ***Unclear Value of HIT Investments***

Multiple recent studies have highlighted the persistent challenge that healthcare organizations face in generating value from health technology investments. Despite significant expenditures, many systems struggle to translate digital innovation into improved care experience or equitable access (Padula & Pronovost, 2024; Woods et al., 2024). Through a correlational and longitudinal study, Woods et al. (2024) found only partial fulfillment of the quadruple aim after implementing electronic medical records

(EMRs). While medication errors and nosocomial infections decreased, patient experience outcomes remained stagnant, and digital systems occasionally increased administrative burdens. Further, Yao et al. (2022) conducted a scoping review revealing that HIT tools often unintentionally widen disparities, especially among older adults, rural populations, and ethnic minorities. They found that digital illiteracy and lack of infrastructure impede adoption and effectiveness, emphasizing the need for investment strategies that take technical and social barriers into consideration.

### ***High Cost and Waste***

The challenge of waste in the healthcare system is also relevant. The United States spends more on healthcare than any other country, with costs approaching 18% of the gross domestic product (GDP) and exceeding \$10,000 per individual, according to Shrank et al. (2019). The authors estimated that \$760 billion to \$935 billion in annual U.S. healthcare spending is waste, with significant potential savings achievable through better alignment of investments with high-value care delivery. Low-value care remains a pervasive issue across U.S. healthcare systems, significantly contributing to unnecessary spending. Estimates indicate that 12–15% of patients receive at least one low-value practice annually, and 72% of physicians in the U.S. admit to prescribing unnecessary tests or procedures at least once a week (Su et al., 2023). Technology misalignment is a contributor to both overtreatment and administrative inefficiencies. Regarding policy, Johnson et al. (2022) found wide variation in healthcare spending growth across states, driven partly by inconsistent Medicaid expansion and income levels. Their findings

underscore the need for context-specific investment strategies that reflect local economic and policy environments.

### ***Provider Burnout and Dissatisfaction***

A critical factor impacting the healthcare system's performance is the pervasive issue of provider burnout. Bodenheimer and Sinsky (2014) found that a significant majority of family physicians (68%) and general internists (73%) would not choose their current specialty if they were starting their careers anew. This widespread burnout among clinicians and staff directly impedes efforts to achieve the quadruple aim goals. Physician dissatisfaction serves as an early warning sign that the healthcare system is creating barriers to high-quality practice and highlights a crucial need for investments that not only improve technical aspects of care, but also enhance the work-life of healthcare providers.

These points underscore that optimizing financial investments in healthcare technology is not merely a matter of technical implementation, but also a strategic imperative that must address deeply entrenched systemic issues of cost inefficiency, workforce well-being, and health equity. Furthermore, aligning equity-focused interventions with technology governance structures ensures that leadership accountability is maintained throughout implementation cycles.

### **Business Topic Scholarship**

The literature identified several strategic pathways healthcare leaders use to optimize HIT investments, improve patient experience, and enhance equitable access.

These strategies often involve a holistic approach, integrating technological, operational, and human factors.

### ***Enhancing Patient Experience and Engagement Through Technology***

One key strategy is aligning technology deployment with population needs. According to Barony Sanchez et al. (2022), participatory design, particularly when involving underrepresented populations in codevelopment, yields solutions that are better tailored and more widely adopted. For example, healthcare information technology can significantly enhance the patient experience by making complex medical information more understandable through formats such as video presentations and images. Technology facilitates patient education and engagement throughout the care journey, enabling customized communication and reducing information overload. Patient experience, in turn, mediates the relationship between healthcare information technology investments and hospital bad debt, implying that improved patient experience leads to reduced financial losses from unpaid bills. Beyond direct care, engaging patients and citizens in the development of HITs through cocreation processes is essential for ensuring that tools meet user expectations and preferences, promoting maximum retention, adaptability, and satisfaction. The Virtual Community of Patients and Citizens Partners (COMVIP) is an example of a cocreated digital tool designed to continuously adapt based on user experience and preferences, fostering ongoing engagement (Barony Sanchez et al., 2022).

### ***Building Organizational Digital Maturity***

Another critical strategy is building organizational digital maturity. Woods et al. (2024) emphasized that digital maturity, encompassing governance, interoperability, and workforce digital literacy, is strongly correlated with improved patient safety and workforce satisfaction outcomes. Investing in these capabilities often yields greater returns than investing in hardware or software alone.

### ***Promoting Health Equity Through HIT***

Malpani et al. (2024) and Goetschius et al. (2023) highlighted the importance of integrating SDoH data into HIT platforms, enabling predictive analytics and personalized care interventions. Leveraging novel datasets and HITs, including AI-based tools, is critical for assessing and impacting SDoH to improve population health and address disparities. The authors' review demonstrates that systems that aggregate electronic health records and social data can better identify high-risk populations and tailor care services to the needs of the individual population groups, thus enhancing equity and reducing avoidable utilization and undue strain on the healthcare system.

### ***Optimizing Resource Allocation and System Resilience***

Padula and Pronovost (2024) proposed a value-based investment framework, suggesting, for example, that systems should prioritize technologies that prevent hospital-acquired health conditions. The authors argued that these investments in technology enhance safety and offer a significant return on investment (ROI) by avoiding the Center for Medicare and Medicaid Services (CMS) penalties and reducing inpatient costs. An optimal investment strategy is crucial for strengthening healthcare systems against

disruptions, whether they are major shocks to the system, such as the COVID-19 pandemic, or everyday challenges, including unexpected patient surges, equipment failures, or staffing shortages (Baret et al., 2023; Padula & Pronovost, 2024). For example, a bi-objective mathematical model can be used to minimize patient travel distance and the number of patients waiting for care. This model can be enhanced by incorporating a Markov chain to model patient journeys through the healthcare system, capturing the sequential nature of care and analyzing probabilities of patient transitions. Such models enable healthcare leaders to optimize healthcare coverage by allocating investments to facilities in a manner that minimizes travel distance and patient wait times (Baret et al., 2023).

### ***Optimization and Modeling***

To navigate the complexity of modern healthcare ecosystems, Baret et al. (2023) proposed shifting from static investment planning to dynamic, bi-objective optimization models. Their research suggests that leaders should utilize Markov chain modeling to capture the sequential nature of patient care, allowing for the precise calculation of transition probabilities between treatment stages and the identification of investment levels that maximize facility service rates. By simulating different investment configurations against potential disruption scenarios, leaders can identify "nondominated solutions" that balance cost constraints with the imperative to minimize patient "on-hold" time. This quantitative approach allows decision-makers to target investments with a granularity that accounts for specific facility risks and patient flows, rather than relying on broad, theoretical forecasting.

### ***Impact of HIT on Quadruple Aim Outcomes***

Woods et al. (2024) stated that large-scale HIT transformations, such as EMR implementations, have shown positive or neutral effects across the quadruple aim. HIT capability has been associated with lower staff turnover, which positively impacts the aim of enhancing the provider experience. Digitizing healthcare services has led to decreased medication errors (12.87% decline), reduced hospital-acquired infections (14.27% reduction), and increased hospital activity (3.42% increase), suggesting positive impacts on population health and healthcare costs (Woods et al., 2024). While EMR use can positively influence patient satisfaction, more systematic quantitative and qualitative approaches are needed to assess the nuances of patient experience, moving beyond general satisfaction to the actual experience of receiving care. These findings provide confidence for decision-makers investing in HIT technology, especially given the absence of unexpected negative impacts observed in the Woods et al. (2024) study.

### **Summary**

The journey from the triple aim to the quintuple aim reflects an evolving and increasingly comprehensive understanding of healthcare system optimization. Initial efforts focused on the fundamental pillars of population health, patient experience, and cost reduction. The recognition of widespread provider burnout necessitated the addition of provider well-being, forming the quadruple aim, acknowledging that a healthy workforce is indispensable for achieving the other three goals. Most recently, the emphasis on health equity, leading to the quintuple aim, underscores the critical understanding that actual healthcare quality improvement is insufficient if it fails to

address and actively reduce health disparities, which are deeply rooted in the social determinants of health.

From a strategic perspective, optimizing financial investments in healthcare technology must directly align with these evolving aims. Effective leadership is crucial, as it drives technology integration and fosters effective healthcare teams that, in turn, enhance patient care quality and control costs. HIT, when thoughtfully implemented, demonstrates positive impacts on clinical outcomes, such as reduced medication errors and infections, and can improve hospital operational activities. Furthermore, investing in HIT can positively influence patient experience, which has a tangible financial benefit by reducing hospital bad debt.

Crucially, addressing health equity requires leveraging HIT for assessing and acting upon SDoH, through initiatives like standardizing SDoH data in EMRs and utilizing advanced analytics such as predictive analytics and natural language processing (NLP) to identify patient needs. However, this demands a conscious effort from technology providers to design inclusive, user-friendly tools, and from policymakers and medical institutions to bridge the digital divide through equitable access to technology, resources, and eHealth literacy training, especially for vulnerable populations. The evidence in the literature consistently points to the necessity of a holistic, integrated approach, where financial investments are not just about technological adoption but about systemic transformation that prioritizes broad-based positive health outcomes, equitable access, and a sustainable, supported healthcare workforce.

## Section 2: Primary and Secondary Industry Data Analysis

### **Nature of the Project**

#### **Method and Design**

This qualitative pragmatic inquiry was appropriate for examining the effective strategies that healthcare technology leaders use to optimize financial investments to improve patient experience and access to care. Qualitative research gathers context-specific information based on leaders' experiences, whereas pragmatic inquiry focuses on practical solutions and outcomes applicable to business practice (Pilcher & Cortazzi, 2023).

#### **Reliability**

I ensured data reliability in this project through data saturation, member checking, triangulation, and reflexivity. I confirmed that data saturation had been reached by conducting interviews until no new themes emerged, thus confirming that the data adequately reflected participants' experiences. I also conducted member checking by providing participants with interview summaries to verify the accuracy of my interpretations. I performed triangulation by integrating multiple evidence sources, including participant interviews, member-checking feedback, the analytic codebook, and corroborating insights drawn from established industry and global digital health reports. This multisource comparison improved the credibility and dependability of the findings. I also maintained reflexivity through reflexive journaling to document assumptions, decisions, and potential biases. Together, these strategies helped to establish the

credibility, transferability, dependability, and confirmability of the research project findings (Braun & Clarke, 2022; Olmos-Vega et al., 2023).

### **Population, Sampling, and Participants**

The target population consisted of healthcare technology leaders in the New York metro area. Eligibility required holding a leadership role and having used effective strategies that healthcare technology leaders use to optimize financial investments in healthcare technology to improve the patient care experience and equitable access to healthcare services. I used purposeful sampling to ensure alignment with the research problem. Access to participants was facilitated via professional networks and email outreach. A sample of nine participants was selected, with data saturation determined when no new codes or themes emerged (see Table 2 for participants' demographics).

**Table 2***Participants Demography*

Participant ID	Role/Title	Years in HIT leadership	Organization type
P1	Chief information officer (CIO)	20	Integrated care delivery system
P2	Chief information officer (CIO)	20	Integrated care delivery system
P3	Chief information officer (CIO)	28	Academic medical center
P4	Chief information officer (CIO)	23	Integrated care delivery system
P5	Chief technology officer (CTO)	24	Multihospital system
P6	Chief technology officer (CTO)	5	Multihospital system
P7	Chief information officer (CIO)	14	Academic medical center
P8	Vice president of info. tech	6	Multihospital system
P9	Chief digital officer	9	Specialty care hospital

*Note.* To ensure confidentiality, specific organizational names have been withheld. All participants

operated within the New York metropolitan area and held budgetary or strategic influence over HIT investments at the time of, or within the past 36 months of the research project.

### **Data Collection Activities**

Data collection activities for this qualitative pragmatic inquiry were designed to generate rich, detailed accounts of the strategies employed by healthcare technology leaders to optimize financial investments in healthcare technology, to improve patient experience, and equitable access to care. Consistent with qualitative methodological standards (Olmos-Vega et al., 2023), I used multiple data sources, including primary semistructured interviews and established industry and global digital health reports, to support depth, triangulation, and analytic rigor.

The primary source of data consisted of individual semistructured interviews with nine healthcare technology leaders in the New York metropolitan area. Interviews were appropriate for this project because they enable participants to narrate their decision-

making processes, contextualize strategic choices, and explain organizational and environmental influences in their own words. Prior to each interview, participants received an invitation and a consent form that were consistent with Walden University's IRB requirements. Upon receiving informed consent, I scheduled interviews, based on participants' availability, via secure audio conference.

During each interview, I followed a standardized interview protocol to ensure consistency in question sequencing, probing, and documentation. The protocol allowed for flexibility in pursuing emergent ideas while maintaining focus on the research question. Each interview was audio-recorded using a secure, encrypted device and subsequently transcribed verbatim. Consistent with qualitative best practices (Olmos-Vega et al., 2023), I also generated field notes immediately following each interview to capture contextual observations, initial impressions, and reflexive insights that might inform later analysis.

Member checking occurred after the initial review of the transcript. I prepared a concise synthesis of each participant's responses and sent it to them for verification of the accuracy of my interpretations. Member checking strengthens trustworthiness by ensuring that participants recognize their perspectives in the researcher's analytic summaries (McKim, 2023). I reviewed secondary materials from established industry sources and global digital health reports to supplement and contextualize the interview data, providing additional insight into how broader industry conditions shape technology investment decisions.

### **Data Organization and Analysis Techniques**

I organized and analyzed data in accordance with Braun and Clarke's (2022, 2024) reflexive thematic analysis framework and the Walden DBA Qualitative Pragmatic Inquiry guidelines. Data organization began immediately after each interview. I transcribed audio recordings verbatim and labeled the transcripts with pseudonyms to protect participant confidentiality. All files, including transcripts, audio recordings, field notes, analytic memos, and secondary documents, were stored in encrypted folders on a secure drive accessible only to me, in accordance with IRB guidance.

Data analysis followed the six iterative phases of reflexive thematic analysis: (a) familiarization with the data, (b) initial code generation, (c) theme development, (d) theme review, (e) theme definition and naming, and (f) report production (Braun & Clarke, 2022). I began by reading each transcript multiple times to identify patterns of meaning related to technology investment strategy, governance, patient experience, equity, value realization, and implementation challenges. I used analytic memos to capture early insights, contextual observations, and reflexive considerations.

In the coding phase, I conducted inductive coding, generating descriptive and interpretive codes that reflected participants' own language as well as underlying concepts relevant to the research question. Coding was a reflexive rather than mechanical process; I refined the codes throughout the process as new insights emerged. Following Braun and Clarke's guidance, I did not pursue intercoder reliability, as reflexive thematic analysis emphasizes the researcher's active interpretive role rather than consensus-based coding (Braun & Clarke, 2024).

During theme development, I examined relationships among codes and clustered them into candidate themes that captured patterned meanings across the dataset. These themes were iteratively refined by comparing them against the full dataset, the conceptual framework, field notes, and secondary data sources. I used the member checking feedback to further strengthen analytical credibility by verifying that thematic interpretations aligned with participants' experiences.

To enhance trustworthiness, I used multiple strategies recommended in contemporary qualitative research, including triangulation, reflexivity, an audit trail, and documentation of analytic decisions (Hennink & Kaiser, 2022; Olmos-Vega et al., 2023). Triangulation was achieved by comparing interview data with secondary materials from established industry sources and global digital health reports, as well as across participants in different organizational contexts. Reflexive journaling was used throughout the analytic process to examine assumptions, monitor decision-making, and maintain awareness of my professional positionality. Taken together, these activities support the credibility, dependability, confirmability, and transferability of the research findings.

### **Summary**

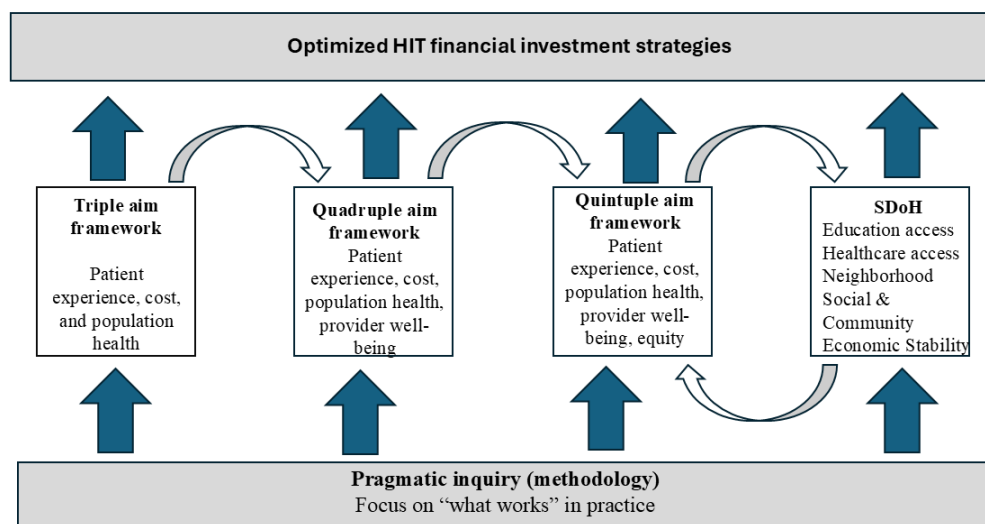
In Section 2, I described the methodological procedures underpinning this qualitative pragmatic inquiry, including the project's nature, method, and design, participant selection, data collection activities, and analytic approach. The semistructured interviews, supported by secondary industry documents, generated rich and contextually grounded data. I conducted data organization and analysis using Braun and Clarke's

reflexive thematic analysis, supplemented by multiple strategies to ensure trustworthiness, including triangulation, reflexivity, and member checking. These combined activities established a rigorous foundation for producing credible, actionable insights. In Section 3, I present the results of the analysis, including the themes that emerged from the data and their implications for practice, social change, and future research.

### Section 3: Data and Professional Practice

#### **Project Results**

The purpose of this qualitative pragmatic inquiry was to identify effective strategies healthcare technology leaders use to optimize financial investments in technology to improve the patient care experience and equitable access to healthcare. Through the reflexive thematic analysis of semistructured interviews with nine healthcare technology leaders and the review of member-checking documents, four primary themes emerged: (a) strategic governance of HIT investments, (b) value realization and evidence-driven learning cycles, (c) people-centered design and workflow integration, and (d) digital equity and inclusive access strategies. These themes (along with their respective subthemes) collectively indicate that effective HIT financial investment optimization requires a shift from a sole focus on financial return on investment (ROI) to a broader *value on investment* (VOI) framework that prioritizes clinical efficiency, clinician well-being/workforce stability, patient experience, and community-specific needs, as emphasized in the triple aim (Berwick et al., 2008), quadruple aim (Bodenheimer & Sinsky, 2014), and quintuple aim (Nundy et al., 2022) frameworks of healthcare, as well as in the SDoH principle (Commission on Social Determinants of Health, 2008). See Figure 1.

**Figure 1***Conceptual Framework*

The overarching research question was the following: What effective strategies do healthcare technology leaders use to optimize financial investments in healthcare technology to improve patient care experience and equitable access to healthcare services?

I used two categories of data sources for this qualitative data analysis: primary data sources, which included interview transcripts and member-checking statements, and secondary data from industry sources. I conducted audio-only semistructured interviews with the participants. These individual conversations explored investment strategies, governance practices, clinician engagement, challenges in scaling technology-enabled care, and the role of equity in healthcare digital transformation. I generated the transcripts of each interview using a combination of Zoom's transcription feature and Otter.ai (as a backup). The resulting interview transcripts were rich in detail, offering insight into the

tacit knowledge leaders rely on when making technology investment decisions.

Participants received structured summaries of their interview content and confirmed whether the interpretations accurately reflected their perspectives. These confirmations were incorporated into the analytic process.

I used MAXQDA software to develop and apply a structured coding scheme to the interview transcripts, resulting in 260 coded segments across 103 distinct codes (see Table 3). These codes captured the breadth of concepts emerging from the interviews, including governance practices, HIT design considerations, workflow integration issues, value-measurement strategies, the lived realities of clinical work, and digital equity considerations. The codebook served as a flexible analytic aid, allowing meaning to emerge inductively through careful engagement with the data. The volume and diversity of codes within the code system created an opportunity for analytic nuance while also requiring disciplined reflexivity to ensure that my thematic interpretations remained grounded in participants' intended meanings.

**Table 3**

*Major Themes*

Major themes	Number of participants who referenced theme	Number of references made to theme
Strategic value governance of digital health investment	9	99
Value realization and evidence-driven learning cycles	9	55
Digital equity and inclusive access	9	54
People-centered design and workflow integration	9	52

For the qualitative data analysis, I followed Braun and Clarke's reflexive thematic analysis (Braun & Clarke, 2022, 2024). The analysis unfolded in iterative stages. First, I conducted multiple rounds of familiarization by reading and annotating each transcript. The initial coding process involved applying descriptive and conceptual codes to meaningful segments in the data, guided by provisional codes developed through early analytic impressions formed through multiple readings of the interview transcripts. Several cycles of recoding and code refinement followed, reflecting the interpretive and recursive nature of reflexive thematic work. This analytic exercise ultimately resulted in a coherent thematic structure composed of 103 codes, four overarching themes, and a set of subthemes that help to explain the strategies healthcare technology leaders use to guide technology-enabled care investments.

Reflexivity remained essential throughout the analytic process. My experience in healthcare technology leadership helped me recognize and understand the operational realities, governance processes, and the balance between innovation and long-term sustainability that participants described in their interviews. Rather than suppress this expertise, the reflexive thematic approach I employed encouraged critical self-awareness, recognizing how prior knowledge informed interpretation while remaining anchored in participants' actual words and meaning. Member checking played a stabilizing role in this reflexive process. Participants reviewed summaries of their responses, clarified intended meaning where necessary, and affirmed the accuracy of my interpretations of their responses. This iterative process strengthened descriptive validity and enhanced the trustworthiness of the analysis.

Lastly, to enhance analytic depth, I integrated findings from major healthcare technology research organizations, including KLAS Research, Bain & Company, WHO, World Bank, The Organisation for Economic Co-operation and Development (OECD), Deloitte, PricewaterhouseCoopers (PwC), the National Academy of Medicine (NAM), and McKinsey & Company, into the analysis. These triangulation sources did not dictate the themes but strengthened my interpretation of the data, helping to contextualize participants' insights within broader industry evidence. By the sixth interview, most of the core patterns, including the role of governance discipline, iterative value measurement, clinician-centered workflow shaping, and digital equity concerns, had consistently emerged. Subsequent interviews added nuance rather than new conceptual categories. Rigor was strengthened through an auditable coding trail, systematic theme development, member validation, and alignment with methodological recommendations for reflexive analysis (Braun & Clarke, 2022, 2024). The analytic process produced four overarching themes, each representing an interdependent dimension of how healthcare technology leaders approach HIT investment decisions. These themes describe a leadership model grounded in discipline, learning, empathy, and equity. Together, they embody a digital decision-making approach characterized by strategic stewardship, evidence-based decision-making, respect for clinical realities, and a commitment to community well-being. The sections that follow present these themes and their associated subthemes in depth, along with participant quotations and triangulated insights from industry analyses and global digital health frameworks.

## **Theme 1: Strategic Value Governance of HIT Investments**

The first theme highlights how healthcare IT leaders ground digital investment decisions in disciplined, structured governance processes that strike a balance between strategic alignment, operational feasibility, financial stewardship, and organizational readiness. Leaders described governance not as an administrative formality, but as a stabilizing force that ensures that each digital initiative contributes directly to the enterprise's priorities. This theme unfolds across four interrelated subthemes.

### ***Subtheme 1.1: Enterprise Alignment and Strategic Fit***

Leaders consistently emphasized that technology decisions must be grounded in the organization's overarching strategy. Several of the most frequently applied codes, *strategic fit alignment*, *business case justification*, *organizational strategy*, and *value hypotheses*, reflect the primacy of alignment in digital decision-making. Participants described how investment requests undergo scrutiny not only for their technical merits, but also for their capacity to advance mission-aligned outcomes, such as patient access, quality, and patient experience.

Participant 8 framed the criterion in straightforward terms: "Proactive planning and aligning of any net-new initiative to overall organizational strategy is key, and that can become the framework with which you decide what not to do."

Leaders also discussed the growing need for *dynamic management of strategy*, acknowledging that strategic priorities evolve in response to market pressures, regulatory shifts, organizational priorities, and emerging clinical needs. Technology decisions, therefore, cannot be evaluated in isolation; they must be regularly revisited to ensure

ongoing relevance and fit. Industry analysts reinforced the importance of strategy-driven technology governance. Researchers from KLAS Research and Bain & Company (2024) documented that over 80% of health systems now prioritize strong enterprise strategy alignment as the defining characteristic of successful digital investments, signaling a decisive shift away from the "pilot fatigue" that characterized the previous decade of digital health experimentation. This finding corroborates the interview data, suggesting that the most effective strategy for financial optimization is not finding cheaper technology, but rather exercising the discipline to reject initiatives that lack a clear strategic mandate. Similarly, in a Deloitte (2024) report, analysts highlighted that organizations with mature digital strategies make decisions through centralized governance mechanisms that account for both tactical needs and long-term organizational priorities. The authors warned that without this "connective tissue" between the information technology function and the C-suite, organizations risk accumulating a portfolio of disconnected point solutions that increase operational complexity without delivering commensurate value.

Furthermore, the authors of the OECD (2023) report underscored that high-performing digital health systems consistently anchor digital decisions in enterprise strategy rather than in opportunistic or vendor-driven motivations. This distinction is critical; OECD researchers noted that vendor-driven adoption often leads to fragmented data silos that inhibit interoperability, a structural failure that directly undermines the long-term sustainability of the health system. Consequently, the alignment described by the research participants is not merely a bureaucratic preference but a protective

mechanism against market fragmentation. By strictly filtering investments through the lens of organizational mission, leaders are effectively engaging in risk management, ensuring that every dollar spent contributes to a coherent, integrated, and sustainable digital ecosystem.

Enterprise alignment emerged as a stabilizing logic for decision-making in environments where clinical, operational, and regulatory demands frequently compete. Leaders relied on alignment not solely as a gatekeeping mechanism but also as a means of maintaining organizational coherence in an increasingly fragmented digital landscape.

### ***Subtheme 1.2: Stakeholder Engagement and Collaborative Decision-Making***

The code *stakeholder engagement and collaboration* appeared more frequently than any other in the entire dataset (14 times), demonstrating that leaders view collaboration as critical to the success of their HIT investments and digital initiatives. Participants described *multilayered committees*, cross-functional advisory groups, and departmental liaison structures as essential tools for building consensus and preventing silo-driven decisions. They emphasized the importance of broad involvement, including clinical leaders, finance teams, compliance experts, and patient-facing staff. Such engagement helps reveal operational constraints early, surfacing risks that may not be visible to technology teams alone. The leaders also noted that collaborative structures support organizational legitimacy; when stakeholders have a seat at the table, they are more likely to adopt and champion resulting solutions. Participant 4 decried what he saw as the often insufficient attention paid by healthcare institutions to patient engagement and advocacy in designing HIT solutions. He stated,

I've seen way too many top-down decisions being made without the benefit of an end user perspective. And that end user, a lot of times in healthcare, should also be your patients. And you don't see a lot of hospitals that have patient advocacy forums where, you know, when technology is put in, they're trying to get the voice of the patient involved in what they're doing.

The triangulation sources referenced highlight similar support for collaboration and strong stakeholder engagement as foundational predictors of successful HIT initiatives. Eastburn et al. (2024), in their analysis for McKinsey & Company, identified "business and clinical digital collaboration" as a top operational challenge, noting that the disconnect between technical and nontechnical teams is a primary reason why 75% of health systems report falling short of their digital transformation goals. This finding validates the participants' strategy of involving diverse stakeholders early in the HIT initiative's lifecycle to preempt adoption barriers and prevent siloed decision-making.

Similarly, the World Bank (2023) emphasized that multisectoral collaboration is crucial for HIT sustainability, particularly in complex environments where digital programs must integrate seamlessly with finance, workforce planning, and community engagement systems. Their report warns that without this "connective tissue," digital health investments risk becoming isolated technical achievements that fail to deliver broad public value.

Lastly, in a NAM discussion paper, MacDonald et al. (2022) called for inclusive governance models that formally incorporate diverse stakeholders, including clinicians and patients, into the decision-making hierarchy. They argued that such models are

essential to move beyond a narrow focus on "cost and efficiency" toward systems that improve alignment with patient-centered care goals. The research participants' emphasis on collaboration suggests that effective leaders view governance not as a mechanism for bureaucratic control, but as a strategic opportunity to distribute ownership and foster deep stakeholder engagement. This approach appears especially critical in high-stakes care environments, where clinician adoption determines the actual impact of HIT investments. Effectively distributed ownership serves as an insurance policy against the costly "rejection" of new technologies by the workforce.

### ***Subtheme 1.3: Risk Mitigation and Responsible Stewardship***

Participants described risk assessment as an integral part of HIT investment deliberations. Codes such as *risk analysis*, *proactive risk identification*, *clinical risk*, *cybersecurity and privacy risk*, and *legal and regulatory risk* surfaced repeatedly. Leaders expressed a keen awareness of the downstream risks associated with underperforming or poorly integrated technologies, ranging from workflow disruptions to patient harm and financial waste. Participant 7 stated, "We are appropriately conservative and cautious in terms of what we release to the community after it's gone through extensive review and analysis."

The HIT leaders also discussed the risk of underinvestment in technology, recognizing that outdated systems can compromise operational reliability and expose the organization to security vulnerabilities. Managing technical debt was described as a delicate balance between fiscal prudence and the need to sustain safe and reliable technology infrastructure. Secondary data sources affirm this heightened focus on risk.

KLAS Research and Bain & Company (2024) reported that cybersecurity and interoperability risks now rank among the top three concerns shaping digital investment decisions.

Additionally, Eastburn et al. (2024), in their report for McKinsey & Company, identified "legacy systems" as the second-greatest barrier to digital execution, warning that reliance on "monolithic systems" creates significant operational friction. They further argued that managing modern digital risks, particularly those related to AI and data privacy, requires a structural shift, where "business-minded legal and risk-management teams" are embedded directly alongside technical teams, rather than operating in silos. Additionally, the OECD (2023) emphasized that digital risk management has become a core competency for modern health systems, not a separate or secondary function. The leaders in this research project demonstrated a nuanced understanding of risk, one that extends beyond cybersecurity to include operational continuity, clinician workload implications, and equity-related risks. Their approach reflects both caution and pragmatism, demonstrating how risk stewardship underpins strategic decision-making.

#### ***Subtheme 1.4: Decision Discipline and Resource Stewardship***

The final subtheme within Theme 1 centers on the HIT leaders' commitment to disciplined execution and responsible resource management. Codes such as *resource management*, *budget performance*, *time to execution*, *technology-as-solution fit*, and *application rationalization* reveal a consistent orientation toward fiscal responsibility and operational efficiency. Many leaders described resisting the allure of unproven innovations, noting that the proliferation of digital tools can overwhelm both budgets and

staff. Participant 5 emphasized the need to manage technical debt (i.e., aging or obsolete technologies in the enterprise) and to use application rationalization (i.e., the elimination of duplicative or redundant applications) as a means of managing technical debt and advancing the goal of fiscal prudence. Participants expressed a strong preference for solutions that solve clearly defined problems, align with existing workflows, and offer measurable value. Several noted that even promising technologies may be declined if they fail to demonstrate a compelling business case or if long-term sustainability is uncertain. This emphasis on disciplined and structured decision-making around HIT investments aligns with recent industry observations. KLAS Research and Bain & Company (2024) reported that health systems are shifting from innovation for innovation's sake to careful, value-focused investment management.

Corroborating this, Eastburn et al. (2024), in a recent report for McKinsey & Company, found that while digital transformation is a top priority, 75% of health systems lack the necessary planning and resources to deliver on their ambitions. They warned that deploying technology "on top of broken processes" does not lead to value, arguing instead that successful organizations must "rewire" their operations and prioritize investments in areas with the greatest potential impact. Additionally, Deloitte (2024) noted that resource stewardship has become a defining feature of resilient health systems navigating inflation and workforce shortages, arguing that effective stewardship requires alignment between financial sustainability and clinical mission. The interviewed HIT leaders employ this decision discipline not as an innovation barrier but as a protective mechanism to preserve staff capacity and ensure that every dollar spent on digital

investment delivers real-world value. Resource stewardship thus emerged as a practical expression of accountability in environments where digital fragmentation creates operational and financial strain. This strategic discipline aligns with the triple aim of healthcare framework (Berwick et al., 2008), specifically its goal of reducing per capita costs of care, by preventing capital waste on low-value technologies.

## **Theme 2: Value Realization and Evidence-Driven Learning Cycles**

The second theme highlights how healthcare technology leaders approach digital investments not as discrete projects, but as ongoing learning processes grounded in value measurement, iterative improvement, and transparent evaluation. Participants described disciplined strategies for assessing whether technology-enabled initiatives produce measurable benefits for clinicians, patients, and the broader organization. This theme unfolds across three interrelated subthemes.

### ***Subtheme 2.1: Defining and Operationalizing Value***

Leaders repeatedly emphasized that defining value is neither simple nor uniform. Codes such as *return on investment*, *intangible benefits/ROIs*, *value hypotheses*, *operational value measurement*, and *user feedback* illustrate the diverse ways leaders conceptualize and evaluate the impact of their HIT investments. Participants described a pragmatic approach to value definition that integrates financial metrics, workflow efficiency, clinician experience, and patient outcomes with intangible benefits such as trust-building, community alignment, or strategic positioning. Participant 6 captured this multidimensional complexity, noting, "If you can't explain tangible values, then is there

intangible value? ... There are cases where intangible examples are as good as tangible values. So, is it worth investing in?"

Leaders also noted that value definitions must be established early and revisited often. They described a process of developing value hypotheses before implementation, which are then rigorously tested through pilots, measurements against metrics, and qualitative feedback. This practice aligns with industry evidence calling for multidimensional value frameworks. Eastburn et al. (2024), in a report for McKinsey & Company, argued that delivering digital value requires more than just technology deployment; it necessitates a fundamental "reimagination (and standardization) of clinical workflows" and "new ways of working" to capture the estimated \$200 billion to \$360 billion in potential savings. Similarly, KLAS Research and Bain & Company (2024) reported that health systems are increasingly defining value based on a combination of financial, operational, and experiential outcomes rather than relying solely on financial ROI calculations. Additionally, the OECD (2023) emphasized the importance of holistic value assessment, noting that digital success often materializes through improved safety, workflow reliability, and patient engagement rather than purely financial returns.

Participants effectively frame value not as a fixed number but as a dynamic interplay between measurable improvements, organizational priorities, and lived clinical realities. Their approach reflects a pragmatic understanding that some of the most consequential benefits of digital transformation, such as reduced clinician burden or improved patient access, are not easily measured using traditional financial models but are critical for long-term organizational sustainability.

### ***Subtheme 2.2: Using Pilot Programs as Learning Laboratories***

Pilot testing emerged as one of the most frequently described strategies for institutional learning. Codes such as *pilot testing*, *time to value*, *helpdesk metrics*, and *learning through peer groups* demonstrate how leaders create structured environments for experimentation before the broader rollout of HIT initiatives. Pilots allow teams to refine workflows, adjust implementation plans, uncover unexpected challenges, and gather credible early data on the effectiveness of the initiative. The participants highlighted that pilots are most effective when paired with defined metrics, feedback mechanisms, and clinician champions who can help interpret early results. The insights gained from these "learning laboratories" inform go/no-go decisions, help avoid large-scale (and potentially expensive) failures, and support iterative refinement. Participant 2 explicitly described using pilots as a gatekeeping mechanism, "There were one-off cases where we figured that the pilot was not showing the results, and we shelved the product. So that's a good strategy."

While many participants described pilot programs as operational test drives, Participant 3, a practicing physician and academic Dean, argued for a more rigorous, scientific approach to preimplementation validation. Challenging the industry norm of rapid deployment, he advocated for treating new HIT adoption as a "formal research project" to mitigate financial and clinical risks. According to this participant, the pressure to modernize quickly often leads organizations to skip essential validation steps, resulting in investments that fail to deliver projected value. He argued that effective financial optimization requires a disciplined trial phase, ideally conducted in partnership with

academic medical informaticists, to generate objective data before a full rollout. This strategy shifts the investment focus from procurement to proof, ensuring that capital is only committed to technologies that have demonstrated empirical efficacy in the organization's specific clinical environment.

External evidence strongly supports the role of pilot testing and iterative learning. Eastburn et al. (2024) highlighted that successful organizations are "operating differently" by adopting "agile funding, and managing products, not projects," which allows for faster value realization, often within six months. Researchers at the World Bank (2023) similarly asserted that digital health ecosystems thrive when organizations create testbed environments to evaluate feasibility, usability, and real-world performance before committing substantial resources. Additionally, researchers at Deloitte (2024) noted that pilot-driven evaluation enhances adoption rates, particularly when frontline users are involved in the testing process. Therefore, pilot programs serve as practical risk-management tools and mechanisms for organizational learning. Rather than relying solely on predictive business cases, leaders gather empirical evidence from real-world settings, enabling decisions informed by observed rather than assumed value.

### ***Subtheme 2.3: Continuous Measurement and Transparent Evaluation***

Participants described measuring the value of HIT investments not as a one-time postmortem, but as an ongoing operational process that continues long after an initiative is launched. Codes such as *helpdesk metrics*, *operational KPIs*, *departmental liaisons*, *net promoter score (NPS)*, and *waste identification* reveal a comprehensive approach to monitoring performance across clinical, operational, and experiential domains.

Participants explained that early warning indicators often emerge from support ticket trends, workflow analytics, or qualitative user feedback, which can reveal hidden adoption barriers or unintended consequences before they become permanent friction points. Several participants highlighted the pivotal role of departmental liaisons, often business relationship managers (BRMs), who serve as "human sensors" between the technology department and clinical and operations units across the organization. By translating business requirements into technical solutions and looping feedback back to leadership, these liaisons ensure that measurement remains grounded in frontline reality.

Continuous measurement also supports a culture of accountability, ensuring that digital investments do not stagnate or drift from their strategic purpose. Participant 2 explicitly described how KPIs are established prior to implementation and then rigorously tracked to gauge performance, stating, "We will track these postimplementation and hold everyone accountable." This disciplined approach aligns with Eastburn et al. (2024), who, in a McKinsey & Company analysis, reported that successful health systems are "operating differently" by shifting from managing distinct projects to managing "products." This product-based mindset necessitates continuous measurement and "agile funding", allowing organizations to iterate and improve capabilities over time rather than treating project go-live as the finish line. Furthermore, while Eastburn et al. (2024) found high satisfaction rates (72%) for specific digital point solutions, they noted that 75% of executives still feel unable to deliver on broader transformation goals. This disparity underscores the importance of continuous evaluation:

without it, organizations may succeed in implementing isolated digital tools but fail to scale value across the entire enterprise.

Triangulation sources further reinforced that ongoing measurement is critical to the long-term sustainability of HIT initiatives. KLAS Research and Bain & Company (2024) noted that organizations with mature digital governance models conduct continuous postimplementation evaluation, using "hard-dollar" metrics to guide improvement. Similarly, the OECD (2023) stressed that digital health maturity is characterized not by the volume of technology adopted but by the ongoing ability to measure, adapt, and improve digital services based on data. The HIT leaders view transparency and continuous evaluation as central to maintaining system reliability and fostering organizational trust. Their measurement practices demonstrate an understanding that digital transformation is a process rather than an endpoint, requiring consistent attention to the systemic shifts in the organization and its operating environment.

Collectively, the subthemes illustrate a leadership philosophy of HIT rooted in experimentation, learning, and accountability. Participants approach HIT investments as iterative, evidence-informed processes rather than as fixed, one-time decisions. Their strategies, which include defining multidimensional value, running disciplined pilots to test value hypotheses, and institutionalizing continuous measurement, reflect a commitment to making technology operationally meaningful. By validating "value" through both financial metrics and the lived experience of clinicians and patients, these leaders ensure that HIT investments are not only aligned with organizational priorities but are also socially responsible. This approach directly advances the triple aim framework

(Berwick et al., 2008) by ensuring that financial stewardship reinforces, rather than compromises, the quality of care and patient experience.

### **Theme 3: People-Centered Design and Workflow Integration**

The third theme reflects a consistent message across nearly all the interviews, indicating that HIT initiatives and digital transformation in healthcare cannot succeed unless technology aligns with the lived experiences, cognitive demands, and workflow rhythms of clinicians, and takes into account the SDoH of the patient population being impacted by the HIT initiatives. Participants repeatedly noted that clinicians shoulder a disproportionate part of the operational consequences of technology decisions and, therefore, must be central to the design, evaluation, and refinement of digital healthcare tools. This aligns with the emphasis placed on provider well-being in the quadruple aim (Bodenheimer & Sinsky, 2014) and quintuple aim (Nundy et al., 2022) of healthcare frameworks. The focus on the well-being of providers as the fourth aim in these two frameworks is an acknowledgement that concern for the well-being of clinicians has not historically been central to designing healthcare systems and processes, and that the introduction of some HIT solutions sometimes only serves to exacerbate burnout among clinicians. Similarly, participants emphasized that the demographic peculiarities and specific needs of the patient population to be served also need to be taken into account in designing HIT solutions, in recognition of the SDoH's impact on patients' ability to access care (Commission on Social Determinants of Health, 2008; Yao et al., 2022). This theme comprises three interconnected subthemes.

***Subtheme 3.1: Understanding and Reducing Cognitive and Operational Burdens***

Participants described the cumulative effect of documentation requirements, fragmented interfaces, and disjointed workflows on clinician well-being. Codes such as *documentation burden reduction, pajama time reduction, clinician time constraint, physician burnout, cognitive load, and technology misuse* appeared frequently across interview transcripts. Participants emphasized that when technology introduces friction into clinical workflows instead of alleviating it, the adoption of the technology falters, and frustration with it grows. Participant 8 described taking a purposeful approach (beyond due diligence done during project evaluation and intake), to continuously working to ensure that HIT investments do not interfere with clinician's ability to effectively deliver care,

Ultimately, once the technology is being implemented, we will continue to evaluate and continue to tweak and refine again to make sure that we're able to reduce the documentation burden on the employees/the clinicians and ultimately help the patient experience.

Participants expressed concern about the proliferation of digital tools that automate inefficient processes rather than redesigning them, noting that such approaches risk deepening frustration rather than alleviating it. Several participants also spoke of the ethical dimension of clinician burden: technology intended to improve care must not become a source of harm by exacerbating burnout. In addition, participants noted that the demand on clinicians' time imposed by technology and regulatory processes detracts from the time available to spend with patients and also represents uncompensated time,

since physicians often cannot bill for the time spent on these nonpatient-facing functions. Most participants cited a particular positive example of using technology to achieve the multiple aims of improving clinician-patient engagement, reducing the documentation burden on clinicians (and the notorious after-hours or "pajama time" spent at home catching up on documentation duties), as well as enhancing the quality of clinical documentation. The technology, ambient documentation AI, *listens* to the conversation between the patient and the clinician, captures clinically relevant information, and automatically inserts it into the patient's medical records. This was described by some participants as a *game-changer* in terms of improving patient engagement and clinician well-being and productivity.

A notable finding in this analysis was the presence of a healthy skepticism by one participant regarding the assumed inherent benevolence of healthcare technology. Contrary to the prevailing assumption that HIT and digital transformation in healthcare are always beneficial, participant 3, who is as stated previously, also a practicing physician and academic Dean, expressed a critical contrarian perspective, warning that without rigorous scrutiny, HIT innovation can actively harm clinical workflows and patient care, not because of the technology itself, but because of the people tasked with procuring and implementing the tools: "...when I started my career, I really was a believer that computers could be used to improve the lives of clinicians..... In fact, the opposite has happened, and that's not the fault of the tools themselves."

Industry evidence affirms the importance of effectively managing clinician workload, not merely as a matter of satisfaction but as a critical operational necessity.

Eastburn et al. (2024), in their analysis for McKinsey & Company, explicitly linked digital transformation to workforce sustainability, noting that health systems face severe "clinical-workforce shortages". They argued that "optimizing workflows" is essential to "close the nursing workforce gap," estimating that effective digital enablement could yield a "15 to 30 percent net time savings over a 12-hour shift". This data corroborates the participants' insistence that HIT design should aim to reduce rather than increase clinicians' cognitive load. Furthermore, MacDonald et al. (2022) argued that the industry must move beyond simple human-centered design toward equity-based codesign, ensuring that digital solutions do not disproportionately burden marginalized populations or frontline staff serving them.

In addition, KLAS Research and Bain & Company (2024) reported that clinicians are increasingly influencing digital investment decisions, and organizations that ignore the workforce strain introduced by digital initiatives experience lower technology adoption and diminished returns on their investments. Participants interpret clinician burden not solely as a usability issue but as a foundational risk that can undermine the promise of digital transformation. This perspective reflects a pragmatic lens on digital change: HIT must reduce cognitive and operational load to be sustainable, and leaders must take this requirement into account in making HIT investment decisions. By framing "usability" as a workforce retention strategy, leaders elevate design from a technical preference to a strategic imperative.

### ***Subtheme 3.2: Designing Technology That Fits Real-World Clinical Workflows***

Participants emphasized that HIT must be engineered to fit clinical workflow, rather than forcing clinicians into unnatural or obstructionist workflow patterns. Codes such as *workflow efficiency*, *mobile usability*, *technology-as-solution fit*, *clinical value measurement*, *end-user involvement*, and *early clinician engagement* demonstrate the critical importance of addressing workflow realities. Participants described clinicians as indispensable partners in the design and adoption of HIT, noting that their involvement ensures digital solutions support efficient task flow, reduce redundant steps, and integrate seamlessly with existing systems. Furthermore, participants emphasized that workflow alignment requires humility from technology teams, specifically, an openness to adjusting designs based on clinician feedback, even when those adjustments complicate implementation timelines. Consequently, participants deemed it essential to engage clinicians early in the HIT investment decision-making process to optimize the value of the investment.

My analysis of secondary sources strongly corroborates these findings, positioning workflow optimization not merely as a usability preference but as a financial imperative. Researchers from KLAS Research and Bain & Company (2024) reported that providers are explicitly prioritizing investments in clinical workflow optimization to mitigate the ongoing labor shortage and reduce clinician burnout. This aligns with Eastburn et al. (2024), who observed that digital initiatives frequently fail when workflow complexity is underestimated. Furthermore, Eastburn et al. argued that successful systems must embed workflow analysis into their architectural design to unlock genuine

value. Additionally, the WHO (2025) stressed that digital health should function as an "invisible infrastructure" that supports care rather than overshadowing it, while Deloitte (2024) highlighted that clinician-centered design accelerates value realization and reduces the risk of technology-related disruptions. Collectively, this evidence indicates that leaders view HIT not merely as a necessary utility or administrative overlay on clinical operations but as an integral component of clinical practice, where "operational empathy" serves as a risk-mitigation strategy to ensure long-term health system sustainability.

### ***Subtheme 3.3: Driving Adoption Through Support, Engagement, and Trust Building***

Beyond technical workflow design, leaders emphasized the importance of sustained support and relationship building within the enterprise to drive meaningful adoption. Codes such as *clinical champions*, *change communication*, *managing resistance*, *at-the-elbow support*, *people-centric change*, and *staff training and education* demonstrate the complex human factors that underpin successful digital transformation and HIT adoption. Participants described strategies such as embedding clinical champions within departments to foster peer-to-peer influence, tailoring training to user preferences to accommodate diverse learning styles, and offering real-time, at-the-elbow support during implementation stages. Transparent communication about the initiative's purpose, expected benefits, and potential tradeoffs also featured prominently in participants' narratives. Several participants emphasized that end-user involvement is critical for reducing resistance to the initiative, aligning with the broader pattern of collaborative governance identified earlier in the research. The findings indicate that

adoption is not a single go-live event but a longitudinal journey that requires thoughtful leadership attention and purposeful organizational change management.

Triangulation with industry data reinforced the systemic necessity of these people-engagement strategies. Eastburn et al. (2024), in their recent analysis for McKinsey & Company, identified "readiness to adopt and scale new technology" as a top operational challenge, with 34% of health executives citing it as a critical barrier. Their data suggests that underinvestment in these human elements is a primary cause of capital waste; effectively, they argued that "building a digital culture" is required to help transformations succeed over time.

Furthermore, the World Bank (2023) emphasized that trust, transparency, and user-focused training significantly increase the likelihood of adoption in HIT ecosystems, warning that a lack of trust in digital systems can derail even the most technically proficient solutions. Deloitte (2024) expanded on this by arguing that to retain the clinical workforce, leaders have a responsibility to use technology to "restore meaning, value, and purpose" to the profession, rather than adding to the administrative burden. Additionally, PwC (2024) researchers found that organizations with strong change enablement practices realize digital health benefits more quickly and with fewer operational disruptions. Overall, this subtheme highlights that successful HIT adoption is not effectively driven solely by mandates; instead, it emerges from the interplay of relational leadership, tailored support, and shared ownership of the initiative by stakeholders across the enterprise.

Theme 3 demonstrates that the interviewed HIT leaders view clinicians not just as passive users of technology but as essential partners in the design, adoption, sustainability, and value realization of HIT investments. The participants' strategies reflect a deep understanding of the pressures clinicians face and a commitment to ensuring that technology enhances, rather than undermines, clinical work. This alignment is economically important. As emphasized in the secondary data sources I reviewed, systems that fail to effectively support the workforce exacerbate burnout and turnover, thereby negating any theoretical return on investment. By prioritizing cognitive load reduction, this theme operationalizes the quadruple aim/quintuple aim, validating that clinical workforce stability is a prerequisite for effective care delivery. Together, the subthemes depict an HIT leadership model grounded in empathy, humility, and operational awareness, qualities repeatedly affirmed in industry literature as critical for navigating the complex intersection of human behavior and digital transformation.

#### **Theme 4: Digital Equity and Inclusive Access Strategies**

The fourth theme reflects a steadily intensifying concern among healthcare technology leaders that investments in HIT to promote technology-enabled care models cannot succeed if substantial segments of the population remain unable to access or benefit from the digital tools. Participants repeatedly emphasized that the promise of digital health depends on equitable access, culturally aligned design, and realistic accommodations for patients who face social, economic, or structural barriers, acknowledging the impact of SDoH on the health outcomes of these patients. This theme contains three interrelated subthemes.

***Subtheme 4.1: Recognizing and Addressing Access Barriers***

Participants consistently described how social determinants of health shape digital engagement. As illustrated in Figure 2, SDoH encompass five distinct domains that influence health outcomes (Office of Disease Prevention and Health Promotion [ODPHP], n.d.). Codes such as *SDoH*, *demography awareness*, *access to digital tools*, *financial capability of patients*, and *digital tools can create barriers* illustrate the breadth of considerations leaders weigh when planning digital initiatives. Participants noted that patients often differ widely in internet access, device availability, digital literacy, and comfort with English-language technology interfaces. Participants expressed concern that digital transformation could unintentionally widen disparities by privileging individuals with stable internet broadband access, modern devices, and digital literacy. Several participants noted that digital exclusion frequently mirrors broader community inequities, such as economic insecurity, limited access to transportation, or constrained work schedules.

**Figure 2**

*Social Determinants of Health (SDoH)*



*Note.* Healthy People 2030, U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. <https://health.gov/healthypeople/objectives-and-data/social-determinants-health>

However, participant 3 offered a sharp critique of the industry's capacity to address these disparities, challenging the assumption that leaders are sufficiently purposeful in building equity into design. He argued that the fundamental business model of U.S. healthcare creates a structural barrier to true digital equity, as technology investments inevitably follow healthcare reimbursement streams rather than patient need. In his view, because vendors and health systems must prioritize financial solvency, digital tools are primarily designed for commercially insured patient populations who possess the "ability to pay." Consequently, Participant 3 contended that despite rhetorical commitments to *demography awareness*, equity often remains an "afterthought" in a

market-driven healthcare system where there is little financial incentive to design specifically for the underserved.

My review of secondary data sources identified digital inequity as a pervasive, systemic barrier to digital health implementation that requires active mitigation. The WHO (2025) cautioned that without deliberate equity-centered digital strategies, the rapid digitization of health systems risks becoming a social determinant that exacerbates, rather than reduces, health disparities. Corroborating this, the OECD (2023) reported that digital access gaps are not random but are strongly correlated with socioeconomic status, age, rurality, and educational attainment, effectively creating a “digital inverse care law” where those with the highest health needs often possess the lowest digital capacity.

Furthermore, the World Bank (2023) emphasized that digital inclusion is not an automatic byproduct of technological progress; without conscious, funded planning, new tools tend to reproduce or even intensify existing inequities by prioritizing commercially viable demographics. This is supported by MacDonald et al. (2022) in a National Academy of Medicine discussion paper, in which they argued that equity requires moving beyond passive availability to inclusive codesign that accounts for algorithmic bias and varying levels of digital literacy. These findings validate the need for the specific demography-aligned strategies discussed by the research participants, confirming that "access" must be actively engineered rather than assumed.

Participants demonstrated a nuanced understanding of barriers to healthcare access, recognizing that achieving equity in digital health requires far more than simply making HIT tools broadly available. This consensus suggests that effective leadership

involves a deliberate shift from a one-size-fits-all HIT investment and deployment strategy to one of careful accommodation, where technological investments are calibrated against varied patient circumstances and SDoH. Furthermore, the analysis indicates that bridging the digital divide demands a recognition of the longstanding structural challenges plaguing the healthcare system, coupled with an actionable organizational commitment to maintaining nondigital "safety nets", such as telephonic or in-person support, to ensure that populations at risk of being overlooked are not further marginalized by the very HIT tools intended to help them.

***Subtheme 4.2: Designing for Inclusion, Not Just Adoption***

Several of the participants described moving beyond the use of generic user (patient) personas toward more equity-aware design practices. Codes such as *equity-driven design*, *demography-aligned digital tools*, *identifying bias in tech*, and *unoptimized digital access* point to a growing awareness that inclusivity must be engineered into digital solutions from the beginning. Participants described strategies such as simplifying interfaces, offering multilingual options, expanding audio and visual accessibility features, and testing tools with diverse patient groups. They also noted the importance of identifying algorithmic biases and ensuring that digital workflows do not inadvertently disadvantage certain populations, for example, by requiring high-bandwidth video for appointments or requiring patient portal usage for basic prescription refills, which implicitly excludes those with limited connectivity or digital literacy.

This subtheme is strongly corroborated by MacDonald et al. (2022) in a NAM discussion paper, in which they called for patient-centered, equity-first digital design. The

researchers warned that without intentional bias detection, clinical decision support tools can automate historical disparities, effectively hard-coding discrimination into the care delivery model. Furthermore, authors of the Deloitte (2024) research report identified inclusive innovation not merely as a social good, but as a core competency for sustainable digital transformation, arguing that systems failing to account for diverse user needs will inevitably face adoption ceilings for HIT. Similarly, KLAS Research and Bain & Company (2024) reported that health systems are increasingly considering the equity impact in their vendor selection processes, validating the participants' assertion that equity is shifting from a theoretical ideal to a concrete procurement standard. Most of the HIT leaders interviewed seem to demonstrate a significant paradigmatic shift from reactive accommodation to proactive equity strategy, notwithstanding the skepticism expressed by participant 3. Rather than viewing digital inclusion as a compliance checklist or an afterthought, they are integrating equity considerations directly into the decision-making, design, architecture, and implementation of HIT initiatives. This reflects a maturing understanding of "digital responsibility," where the definition of a successful financial investment has expanded to include mitigating social risk. By acknowledging that unoptimized digital access creates clinical barriers, these leaders are redefining "efficiency" to mean the capability of a system to serve its most marginalized users effectively.

#### ***Subtheme 4.3: Offering Multiple Pathways for Access and Engagement***

A recurring theme across several interviews concerned the critical need for multimodal access to care. Codes such as *virtual care*, *digital front door capabilities*,

*nondigital access channels, community-based literacy programs, and localized care delivery* exemplify a pragmatic, patient-centric approach to meeting the needs of diverse populations where they are. Participants emphasized that true digital transformation must paradoxically retain robust nondigital alternatives for individuals facing insurmountable barriers to connectivity. Participants described offering phone-based support, SMS options, community partnerships, walk-in scheduling, mobile clinics, and in-person assistance as part of a comprehensive hybrid engagement strategy. Furthermore, leaders discussed investing in community-based digital literacy initiatives, often in partnership with local organizations, libraries, or community health workers. These programs empower patients to better navigate complex digital systems while acknowledging the broader social contexts, such as literacy levels and trust, that shape digital readiness.

My analysis of secondary data sources reinforced the necessity of these hybrid approaches to promoting equitable access to care. Researchers at the World Bank (2023) found that multichannel patient engagement strategies significantly increase participation in underserved communities, validating the research participants' strategy of multimodal patient engagement. This suggests that relying solely on high-tech digital health portals often excludes the very populations that health systems aim to serve. Similarly, the OECD (2023) observed that health systems offering low-tech engagement pathways, such as SMS or voice, see fewer disparities in service utilization compared to those enforcing digital-only mandates. These findings support the conclusion that a patient's ability to choose their mode of healthcare access is a key determinant of equity,

confirming that "hybrid" models are not a transitional phase but a permanent requirement for inclusive care delivery.

This subtheme exemplifies a pragmatic recognition among the HIT leaders interviewed that digital inclusivity requires structural flexibility. By offering layered access routes to care, organizations can avoid the ethical pitfall of forcing patients into digital pathways that may not align with their economic resources, technical skills, or cultural preferences. This approach reflects a broader commitment to patient dignity and agency, reframing "access" not as a technological capability but as a user experience metric. Effectively, these leaders are mitigating the risk of a "digital caste system" where, for example, the quality of care becomes contingent on the quality of one's internet connection.

Theme 4 illustrates how the interviewed HIT leaders understand the intertwined relationship between technology, social context, and community equity. Their strategies extend beyond simple adoption metrics to recognize that digital transformation must be accessible, culturally relevant, and structurally fair. By systematically addressing access barriers, designing for inclusivity from the outset, and offering multimodal engagement pathways, leaders work to ensure that technology supports, rather than excludes, the populations they serve. This proactive approach to access aligns with the SDoH+ framework (Commission on Social Determinants of Health, 2008), shifting digital health from a potential barrier to effective and equitable care delivery to a tool for promoting health equity. This theme positions digital equity not merely as a social aspiration or a compliance activity, but as a core strategic requirement for the financial and operational

viability of modern care models. Without it, the value of HIT investments remains theoretically high but practically unreachable for the most vulnerable segments of the patient population

### **Business Contributions and Recommendations for Professional Practice**

The findings from this qualitative, pragmatic inquiry offer actionable guidance for healthcare technology leaders (e.g., Chief Information Officers, Chief Digital Officers, Chief Technology Officers, etc.) seeking to make informed, outcome-optimized, fiscally responsible, and equitable decisions regarding HIT investments. The four themes, interpreted together, point to a maturing digital leadership model grounded in strategic stewardship, evidence-driven learning, people-centered design, and community-focused care equity. Each contributes directly to business practice, offering insights that can enhance decision-making structures, improve HIT adoption outcomes, and help organizations navigate the evolving digital health landscape.

### **Enhancing Strategic Value Governance**

The theme of strategic value governance emphasizes the importance of disciplined and transparent decision-making frameworks. Leaders can strengthen digital governance by formalizing multilayered committees that include stakeholders from clinical, financial, operational, and health equity perspectives. To ensure technology decisions reinforce organizational priorities, leaders should embed strategic fit assessments into HIT project intake processes. This recommendation is critical for financial sustainability; Eastburn et al. (2024) found that 75% of health systems currently lack the necessary planning or resources to deliver on their digital ambitions, warning

that without disciplined governance, organizations risk capital waste on fragmented solutions. Furthermore, organizations should develop structured risk assessment tools that specifically address clinical and cybersecurity risks and vendor maturity. As Deloitte (2024) noted, effective resource stewardship is now a defining feature of resilient health systems navigating rising costs, making this form of "governance as risk management" a vital business competency.

### **Institutionalizing Value Realization Frameworks**

Value realization emerged as a central practice for leaders who want HIT investments to produce tangible organizational benefits. Leaders must define value comprehensively, incorporating financial returns, workflow efficiency, clinician burden reduction, and patient experience enhancement. This requires adopting iterative, pilot-based learning cycles to test usability and refine workflows before scaling. The business case for this approach is supported by the World Bank (2023), which asserted that digital ecosystems thrive when organizations create testbed environments to evaluate real-world performance before committing substantial resources to an initiative. Additionally, leaders should institutionalize continuous measurement using both quantitative indicators and qualitative feedback. This shifts the operational model from "project management" to "product management," a strategy Eastburn et al. (2024) identified as essential for realizing value in high-performing systems. A disciplined value-realization framework creates a feedback-rich environment in which digital investments evolve through learning rather than stagnation.

### **Prioritizing People-Centered Design and Support**

Given that clinicians experience the practical consequences of digital decisions, HIT leaders must treat clinician-centered design as a core business imperative rather than an optional feature. Recommendations include embedding informaticists directly into design processes and conducting workflow assessments to ensure technology aligns with clinical practice. The economic implication of this strategy is significant; Eastburn et al. (2024) estimated that optimizing workflows through digital enablement could yield a 15% to 30% net time savings for nursing shifts, directly addressing workforce shortages. Conversely, failing to address the cognitive burden risks higher attrition. As indicated in the Deloitte (2024) report, leaders have a responsibility to utilize technology to "restore meaning and purpose" to the profession, thereby retaining talent. Therefore, providing meaningful implementation support, such as at-the-elbow assistance and tailored training, is a strategic investment in retention that protects the organization's human capital.

### **Advancing Digital Equity as a Business Strategy**

Digital equity is an essential component of organizational sustainability and reputation. Leaders can advance equity by assessing access barriers related to broadband internet access, digital device availability, and digital literacy, and then designing tools that reflect these community realities. MacDonald et al. (2022) warned that without such equity-based codesign, introducing digital tools into the care delivery ecosystem can automate historical disparities, creating liability for the health system. To avoid exclusion, leaders should offer multimodal engagement pathways, such as phone support and community-based programs. This aligns with the World Bank's (2023) finding that

multichannel strategies significantly increase participation in underserved communities. Finally, measuring health equity outcomes is vital to ensuring that adoption patterns do not lead to widening equity disparities or other adverse equity outcomes. By embedding equity into design and governance, organizations create more resilient digital ecosystems that serve the entire patient population, effectively mitigating the "digital inverse care law."

### **Implications for Social Change**

The research findings have significant implications for social change, particularly in addressing disparities in digital access, supporting clinician well-being, and strengthening community trust in healthcare systems. By shifting the focus of HIT investment from pure financial return to a broader value framework, healthcare leaders can actively address the SDoH that drive health inequities.

### **Enhancing Equitable Access to Technology-Enabled Care**

Technology-enabled care has the potential to reduce longstanding disparities in healthcare access, but only if designed with inclusivity in mind. The insights from this research project indicate that when healthcare technology leaders integrate equity considerations into HIT investments governance, design, and implementation, digital tools become vehicles for expanding access rather than reinforcing privilege. This finding directly addresses the warning noted in the WHO (2025) global digital strategy report that, without deliberate equity strategies, rapid digitization risks becoming a negative social determinant that widens the gap between the "digitally wealthy" and the underserved. By implementing the hybrid access models identified in Theme 4, health

systems can ensure that the "digital inverse care law", where those with the most need have the least access, does not become the standard of care (OECD, 2023).

### **Supporting Clinician Well-Being and Workforce Sustainability**

Clinician-centered technology design contributes to social change by addressing burnout, improving work-life balance, reducing clinical staff attrition, and elevating morale. When technology reduces cognitive and administrative burdens, clinicians can devote more attention to patient care, strengthening clinician-patient relationships and improving care outcomes. As noted in the Deloitte (2024) report, using technology to "restore meaning and purpose" to the profession is not just an operational goal but a societal necessity to prevent the collapse of the healthcare workforce. Sustaining this workforce ensures that communities, particularly those in underserved areas dependent on scarce providers, retain access to high-quality care.

### **Building Community Trust Through Responsible Digital Transformation**

Trust is foundational for the adoption of digital health. Transparent governance, ethical data practices, and equitable design contribute to broader public confidence in healthcare institutions. When patients perceive that technology is designed with their needs and realities in mind, they are more likely to engage with care systems, maintain continuity of care, and share critical personal information that improves clinical decision-making. The authors of the World Bank (2023) report emphasized that this trust-building is essential to preventing digital tools from becoming isolated technical achievements that fail to deliver public value. Consequently, the leadership strategies identified in this

research project foster a social contract where healthcare institutions serve as stewards of both community health and digital dignity.

### **Recommendations for Future Study**

While this research project provides substantial insight into leadership strategies for HIT investment decision-making, several areas warrant further exploration to address the specific limitations identified in the limitations section above.

#### **Addressing Sample and Geographical Limitations**

As noted in the limitations section earlier, this research project relied on a small, purposive sample of leaders within the New York metro area, which limits the generalizability of the findings to other regional or regulatory contexts. Future researchers should employ quantitative comparative designs across a broader, nationally representative sample to examine whether the strategies of "Strategic Stewardship" and "People-Centered Design" are statistically correlated with financial performance in rural health systems, academic medical centers, and integrated delivery networks in different regulatory environments.

#### **Mitigating Recall Bias With Longitudinal Designs**

The current research project relied on participants' retrospective descriptions, which, as stated earlier, introduced the risk of recall bias where participants may emphasize successful outcomes over challenges. To address this, future researchers should employ longitudinal designs that track digital initiatives in real-time from the "value hypothesis" phase through to postimplementation evaluation. This would provide

objective data on how value evolves over multiyear initiatives, mitigating the reliance on self-reported recollections.

### **Objective Measurement of Workforce Impact**

To further validate the findings regarding clinician burden, future studies should move beyond the qualitative perspectives collected here. Researchers could develop empirical models to measure the impact of digital investments on objective workforce metrics, such as system log data (to measure "pajama time"), turnover rates, and helpdesk ticket volume. Such quantitative analysis would provide a robust test of the clinician aspect of the "People-Centered Design" theme.

### **Sustainability in a Rapidly Evolving Landscape**

Finally, Section 1.4 highlighted the dynamic and rapidly evolving nature of healthcare technology as a limitation, noting that strategies may change quickly. Future research should investigate the long-term sustainability of the "hybrid" access models identified in Theme 4. Specifically, studies could examine how organizations maintain financial support for nondigital pathways (like community health workers) as pressure to fully digitize operations increases over time.

### **Conclusion**

The findings from this qualitative pragmatic inquiry reveal a leadership model grounded in strategic governance, evidence-informed learning, people-centered design, and a strong commitment to digital equity. To optimize financial investments, leaders demonstrated thoughtful decision-making processes shaped by organizational priorities, clinical realities, and community needs. They articulated a clear understanding that

digital transformation is not an endpoint but a continuous journey requiring vigilance, humility, and adaptation. Together, the four themes of governance discipline, value realization, people-centered design, and inclusive access reflect a pragmatic and socially responsible approach to digital investment decision-making. These strategies offer a blueprint for other health systems seeking to advance digital maturity while protecting workforce capacity, ensuring equitable access, and building trust with the communities they serve. As the healthcare sector becomes increasingly reliant on HIT, the insights from this research project make meaningful contributions to both organizational practice and broader social change.

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## Appendix: Interview Protocol

**Interview Protocol for Qualitative Pragmatic inquiry Research Project**

Interview Protocol	
Action	Script
<p>Introduce the interview and set the stage. Introduce myself and the purpose of the interview, thereby setting the stage.</p>	<p>Hello, my name is Bashir Agboola. I am a Doctoral Candidate with Walden University. The purpose of this interview is to identify and explore the effective strategies healthcare technology leaders use to optimize financial investments in healthcare technology to improve the patient care experience and equitable access to healthcare services. I am going to ask you eight questions to which I would like your responses to. Then, I will conclude the interview. Do you have any questions?</p>
<p>Watch for nonverbal cues. Paraphrase the participant's response. Ask follow-up probing questions to get more in-depth</p>	<p>Interview Questions:</p> <ol style="list-style-type: none"> <li>1. How would you describe your role in creating effective strategies to optimize financial investments in healthcare technology to improve the patient care experience and equitable access to healthcare services?</li> <li>2. What effective strategies have you implemented to optimize financial investments in healthcare technology to improve the patient care experience and equitable access to healthcare services?</li> <li>3. Describe the impact of the strategies on the work-life of healthcare clinicians and staff?</li> <li>4. Describe the effect of the strategies on the advancement of health equity?</li> <li>5. What challenges did you face in implementing the strategies?</li> <li>6. What did you do to mitigate the impact of the challenges?</li> </ol>

	<p>7. How did you measure the effectiveness of the strategies you implemented?</p> <p>8. What additional information regarding strategies you used to attain annual targets that we have not already discussed you would like to share?</p>
Wrap up the interview, thanking the participant.	Thank you for participating in the interview, an integral part of my research project.
Schedule a follow-up interview to perform member checking with the participant.	I will contact you in a week to schedule a time for us to review the accuracy of my interpretations of your interview responses.