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IT Leadership Strategies in Healthcare Systems That Leverage Dynamic Capabilities for Digital Transformations

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This is to certify that the doctoral study by

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Walden University
2025

Abstract

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by

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MBA, Alaska Pacific University, 2005

BS, DeVry Institute of Technology, 1998

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Information Technology

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Abstract

The problem addressed in this study is that some health care information technology (IT) leaders lack strategies to leverage dynamic capabilities to drive strategic renewal and expected outcomes, constraining health care access, quality, and cost improvements. Grounded in the Dynamic Capabilities Framework for Digital Transformation, this pragmatic qualitative study explored strategies that some IT leaders in health care systems use to leverage dynamic capabilities for digital transformation. The study conducted six semistructured interviews with senior IT leaders in U.S. provider-based health care systems with at least five years of strategic leadership experience, triangulated data with publicly available documents, and applied thematic analysis to generate codes and themes. The study identified three themes—digital sensing, digital seizing, and digital transformation—and delineated 57 subthemes (strategies) that drive strategic renewal and expected outcomes. Based on these findings, the study recommends that health care executives prioritize developing these capabilities within senior IT leadership teams. These conclusions show that capability-driven strategies enable IT leaders to translate technology investments into improved access, care quality, and financial resilience. The implications for positive social change include the potential for health care IT leaders to design and implement digital transformation strategies that enhance clinicians' and staff members' work environments, broaden patients' equitable access to timely, affordable, high-quality care, and strengthen the financial resilience of community health systems that provide essential services and local employment.

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Dedication

This study is dedicated to my family, friends, and colleagues, whose unwavering support made this journey possible. Over the past four years, each of you sacrificed time with me and graciously endured my moments of stress, frustration, and emotional release as I prioritized the demands of doctoral scholarship. For your patience, understanding, and encouragement, I am profoundly grateful.

To my father, a steadfast stoic role model and mentor, I thank you for instilling in me the virtues of grit, perseverance, and never giving up. To my mother, I am deeply appreciative of your nurturing presence and the emotional reassurance you provided in moments of challenge. To my siblings, who served as a sounding board during life's difficulties and became the backbone sustaining me through both this doctoral journey and personal trials, your encouragement gave me the strength to press forward. To my friends and colleagues, I value the counsel and space you offered, which enabled me to remain aligned with my studies. To my loving girlfriend, I extend heartfelt gratitude for your patience and understanding, even when my studies required significant sacrifices of our time together.

Above all, to my daughter, your understanding and encouragement transcended words. I hope my journey demonstrates that adversity can be transformed into resilience and growth—as the adage reminds us, tough times create strong people.

This accomplishment is not mine alone—it belongs equally to all of you who stood beside me. And above all, never forget that if you can conceive it and believe it, you can achieve it.

Acknowledgments

I acknowledge with deep gratitude the individuals and groups who contributed to the completion of this doctoral journey. I extend my sincere thanks to my study chair, Dr. Mensah, whose guidance, insightful feedback, and encouragement provided the foundation for this study. I also thank my second committee member, Dr. McKeeby, for his critical input and constructive recommendations, as well as all my coursework professors along the way. Your collective expertise has been instrumental in expanding my academic knowledge and shaping the rigor and quality of my critical thinking and scholarly work.

I am also grateful to the faculty and staff at Walden University, whose commitment to student success created the environment necessary for achievement. I thank my fellow student peers who sharpened my thinking through challenging academic dialogue. Furthermore, I extend my gratitude to the research participants, who generously shared their time, perspectives, and experiences. My growth into a better version of myself would not have been possible without everyone's contributions.

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Section 1: Foundation of the Study

This study explores strategies that some information technology (IT) leaders in healthcare systems employ to leverage dynamic capabilities for digital transformation (DCDT). Healthcare systems are provider-based organizations focused on enhancing population health (Alaeddini et al., 2022), and their sustainability relies on their capacity to adapt dynamically, proactively innovate, and effectively implement digital strategies in response to evolving demands (Braithwaite et al., 2022). Consequently, IT leaders must apply DCDT frameworks to realize ongoing strategic renewal and desired business outcomes in a dynamic healthcare sector. By identifying practical DCDT strategies, through this study, I aimed to provide actionable insights that IT leaders in healthcare systems may implement, thereby enhancing organizational IT practice. This, in turn, enables them to fulfill their mission of providing cost-effective, high-quality patient care to the communities they serve.

Background of the Problem

Technological advancements have enhanced patients' cost-effective access to quality healthcare services. Patients access these services through traditional brick-and-mortar establishments or digital care delivery avenues. Traditional care delivery has improved significantly by integrating digital technologies, including electronic health record systems (Fabiano et al., 2021), and adopting digital platforms such as telemedicine (Binci et al., 2022). However, financial sustainability remains challenging despite these advancements, with 39% of all U.S. hospitals and 44% of rural hospitals reporting negative profit margins (Levinson et al., 2024). Consequently, healthcare systems must

continuously adopt emerging digital technologies (Popov et al., 2022) and strategically respond to evolving market dynamics to maintain operational effectiveness and competitive advantage (Braithwaite et al., 2022; Levasluoto et al., 2021). Thus, healthcare systems must leverage strategic frameworks to effectively navigate financial pressures and digital disruptions.

Given these financial and technological challenges, dynamic capabilities are a valuable conceptual framework from the academic literature in strategic management for understanding how organizations may respond to evolving market conditions to maintain a competitive advantage. Dynamic capabilities encompass entrepreneurial activities involving sensing market opportunities and threats, seizing identified opportunities through resource mobilization, and transforming organizational resources and structures to sustain competitive advantage amidst dynamic environments (Teece, 2020). Complementarily, digital transformation involves strategically adopting and adapting digital technologies to achieve organizational renewal and long-term sustainability (Albino et al., 2023). Digital transformation thus represents a fundamental shift driven by technology that leverages an organization's inherent capabilities—its dynamic capabilities—to optimize stakeholder value (Gong & Ribiere, 2021) and support strategic sustainability objectives (Guandalini, 2022). Thus, integrating dynamic capabilities with digital transformation is critical for addressing healthcare market challenges.

Nevertheless, healthcare organizations often hesitate to pursue digital transformation initiatives without clear financial returns. Although digital transformation facilitates sustainable care delivery models (Braithwaite et al., 2022), organizations are

hesitant to invest without demonstrable returns on investment (Beauvais et al., 2021; Vallatos et al., 2021). This investment hesitancy particularly impacts hospitals experiencing financial constraints, limiting digital transformation initiatives predominantly to profitable healthcare systems (Vogel et al., 2024). Additionally, organizational characteristics, such as hospital size, structural complexity, and teaching status, significantly influence healthcare systems' capacity to effectively implement digital transformation initiatives (Raimo et al., 2022). Consequently, addressing the strategic complexities influencing digital transformation investment decisions requires further scholarly exploration.

Recognizing these complexities highlights a significant research gap regarding the strategic and managerial implications of DCDT. Specifically, limited understanding exists of how these capabilities influence sustainable organizational practices and management effectiveness in healthcare systems (Kraus et al., 2021). Addressing this gap is crucial; healthcare systems need DCDT strategies to realize ongoing strategic renewal and achieve desired business outcomes to fulfill their mission of serving their communities.

Information Technology Problem Focus and Project Purpose

Healthcare systems increasingly require DCDT, highlighting a critical demand for strategic leadership among senior IT leaders. The general IT problem is that healthcare systems need digital transformation strategies to remain financially sustainable in a dynamic healthcare sector. Currently, more than one third of U.S. healthcare systems struggle with profitability, prompting some IT leaders to pursue strategies leveraging

DCDT to achieve financial sustainability. Adaptive leadership strategies are crucial for successfully navigating digital transformation initiatives and enhancing organizational performance (Laksono & Darmawan, 2021). Specifically, IT leaders must strategically enhance their organization's digital maturity and effectively manage the complexities of the digital technology ecosystem (Nadkarni & Prugl, 2020). According to Nadkarni and Prugl (2020), digital transformation comprises two key dimensions: technology and actors. Moreover, a global CEO survey revealed that 33% of organizations prioritize digital initiatives, whereas 83% emphasize significant investments in chief information officer (CIO) roles to strengthen digital maturity, underscoring the importance of strategic IT leadership in advancing technological capabilities (Wang & Shao, 2024). Because digital transformation strategies are essential for healthcare systems to fulfill their community-oriented missions sustainably (Braithwaite et al., 2022), the specific IT problem is that some IT leaders in healthcare systems lack strategies to leverage DCDT. Consequently, addressing this strategic gap in digital leadership requires targeted investments in IT leaders' capabilities, as consistently emphasized by global executives (Wang & Shao, 2024). By adopting adaptive leadership approaches, IT leaders can better navigate the intricacies of digital maturity and ecosystem dynamics, significantly enhancing sustainability through targeted digital transformation initiatives (Laksono & Darmawan, 2021; Nadkarni & Prugl, 2020). Given this identified leadership gap, understanding how IT leaders strategically employ dynamic capabilities within digital transformation contexts is essential, forming the basis of this research exploration.

Based on the imperative to address this leadership gap in DCDT strategy formulation, the purpose of this qualitative pragmatic study was to explore the strategies some IT leaders in healthcare systems use to leverage DCDT. The target population comprised IT leaders, selected using purposive sampling methods involving open-ended, semistructured interviews. The intended sample size included at least six IT leaders and at least 10 supporting publicly available organizational or government documents. Data collection continued until thematic saturation, defined as the point at which no new significant information or insights emerge from the data. Eligibility criteria for participants included a minimum of 5 years of strategic IT leadership experience in a healthcare system, with participant recruitment facilitated through professional networks such as LinkedIn or the College of Healthcare Information Management Executives (CHIME). Participants were geographically located within the United States. Data sources consisted of semistructured interviews complemented by publicly available organizational documentation or government reports relevant to the study's research question. The dynamic capabilities framework for digital transformation (DCFDT), proposed by Albino et al. (2023), served as the conceptual framework guiding methodological decisions in this study. Clearly articulating the methodological approach, participant criteria, and data collection strategies ensures rigorous alignment with the conceptual framework and effectively addresses the identified strategic leadership gap in DCDT digital strategies.

Research Question

What strategies do some IT leaders in healthcare systems use to leverage DCDT?

Assumptions and Limitations

Assumptions

This study includes several key assumptions guiding the research approach to ensure methodological rigor. Assumptions represent foundational beliefs or convictions shaping the methodology and interpretation of results within a specific research paradigm (Mulisa, 2021). Recognizing and explicitly articulating these assumptions enhances transparency, mitigates potential biases, and supports the credibility of the research outcomes. Given the significance of transparency in scholarly inquiry, clearly identifying each assumption underpinning the methodological approach is necessary.

Building upon the imperative of transparency, the first assumption of this study was that a qualitative pragmatic approach was appropriate to address the research question. The second assumption was that the participants recruited possessed relevant knowledge and experience, enabling them to provide valuable, honest, and authentic insights during interviews. Additionally, I assumed that data collection procedures would yield sufficient and meaningful information to address the research objectives comprehensively. Furthermore, it was presumed that recruiting participants through professional networks would present minimal logistical challenges. Another assumption is that the selected sample sizes adequately represent the broader population, supporting the transferability of the research findings. Moreover, I assumed that both my biases and participants' biases would be sufficiently mitigated and would not significantly influence this study's outcomes. It was also assumed that the interview protocols developed align precisely with the research problem and purpose. Finally, for this study, I assumed that

the interview protocols would be sufficiently thorough, would adequately protect participant anonymity, and would facilitate effective thematic analysis to extract meaningful patterns.

Should any of these assumptions present unforeseen difficulties, potential mitigation strategies included broadening the scope of participant recruitment, refining data collection techniques, or obtaining additional validation from subject-matter experts. Explicitly identifying these assumptions and potential mitigation strategies strengthened this study's methodological design and enhances the reliability and validity of the anticipated research outcomes.

Limitations

Several limitations inherent in the selected qualitative research methodology were acknowledged. Limitations represent weaknesses within a study, influenced significantly by the chosen methodological approach. Specifically, qualitative research typically exhibits limitations such as heightened contextual sensitivity, reliance on phenomenological methods, low perceived credibility in certain fields like policymaking, limited generalizability due to typically smaller sample sizes, and the complex, time-intensive nature of data interpretation and analysis (Taherdoost, 2022). Clearly acknowledging these limitations ensures an accurate interpretation of findings, delineates this study's boundaries, and provides direction for future research. Given the importance of addressing methodological constraints transparently, explicitly identifying each limitation enhances this study's robustness.

Considering these inherent qualitative limitations, several constraints required careful attention within this research context. The first limitation concerns the transferability of findings beyond the geographic region of the selected participants. The second limitation involves potential constraints related to the availability and cooperation of targeted participants, possibly resulting in smaller-than-desired sample sizes. The third limitation pertains to varied participant educational backgrounds and professional experiences, potentially influencing the consistency and depth of their responses. The fourth limitation is participant bias, potentially stemming from selective memory or tendencies to provide socially desirable responses, affecting accuracy and reliability. Due to the qualitative methodology, the fifth limitation to acknowledge was that the scope of inquiry may not comprehensively address all aspects of the research question. The sixth limitation highlights the potential limited long-term applicability of identified strategies, given the rapidly evolving nature of digital technologies. The seventh limitation recognizes that certain strategies might be deemed confidential or sensitive, constraining the depth and detail of data collection. The eighth limitation pertains to the methodological choice of semistructured interviews, which inherently restrict findings to participants' subjective perspectives. Finally, the ninth limitation addresses restricted transferability to other sectors since this research specifically examines strategies employed by a select group of IT leaders within the healthcare sector.

Should these limitations pose significant challenges, mitigation strategies could have included expanding participant diversity, incorporating multiple methods of data collection, or obtaining independent expert validation to enhance credibility and

applicability. Explicitly identifying and strategically addressing these limitations strengthens the methodological rigor and enhances the reliability and validity of the anticipated research outcomes.

Significance of Study

Contribution to Information Technology Practice

This study contributes to IT practice by contributing to the body of knowledge on strategies IT leaders in healthcare systems use to leverage DCDT. By exploring real-world strategies employed by IT leaders through the lens of contemporary strategic management literature, this study offers valuable insights into specific DCDT strategies, such as digital sensing, digital seizing, and digital transformation. Healthcare systems demonstrating higher profitability often exhibit advanced digital maturity, facilitating more effective digital transformation initiatives (Vogel et al., 2024). Conversely, many U.S. hospitals face financial hardships, with over a third reporting negative profit margins (Levinson et al., 2024). Additionally, inefficiencies in U.S. healthcare spending account for approximately 25% of total expenditures—between $760 billion and $935 billion annually—highlighting the urgent need for effective cost-saving measures (Shrank et al., 2019). These financial and operational pressures underscore the strategic necessity of equipping IT leaders in healthcare systems with actionable DCDT strategies to respond to transformation demands within the dynamic healthcare sector. Therefore, organizing research findings around defined central themes of a framework can significantly enhance healthcare IT leaders' ability to address these complex challenges strategically.

Recognizing the practical advantages of a thematic organization, literature reviews structured around central concepts rather than individual authors facilitate a coherent synthesis of knowledge and advance theoretical insights (Webster & Watson, 2020). Structured insights derived from this study can guide healthcare IT leaders in developing practical strategies to navigate the intricacies of digital transformation effectively. Furthermore, effective utilization of dynamic capabilities enhances strategic decision-making, enabling organizations to rapidly adapt to technological advances and market disruptions (Albino et al., 2023). By emphasizing evidence-based DCDT strategies, this study equips healthcare IT leaders with actionable knowledge to strengthen strategic decision-making, improve digital capability maturity, and reinforce their healthcare systems' sustainability and alignment with organizational missions. Ultimately, leveraging structured thematic insights strategically positions IT leaders to enhance the effectiveness of their healthcare systems' digital transformation efforts, thereby ensuring long-term operational resilience.

Implications for Social Change

This study may promote positive social change by providing policymakers insights into targeted policies, funding mechanisms, and incentives that can enhance equity, effectiveness, and sustainability in healthcare through digital transformation. Qualitative research is particularly well-suited for exploring complex social phenomena and generating human-centered insights (Lim, 2024). By employing qualitative methods, this study aims to produce actionable knowledge that supports meaningful societal improvements. For example, contemporary digital technologies—such as telehealth,

remote patient monitoring, and home healthcare—significantly expand caregivers' reach, improving healthcare accessibility for rural or underserved communities (Popov et al., 2022). Additionally, targeted regulatory frameworks, funding strategies, and incentives designed to support digital transformation initiatives are critical for enabling the healthcare sector to deliver cost-effective, high-quality patient care, thereby driving sustainability and enhancing patient outcomes (Braithwaite et al., 2022; Fragao-Marques & Ozben, 2023; Guandalini, 2022; Varzaru, 2022). Consequently, strategic investments in digital technologies informed by well-designed policies can meaningfully enhance patients' access to affordable, high-quality healthcare.

Building upon the critical role informed policies play in healthcare equity, strategic investments in digital technology offer significant opportunities to further enhance patient access to affordable, quality care. According to Binci et al. (2022), the quality of care can be improved by adopting advanced technological and data analytics capabilities that facilitate accurate disease detection and comprehensive patient monitoring throughout the care continuum. Furthermore, digital transformation empowers patients by providing greater access to medical knowledge and improved online interactions with healthcare providers, enabling patients to make informed decisions about prescription compliance, treatment strategies, and the selection of healthcare facilities and providers (Koebe & Bohnet-Joschko, 2023). Similarly, affordability in healthcare can improve significantly through operational efficiencies gained from digital automation, reducing overall healthcare delivery costs (Braithwaite et al., 2022). By explicitly highlighting these transformative digital impacts, this study

underscores the potential of digital transformation to foster a more responsive, equitable healthcare system that consistently delivers cost-effective, high-quality patient care.

Transition and Summary

Section 1 discussed the healthcare sector's dynamic challenges and opportunities associated with digital transformation. It examined the general IT problem regarding healthcare systems' necessity to adapt and adopt digital technologies to remain relevant, competitive, and sustainable. It addressed the specific IT problem that some IT leaders in healthcare systems lack strategies to leverage DCDT. Consequently, this qualitative pragmatic study aims to explore strategies that some IT leaders in healthcare systems use to leverage DCDT. Culminating in the central research question guiding this exploration is: What strategies do some IT leaders in healthcare systems use to leverage DCDT?

Building upon Section 1's discussion of healthcare systems' need for strategic adaptation through digital transformation, Section 2 outlines this study's content, scope, organization, conceptual framework, and literature review. Specifically, Section 2 defines the scholarly parameters, analytical methods, and theoretical foundations that inform the systematic organization of the literature review within the DCFDT. Additionally, the organization section explains how thematic synthesis and theoretical coherence are achieved using this structured framework. Furthermore, the conceptual framework section details the evolution of dynamic capabilities theory—from its origins in the resource-based view (RBV), through dynamic capabilities and digital dynamic capabilities to the contemporary DCFDT adopted for this study—providing a clear theoretical foundation for analyzing IT leadership strategies supporting digital

transformation in healthcare. Finally, the literature review synthesizes current research on external triggers prompting digital transformation in healthcare, internal barriers and enablers, dynamic capabilities strategies, and resulting outcomes such as strategic renewal and expected outcomes, highlighting critical insights, identifying strategic imperatives, and research knowledge gaps.

Section 2: Literature Review

A Review of the Professional and Academic Literature

Content and Scope

This study utilizes peer-reviewed journal articles and scholarly resources published within 5 years of this study's completion. Key databases accessed included Google Scholar and Walden University library databases, specifically ProQuest, Elsevier/ScienceDirect, SpringerLink, Copernicus Publications, MEDLINE with Full Text, Academic Search Complete, Computers & Applied Sciences Complete, Business Source Complete, Education Source, IEEE Xplore Digital Library, SocINDEX with Full Text, and the International Security & Counter Terrorism Reference Center. I searched these databases to identify relevant sources using terms such as "digital technology OR information technology OR digital innovation," "dynamic capability OR dynamic capabilities," "digitalization OR digital transformation," and "health care OR healthcare." Of the 97 selected sources, 93 (96%) were peer-reviewed, and 93 (96%) were published within 5 years of this study's publication, ensuring the literature's credibility, currency, and academic rigor. Given this systematic and rigorous selection process, the resulting literature review aligns with established best practices for conceptual synthesis and identification of knowledge gaps.

Building upon this rigorously structured approach to sourcing literature, literature reviews serve varied purposes depending on the maturity of the research topic and specific study objectives. Webster and Watson (2020) emphasized that literature reviews are fundamental for synthesizing existing research, identifying gaps in current

knowledge, and facilitating theoretical advancements through structured, concept-centric analyses. Therefore, in this review, I critically analyzed the contemporary body of knowledge to establish a conceptual foundation for this study, clearly identifying themes aligned with the DCFDT to inform IT practice on DCDT within the healthcare sector. Through this focused analytical approach, this study provides a comprehensive understanding of how theoretical constructs shape emergent strategies in healthcare's dynamic environment, effectively setting the stage for subsequent examination of practical applications.

Organization

Organizing a literature review around a guiding framework enhances researchers' ability to synthesize existing findings effectively and address identified knowledge gaps. Simsek et al. (2023) suggested that organizing and integrating evidence within a coherent framework—particularly one clarifying causal relationships among themes, categories, and constructs—facilitates a more profound comprehension of organizational phenomena. Similarly, Kalpokas and Radivojevic (2021) emphasized that a well-organized literature review should be structured around a clear theoretical framework, such as a set of competing models or a defined theoretical perspective, to ensure narrative coherence. Consequently, for this literature review, I adopted a systematic and thematic approach guided by a specific conceptual framework, enabling focused analysis and coherent synthesis of existing research. Employing such a structured and thematic method thus achieves greater analytical depth and enhances scholarly coherence.

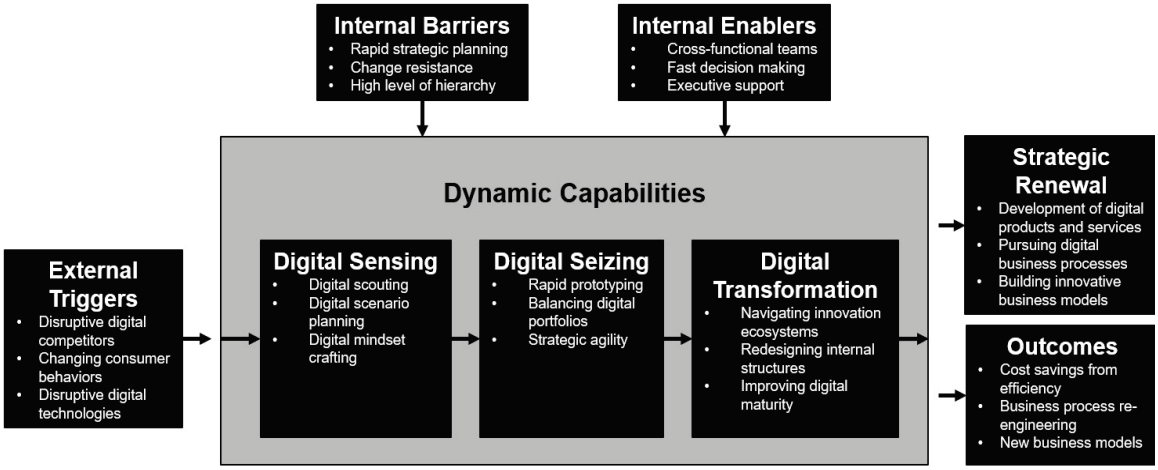
Building on the systematic organization of literature, structuring reviews according to a conceptual framework strengthens scholarly inquiry by enhancing clarity, coherence, and analytical precision. Paul et al. (2024) underscored the importance of systematically aligning literature reviews with conceptual frameworks to foster theoretical advancement. Further supporting this approach, Marques and Ferreira (2019) highlighted the value of thematic categorization within systematic reviews as critical for analyzing trends and identifying pertinent research gaps within specialized domains. Specifically, the DCFDT adopted in this study provides a structured approach to examining how organizations leverage DCDT strategically. According to Albino et al. (2023), systematically applying the DCFDT clarifies how dynamic capabilities enables organizations to adapt strategically in response to digital disruptions, thus illuminating critical insights into transformative organizational processes. Therefore, employing the DCFDT allowed me to bridge theoretical understanding with practical application, informing IT practice and guiding future research through systematic and thematic analyses.

Leveraging structured thematic analysis guided by the DCFDT, this review of the literature is systematically organized according to the structure illustrated in Figure 1 and outlined in Table 1, categorizing thematic content within the framework's constructs, microfoundations, and essential capabilities. Documentation of permission to adapt Figure 1 is provided in Appendix B. First, external triggers represent external factors creating pressure or opportunities for organizations. Second and third, internal barriers and internal enablers refer to internal organizational factors limiting or facilitating

strategic responses in an organization's ability to respond. Fourth, dynamic capabilities and its microfoundations function as mechanisms and processes strategically leveraged to realize organizational objectives. Lastly, strategic renewal and expected outcomes represent the achievements derived from successfully applying the dynamic capabilities. Thus, employing this structured approach ensures that the literature review consistently aligns with a coherent conceptual foundation, enhancing academic rigor, narrative coherence, and practical applicability throughout the analysis.

Figure 1

Dynamic Capabilities Framework for Digital Transformation



Note. Adapted from the original publication, incorporating the specific essential capabilities within each construct and microfoundation for visual clarity. From "Leading the digital transformation: A dynamic capability framework proposal," by R. D. Albino, M. Mira da Silva, and C. A. de Souza, 2023, *International Journal of Business Information Systems, 43*(2), 216–257 (https://doi.org/10.1504/IJBIS.2020.10039182). Copyright 2023 by Inderscience Enterprises Ltd. Adapted with permission.

Table 1

Conceptual Framework Constructs, Microfoundations, and Factors

Constructs	Dynamic capability	Microfoundation
External triggers		• Competitive landscape • Consumer behaviors and expectations are changing • Disruptive digital technologies • Rethinking value propositions
Internal barriers		• Rigid strategic planning • Resistance to change • High-level hierarchy and silos • The inertia created by path dependencies
Internal enablers		• Cross-functional teams • Fast decision making • Executive support • IT capability • Data governance
Dynamic capabilities	Digital sensing	• Digital scouting • Digital scenario planning • Digital mindset crafting
	Digital seizing	• Strategic agility • Rapid prototyping • Balancing digital portfolios
	Digital transformation	• Navigating innovation ecosystems • Redesigning internal structures • Improving digital maturity
Strategic renewal		• Development of digital products and services • Pursuing digital business processes • Building innovative business models
Expected outcomes		• Cost savings from efficiency • Business process re-engineering • New business models

Note. Adapted from "Leading the digital transformation: A dynamic capability framework proposal," by R. D. Albino, M. Mira da Silva, & C. A. de Souza, 2023, *International Journal of Business Information Systems, 43*(2), 216-257 (https://doi.org/10.1504/IJBIS.2020.10039182). Copyright 2023 by Inderscience Enterprises Ltd.

Conceptual Framework Foundation

The DCFDT integrates multiple foundational theories into a cohesive conceptual lens. The DCFDT underpinning this study synthesizes foundational theoretical perspectives from the RBV (Barney, 1991), dynamic capabilities (Teece et al., 1997), and digital dynamic capabilities (Warner & Wager, 2019). These foundational theories culminated in the contemporary DCFDT articulated by Albino et al. (2023), providing analytical clarity in examining IT leadership strategies essential for organizational digital transformation. This integrative theoretical approach aligns closely with the qualitative pragmatic intent of this study. Consequently, exploring how these theoretical constructs evolved provides essential insights into how organizations strategically utilize its capabilities.

Building upon this theoretical synthesis, the evolution of dynamic capabilities theory began with foundational concepts from the RBV and subsequently expanded through the integration dynamic and digital constructs. Barney (1991) introduced the concept of resource heterogeneity within RBV, emphasizing that sustained competitive advantage arises from unique bundles of resources and capabilities characterized as valuable, rare, inimitable, and non-substitutable (VRIN). Extending the RBV framework, Teece et al. (1997) conceptualized *dynamic capabilities* as an organization's capacity to strategically renew, adapt, and reconfigure its resources in response to environmental changes. Further advancing this framework into digital contexts, Warner and Wager (2019) defined *digitally grounded dynamic capabilities*—digital sensing, digital seizing, and digital transforming—each underpinned by nine digitally based microfoundations

(subcapabilities) that collectively support firms' strategic renewal in fast-changing digital environments. These *microfoundations* encompass specific essential capabilities, consisting of individual- and group-level actions that shape organizational strategies and drive performance (Chen et al., 2023). Given the inherently broad nature of dynamic capabilities (Shiferaw & Amentie Kero, 2024), exploring microfoundations enriches an understanding of how organizations develop and sustain competitive advantage (Chen et al., 2023). Thus, recognizing this theoretical evolution provides refined insights into the practical implications of dynamic capabilities for strategic management and organizational performance.

Extending the evolution of dynamic capabilities theory, Albino et al. (2023) further advanced the digital dynamic capabilities framework by refining its microfoundations, clarifying essential capabilities, and introducing explicit distinctions that enhance its practical utility. Most notably, Albino et al. improved upon Warner and Wager's (2019) framework by refining existing microfoundations and introducing the additional construct of expected outcomes. Albino et al. defined *expected outcomes* as quantifiable results, such as operational efficiencies, enhanced customer experiences, and new revenue streams, thereby clarifying the tangible impacts organizations anticipate from digital transformation. Furthermore, Albino et al. differentiated strategic renewal and expected outcomes as separate constructs, explicitly distinguishing innovation-oriented strategic results from measurable, operationally-focused outcomes. Consequently, the DCFDT provides a comprehensive analytical framework suitable for examining IT leadership strategies that leverage DCDT within healthcare systems,

aligning closely with the qualitative pragmatic purpose of this study. Clarifying these theoretical definitions establishes the foundation necessary for precise strategic alignment with the research questions guiding this investigation.

Aligned with clarifying theoretical definitions of DCFDT constructs, this study explicitly defines strategy by synthesizing established perspectives from strategic management and systems theory. Kuhl (2024) defined strategy as identifying and applying appropriate means to achieve a defined objective. Additionally, Saqib (2023) characterized strategy as positioning to shape consumer perceptions by distinguishing a brand's unique attributes from competitors, thus achieving competitive advantage. Dedeke (2024) emphasized that strategy involves strategically selecting, deploying, and orchestrating digital technologies to recapture business value and create competitive advantage through digital business model transformation. Consequently, Dedeke's definition of strategy closely aligns with the qualitative pragmatic inquiry guiding this research, emphasizing practical IT leadership strategies used to leverage DCDT in healthcare systems. Establishing this precise strategic alignment ensures methodological coherence, effectively facilitating the exploration of the central research questions in this study.

Research and Literature

This literature review examines the contemporary body of knowledge concerning digital transformation factors and their essential capabilities: external triggers specific to healthcare, which serve as catalysts driving healthcare systems toward digital adaptation and technology adoption; internal barriers that hinder digital transformation initiatives;

internal enablers that facilitate successful technology implementation; and dynamic capabilities along with their associated microfoundations. Additionally, this review explores how these factors, microfoundations, and essential capabilities inform healthcare IT leaders' formulation of strategies to leverage DCDT effectively, enabling continuous strategic renewal and achieving expected organizational outcomes.

External Triggers

This section examines external triggers influencing healthcare systems, including the competitive landscape, changing consumer behaviors and expectations, disruptive digital technologies, and evolving value propositions. According to Albino et al. (2023), *external triggers* fundamentally shape how organizations adapt within dynamic market environments. Moreover, these external forces serve as catalysts for digital transformation, significantly impacting organizational strategies and processes (Hanelt et al., 2021). Consequently, recognizing and understanding these triggers can help healthcare IT leaders in healthcare systems identify the external catalysts that influence their strategic decisions and practical approaches for leveraging DCDT.

Competitive Landscape

Competitive pressures act as significant external triggers driving digital transformation within healthcare systems. Albino et al. (2023, p. 229) defined the underlying *competitive landscape* microfoundation as "digital technologies facilitate the (re)combination of existing products and services to generate new forms of digital offerings favoring services over products, lowering barriers to entry, and hindering the sustainability of the competitive advantage of incumbent players." Furthermore, these

competitive pressures have prompted scholars such as Atieh Ali et al. (2024) and Loureiro et al. (2021) to advocate digital transformation as a critical survival strategy, emphasizing that rapid adoption of advanced technologies strengthens organizational resilience and market adaptability. Without timely technological adoption, incumbents risk losing their competitive advantage. In healthcare, competitive forces drive efforts to improve care quality, reduce costs, and enhance patient experiences through digital transformation initiatives (C.-W. Huang et al., 2023) and (W.-L. Huang et al., 2024). Therefore, addressing these competitive challenges is essential for organizational efficiency and long-term sustainability. Consequently, understanding these competitive dynamics provides a foundation for evaluating diverse scholarly viewpoints regarding digital transformation strategies discussed here.

Considering these competitive dynamics, scholarly perspectives on digital transformation in healthcare reflect optimism and caution regarding strategic outcomes. Proponents such as Hameed et al. (2024) and W.-L. Huang et al. (2024) emphasized that integrating advanced technologies provides organizations a competitive edge by improving patient outcomes, enhancing operational efficiency, and satisfying rising consumer expectations. Similarly, Binci et al. (2022) highlighted the benefits of integrating remote monitoring technologies, including enhanced clinical decision-making, improved patient quality of life, and optimized resource allocation toward higher-value activities. Conversely, critics like Garcia-Perez et al. (2023) and Lindroth et al. (2022) cautioned that digital innovation must balance resilience factors such as cybersecurity, knowledge management, and operational efficiency to sustain value over

time. Additionally, some researchers highlighted broader social and policy implications, noting that public sector entities must manage demands for innovation and cost-effectiveness while delivering equitable healthcare services (Chrysikou et al., 2023; Shaked, 2021). Therefore, recognizing these varied scholarly insights enhances the evaluation of healthcare systems' readiness to navigate intensifying digital competition, as explored in the following discussion.

Building upon these varied scholarly insights, growing digital competition underscores advancements and uncertainties concerning healthcare systems' preparedness for digital transformation. For example, Afridi and Khan (2024) emphasized that intensifying digital competition compels incumbent organizations to expedite digital adoption strategies to retain patients and ensure long-term profitability. However, contrasting perspectives highlight uncertainties regarding whether healthcare systems are adequately prepared for unexpected disruptions such as pandemics (Vallatos et al., 2021) or sufficiently advanced in technology deployment to meet contemporary data-driven patient care requirements (McGraw & Mandl, 2021). These differing viewpoints emphasize the need for strategic foresight and targeted investments to enhance healthcare systems' resilience and adaptability to future disruptions and evolving patient expectations. Addressing these uncertainties thus underscores the necessity for ongoing scholarly investigation into digital transformation as a strategic mechanism for sustained competitive advantage.

Addressing these uncertainties, existing literature acknowledges digital transformation as essential for competitive advantage while highlighting significant

knowledge gaps that warrant further investigation. Persistent questions remain about how healthcare systems can consistently leverage digital transformation to achieve and maintain a sustained competitive advantage. Verhoef et al. (2021) specifically identified a knowledge gap regarding how digital transformation reshapes value creation and value capture, advocating for more research focused on the evolving competitive landscape shaped by digital transformation. Consequently, future studies should examine how organizations strategically respond to competitive pressures using integrated frameworks like the DCFDT. Such research can bridge existing theoretical gaps, yield practical insights, and equip healthcare IT leaders with strategies to sustain digitally-driven value creation amidst dynamic competitive conditions. Ultimately, pursuing this research direction offers strategic guidance for IT leadership, enhancing their capability to navigate evolving competitive pressures and sustain organizational success.

Consumer Behaviors and Expectations are Changing

The shifting landscape of consumer behaviors and expectations significantly influences organizations' strategic approaches to product and service delivery. Albino et al. (2023, p. 229) defined the underlying *changing consumer behaviors and expectations* microfoundation as "an aggregate amount of expectations on service quality and a more influential role of customers over transactions that require organizations to know the customer wants and habits." A common theme in the literature is the rapid evolution of consumer expectations; however, scholarly views diverge on optimal strategies for organizational adaptation. Consequently, healthcare systems face a critical imperative to

strategically align their digital transformation efforts with evolving consumer expectations, a challenge further complicated by practical implementation issues.

Given these evolving consumer expectations, scholarly discourse highlights opportunities and complexities associated with implementing digital transformation initiatives within organizations. Proponents argue that digital transformation unlocks new possibilities for creativity, productivity, and growth (Najem et al., 2024) and facilitates ongoing strategic renewal through continuous adaptation and organizational learning (Albannai et al., 2024). Conversely, Shafizadeh (2024) cautioned against potential misalignments between technology adoption and patient needs, particularly regarding health equity, emphasizing the need to navigate intricate transformations to enhance adaptability and efficiency. Additionally, scholars like Marzouk and Jin (2023) and Wendt et al. (2022) noted how the COVID-19 pandemic accelerated remote care models that require long-term sustainability. While Neumann et al. (2021) confirmed that most healthcare systems recognize digital transformation as essential to address evolving patient needs, Al Rahahleh et al. (2023) argued that inconsistent patient experiences and internal siloed cultures may impede effective adaptation to digital patient demands. Therefore, leveraging digital capabilities to tailor healthcare products and services to evolving consumer expectations is essential, particularly within the context of increasing patient empowerment addressed in the next section.

Addressing these implementation challenges, patient empowerment driven by enhanced digital access fundamentally reshapes interactions between healthcare consumers and providers, transforming traditional roles and expectations within

organizations. The literature highlights how increased digital access empowers patients, fostering proactive engagement in their care decisions (Koebe & Bohnet-Joschko, 2023) and shifting healthcare providers toward roles as collaborative partners in care co-production (Binci et al., 2022). Moreover, patients' evolving demands increasingly pressure healthcare systems to respond strategically through targeted digital initiatives (Naamati-Schneider et al., 2024a), mirroring broader consumer-driven shifts toward digital transformation across various industries (Verhoef et al., 2021). Consequently, future research should explore strategies integrating digital innovations to sustain alignment with consumer expectations. Pursuing these strategic insights ensures healthcare systems remain responsive and effectively aligned with patient-driven demands, establishing a comprehensive approach to managing consumer-led digital transformation initiatives.

Disruptive Digital Technologies

The proliferation of disruptive digital technologies is reshaping the delivery and experience of healthcare services. Albino et al. (2023, p. 229) described the underlying *disruptive digital technologies* microfoundation as "social media, mobile, Big Data, analytics, and Internet of Things" that decrease innovation cycles and simultaneously provide opportunities and threats to organizations. In healthcare, these technologies significantly transform product and service offerings (Adeghe et al., 2024; Campagna & Bhada, 2024; Koebe & Bohnet-Joschko, 2023; Mamdiwar et al., 2021; Mosch et al., 2022). The literature emphasizes improved patient care outcomes from digital innovations such as artificial intelligence (AI), wearable technologies, remote patient

monitoring, and telehealth (Awad et al., 2021; Babar et al., 2024; Vial, 2019). For example, remote patient monitoring technologies demonstrably enhance outcomes, particularly in chronic care settings (Binci et al., 2022). Consequently, healthcare systems must strategically optimize their responsiveness to evolving patient and organizational needs, reinforcing the necessity of advancing patient-centered care through targeted digital innovation strategies.

Building upon the transformative impacts of disruptive digital technologies, scholarly research highlights digital innovation as a catalyst for healthcare systems to achieve increased efficiency, accessibility, and patient-centered care. Specifically, digital innovation is recognized for enhancing operational efficiency and supporting improvements in the quality of patient care (Afridi & Khan, 2024; Garcia-Perez et al., 2023; Shaked, 2021; Vogel et al., 2024). Echoing this perspective, Neumann et al. (2021) noted that the adoption of digital innovation, such as electronic medical records and telemedicine, significantly expands care accessibility beyond traditional brick-and-mortar healthcare facilities. Broadly, digital innovations have positively disrupted healthcare by substantially improving both patient access and care quality (Browder et al., 2024; Campagna & Bhada, 2024; Frick et al., 2021). Thus, strategic foresight and proactive leadership are increasingly vital for effectively managing digital disruptions and fully realizing their potential within healthcare systems.

Addressing the necessity for proactive leadership in harnessing digital innovation, strategic foresight and IT leadership become indispensable for healthcare systems navigating digital disruption complexities. Rawson and Stevens (2023) underscored

organizations' need to anticipate uncertainty proactively, a capability Adama and Okeke (2024) argued is essential for leveraging disruptive technologies that revolutionize the healthcare sector. Similarly, Albannai et al. (2024) emphasized the critical role senior IT leaders play in leveraging DCDT within their organizations, effectively managing the impacts of disruptive digital technologies. Despite the substantial benefits these technologies provide, the literature consistently identifies significant implementation challenges and unintended consequences that healthcare systems must strategically address to ensure sustainable digital transformation.

Considering these leadership imperatives amid digital disruption, scholarly discourse further identifies concerns regarding unintended consequences and persistent gaps in effective technology implementation. Neumann et al. (2021) highlighted skepticism surrounding technology advancements such as AI potentially undermining core physician competencies. Additionally, Najem et al. (2024) emphasized organizational strategic and cultural challenges associated with AI integration, advocating careful planning to avoid misalignments between technological investments and operational objectives. Complementing this view, Laksono and Darmawan (2021) underscored the importance of innovative leadership approaches—such as systems thinking and contextual intelligence—for managing digital transformation disruptions within healthcare. Furthermore, Adeghe et al. (2024) identified a research gap related to the standardization of protocols for integrating AI and IoT into telemedicine platforms across diverse healthcare systems, suggesting further exploration of frameworks to streamline emerging technology integration. Addressing these issues through focused

strategic and empirical research remains essential for achieving responsible, practical digital transformation within healthcare, underscoring the need for continued exploration of these challenges and future research directions.

Rethinking Value Propositions

Rethinking value propositions is crucial for healthcare systems undergoing digital transformation to innovate and meet emerging patient needs. Albino et al. (2023, p. 229) defined the *rethinking value propositions* microfoundation as "the spurring of digital offerings challenging organizations to identify unmet customer needs, create smart products and services, and introduce innovative and tailored customer value propositions." The literature consistently demonstrates that value propositions significantly influence healthcare systems' digital transformation journeys. For instance, Leone et al. (2021) identified substantial value-add potential in technology-driven initiatives, particularly those utilizing AI. Similarly, Awad et al. (2021) and Binci et al. (2022) emphasized contemporary technologies' capabilities to enhance operational efficiency, expand patient access, and foster collaborative caregiver-patient relationships. Complementing these views, Dooley (2021) argued that integrating multiple technologies transforms patient value by improving safety and operational effectiveness. Thus, healthcare leaders must strategically balance digital technology adoption with human-centered care, highlighting the multidimensional impacts of digital transformation across organizational operations.

Considering the critical importance of innovative value propositions, digital transformation influences healthcare systems across multiple dimensions, including labor

efficiency, organizational agility, and business model innovation, all while preserving a commitment to human-centered care. From a labor efficiency perspective, Egan et al. (2021) and W.-L. Huang et al. (2024) argued that digital technology adoption adds value by enabling caregivers to work more efficiently. Extending this view, C.-W. Huang et al. (2023) highlighted broader improvements in care quality, cost-efficiency, and patient experiences resulting from digital transformation. Addressing organizational agility, Garcia-Perez et al. (2023) proposed that digital transformation significantly enhances healthcare's cost-efficiency by instilling greater flexibility and responsiveness through technological advancements. Regarding business model innovation, Adama and Okeke (2024) identified a significant market shift from product-centric models toward service-oriented models emphasizing customer collaboration, such as patient navigation programs leveraging digital technologies across the patient care continuum. However, Morelli et al. (2024) stressed the importance of empowering human-centric care models with technology integration. Given these multifaceted impacts, healthcare incumbents must proactively adapt their operational and business strategies in response to continuous digital disruption and evolving market dynamics.

Building upon the multidimensional impacts of digital transformation, healthcare incumbents must proactively refine strategic approaches to navigate ongoing digital disruptions and dynamic market changes, ensuring sustained competitiveness and relevance. According to Volpentesta et al. (2023), incumbent organizations face increasing disruption from digital-native competitors and must strategically reconfigure routines, structures, and business models to remain competitive amid evolving digital

expectations. For example, the COVID-19 pandemic abruptly shifted the healthcare market, compelling healthcare systems to rapidly transition from traditional brick-and-mortar care to digital delivery methods (Browder et al., 2024). While Campagna and Bhada (2024) argued that digital transformation requires organizations to actively rethink value propositions to maintain relevance in the digital economy, Hameed et al. (2024) cautioned against overly aggressive digital strategies due to concerns regarding transparency, security, and data ownership. Similarly, Snowdon et al. (2024) emphasized the necessity of developing digital maturity within organizations, particularly as these systems continuously redefine business models amid rapid market evolution. Consequently, healthcare systems must strategically adopt balanced digital approaches that foster innovation while preserving patient trust, security, and sustainable growth, effectively responding to external triggers influencing their digital transformation journey.

External Triggers Conclusion

External triggers significantly influence healthcare systems' ability to leverage DCDT effectively. Organizations must strategically respond to competitive pressures, shifting consumer expectations, disruptive digital technologies, and evolving value propositions to maintain adaptability and relevance within dynamic markets (Albino et al., 2023; Hanelt et al., 2021). Successfully navigating these external influences demands proactive IT leadership and strategic foresight, enabling healthcare systems to capitalize on emerging opportunities while effectively managing associated risks and disruptions (Hanelt et al., 2021). Furthermore, redefining patient-centered value propositions,

enhancing operational efficiency, and promoting innovation alongside patient trust represent essential strategies for effectively addressing external market dynamics (Albino et al., 2023). Ultimately, recognizing and strategically responding to these external triggers positions IT leaders to guide healthcare systems through digital transformation initiatives, thus sustaining resilience and ensuring ongoing market competitiveness.

Internal Barriers

Internal barriers represent significant organizational constraints that limit healthcare systems' ability to leverage DCDT effectively. Specifically, these barriers include rigid strategic planning, resistance to change, high-level hierarchies and silos, and inertia resulting from path dependencies. According to Albino et al. (2023), *internal barriers* impede organizations from adapting to and adopting digital technologies amid evolving market conditions. Consequently, understanding these internal barriers provides healthcare IT leaders critical insights into the organizational constraints shaping their strategic choices and influencing their approach to implementing DCDT initiatives.

Rigid Strategic Planning

Rigid strategic planning is a significant internal barrier that limits digital transformation effectiveness in healthcare systems. Albino et al. (2023, p. 230) defined the underlying *Rigid Strategic Planning* microfoundation as "long-term strategic vision, rigid planning, and strategizing policies" that impede continuous innovation. The literature consistently identifies rigid strategic planning as an internal barrier restricting organizations' flexibility to adapt rapidly to dynamic market conditions and to embrace digital innovations, particularly during societal crises (Albino et al., 2023). Consequently,

organizations require specific structures and capabilities, such as agility, to effectively manage digital transformation initiatives and overcome these structural and cultural constraints (de Castilho Junior et al., 2023; Verhoef et al., 2021). Given this challenge, healthcare systems must critically address the structural and cultural factors that hinder innovation and limit organizational adaptability.

Building upon the recognition of rigid strategic planning as a critical internal barrier, structural and cultural constraints further impede organizations' digital transformation efforts by limiting responsiveness and innovation capacity. Other studies underscore how entrenched policies, legacy IT systems, and hierarchical decision-making structures can stifle organizational innovation (Adiazmil et al., 2024; Gupta et al., 2024; Hanelt et al., 2021; Trenerry et al., 2021). For example, Neumann et al. (2021) highlighted how fragmented curricula and rigid regulatory environments delay effective digital readiness within healthcare education. Similarly, Binci et al. (2022) and Servant et al. (2024) discussed how rigid organizational structures and siloed workflows significantly impede effective collaboration necessary for successful digital transformation. Moreover, Snowdon et al. (2024) emphasized that traditional planning structures inherently limit organizational agility. Supporting these insights, Wendt et al. (2022) and Browder et al. (2024) demonstrated how rigid planning processes reduced organizational flexibility and innovation during crises like the COVID-19 pandemic. Thus, healthcare systems must proactively adopt agile and adaptive capabilities to address these structural and cultural barriers, facilitating successful digital transformation initiatives (Al Rahahleh et al., 2023).

Addressing these structural and cultural constraints further, rigid planning structures represent substantial internal obstacles that restrict organizations' ability to innovate and effectively respond to dynamic market demands. Several researchers highlighted how incumbent rigid planning frameworks significantly hinder organizational progress (Akinola & Telukdarie, 2023; Volpentesta et al., 2023). Volpentesta et al. (2023) explained that organizational inertia, path dependency, and core rigidities serve as constraints, limiting organizations' adaptability during periods of rapid change. Additionally, Ullagaddi (2024) stressed the necessity of flexible strategic roadmaps to enable timely investments in innovation. Likewise, Marzouk and Jin (2023) argued that rigid resource allocation approaches restrict healthcare systems' responsiveness to evolving patient needs. Further emphasizing this point, Shaked (2021) identified rigid planning structures as significant sources of organizational bottlenecks, while Azizan et al. (2021) highlighted the critical role of leadership, teamwork, and workflow flexibility in successful digitalization, implying rigidity in these areas negatively impacts innovation and adaptability. Therefore, recognizing and addressing the rigidity in planning structures is vital for organizations aiming to respond effectively to evolving market dynamics. Despite these notable limitations, organizations must also strategically recognize and leverage the protective benefits inherent in rigid planning within highly regulated contexts.

Despite acknowledging the restrictive impact of rigid planning, healthcare leaders must appreciate the essential protective benefits rigid planning offers within highly regulated environments. Garcia-Perez et al. (2023), Hameed et al. (2024), and McGraw

and Mandl (2021) argued that structured planning approaches are critical for mitigating regulatory and ethical risks inherent in less structured, rapid planning methods. Consequently, integrating traditional, structured planning with more agile planning processes is essential for healthcare systems to balance regulatory compliance and market responsiveness effectively. Thus, adopting this balanced planning approach positions healthcare systems strategically, ensuring regulatory adherence while simultaneously fostering innovation and responsiveness critical for successful digital transformation initiatives.

Resistance to Change

Resistance to change constitutes a significant internal barrier obstructing the effective implementation of digital transformation within healthcare systems. Albino et al. (2023, p. 230) defined the underlying *Resistance to Change* microfoundation as "the well-built workforce mental model and the lack of attitude toward changes create resistance." Indeed, resistance to change consistently emerges as a persistent obstacle in digital transformation initiatives (Albino et al., 2023). For instance, Iyanna et al. (2022) noted that this phenomenon is particularly pronounced in healthcare, where deeply ingrained professional norms and identities often intensify user hesitancy. Further reinforcing this perspective, Vial (2019) highlighted employee resistance as a widespread challenge for organizations attempting to implement digital transformation. Additionally, Najem et al. (2024) emphasized that many organizations initiate AI adoption without fully aligning operational strategies, causing challenges in achieving anticipated outcomes and underscoring the need for strategic clarity and cultural readiness. Thus,

comprehending the multifaceted origins of resistance is crucial for healthcare leaders to effectively mitigate barriers impeding digital transformation.

Building upon the complexity of resistance as an internal barrier, scholarly research underscores how resistance to digital transformation in healthcare arises from intricate interactions among cultural, technical, and organizational factors. Studies by Babar et al. (2024), Sarradon-Eck et al. (2021), and Snowdon et al. (2024) indicated differing perspectives on whether cultural inertia or concerns about data privacy, security, and ethical misuse constitute primary impediments to technology adoption. Some scholars argue that robust change management strategies and empowering leadership effectively alter entrenched mindsets and reduce resistance (Brommeyer & Liang, 2022). In contrast, others emphasize persistent issues such as resource deficits, limited digital literacy, and traditional barriers, as exemplified by consumer rejection of mobile payments during the COVID-19 pandemic despite proven benefits (Chrysikou et al., 2023; Talwar et al., 2021). Additionally, Alonge et al. (2024) contended that a prevailing lack of innovation-oriented mindsets and organizational flexibility remains a significant barrier to overcoming resistance and successfully implementing digital transformation. Consequently, effectively addressing resistance necessitates aligning emerging technological demands with established organizational practices and capabilities.

Recognizing these intricate interactions underlying resistance factors, organizations frequently encounter difficulties when integrating emerging technologies into existing organizational structures and cultural frameworks, despite clear advantages. Efforts to leverage innovations such as Big Data, IoT, and co-innovation processes reveal

that organizations must reconcile new technology demands with established competencies (Bresciani et al., 2021). Furthermore, even when technological solutions promise substantial cost savings and risk mitigation, organizational inertia may still impede their timely adoption (Fragao-Marques & Ozben, 2023). Scholarly consensus indicates resistance manifests both overtly and covertly, necessitating comprehensive strategies to address barriers and propel digital transformation initiatives toward sustainable organizational capabilities (Shaked, 2021). Therefore, healthcare leaders must strategically align technological innovations with cultural readiness and proactive planning to ensure successful and sustained digital transformation outcomes.

High-Level Hierarchy and Silos

Hierarchical structures and departmental silos significantly impede digital transformation efforts within healthcare systems. Albino et al. (2023, p. 230) defined the underlying *High-Level Hierarchy and Silos* microfoundation as "the power relationships created by hierarchical structures and the walls designed by silos that reduce the emerging of a collaborative context." Indeed, such hierarchical structures and departmental silos remain prevalent internal barriers in healthcare, constraining adaptability, limiting collaborative opportunities, and hindering comprehensive digital transformation initiatives (Albino et al., 2023). Complementing this view, Iyanna et al. (2022) identified task-related, infrastructural, and tradition-related challenges as additional critical barriers. Moreover, studies by Dullabh et al. (2022) and Awad et al. (2021) demonstrated that fragmented departmental silos frequently obstruct the integration of patient-centric data and impede the implementation of advanced digital

innovations. Cannavacciuolo et al. (2023) further highlighted the essential role of effective organizational change management and proactive collaboration across departmental boundaries. Thus, healthcare systems must strategically balance hierarchical oversight with cross-functional collaboration to resolve inherent tensions that arise during digital transformation initiatives.

Considering these hierarchical and silo-related challenges, balancing hierarchical control with effective cross-functional collaboration emerges as an essential yet complex undertaking for organizations pursuing digital transformation. Researchers emphasize the inherent tension between the necessity of top-down governance and the imperative for horizontal collaboration (Snowdon et al., 2024; Volpentesta et al., 2023). For instance, Volpentesta et al. (2023) examined this tension through a paradox lens, arguing that successful digital transformation requires navigating the contradictions between centralized control and decentralized collaboration to maintain organizational agility and achieve integrated outcomes. Similarly, Afridi and Khan (2024) asserted that flattening organizational hierarchies could enhance responsiveness and flexibility, while Hameed et al. (2024) cautioned that deeply entrenched hierarchical structures significantly hinder cohesive innovation. Additionally, studies by Bevere and Faccilongo (2024) and Chrysikou et al. (2023) indicated that siloed workflows specifically delay essential digital health initiatives such as telehealth, remote patient monitoring, and IoT deployments. Therefore, effectively addressing these structural barriers through improved coordination, stakeholder engagement, and alignment with regulatory requirements is critical to fostering successful digital innovation in healthcare.

Building upon the structural impediments related to balancing hierarchical control and collaboration, inadequate coordination, interoperability challenges, regulatory complexities, and rigid hierarchical frameworks collectively obstruct digital transformation within healthcare systems. Although some hospital systems strategically adopt centralized IT governance models to enhance digital maturity (Vogel et al., 2024), significant barriers persist, including interoperability limitations and regulatory complexity, which substantially influence the speed and effectiveness of digital transformation efforts (Fabiano et al., 2021). Further highlighting these challenges, Ullagaddi (2024) noted that legacy system integration issues, insufficient data standardization, and internal organizational resistance substantially complicate regulatory compliance and hinder digital maturity. Additionally, Dullabh et al. (2022) underscored the critical necessity of improved stakeholder coordination, robust patient-provider alignment, and proactive stakeholder engagement to address structural barriers effectively and facilitate digital innovation. Consequently, fostering integrated, cross-functional collaboration and agile leadership emerges as indispensable strategies for successfully navigating digital transformation challenges within healthcare systems.

The Inertia Created by Path Dependencies

Path dependencies and organizational inertia significantly hinder healthcare systems' ability to innovate and adopt digital transformation effectively. Albino et al. (2023, p. 230) defined the underlying *Inertia Created by Path Dependencies* microfoundation as "the success obtained in the past leads organizations to maintain existing ties with customers and suppliers and follow highly optimized but often rigid,

well-established production processes." Further, Albino et al. (2023) explained that path dependencies arise from reinforced repetitive routines, once successful, now barriers to adapting to current market dynamics. Reinforcing this viewpoint, Ghonim et al. (2024) emphasized organizational flexibility and overcoming inertia as essential for successful digital transformation. Similarly, Vial (2019) identified organizational inertia, stemming from entrenched processes and legacy systems, as a significant barrier to transformation. Given these insights, healthcare systems must strategically address historical dependencies to embrace new technologies and foster greater digital agility.

Considering these historical dependencies, healthcare systems frequently encounter substantial barriers to digital transformation due to entrenched reliance on traditional practices. Browder et al. (2024) illustrated how past successes with non-digital methods delayed essential crisis-driven digital shifts during the COVID-19 pandemic. Likewise, Binci et al. (2022) highlighted inertia from conventional healthcare practices, such as reliance on face-to-face consultations, as hindering the adoption of remote patient monitoring technologies. Additionally, Marzouk and Jin (2023) argued that healthcare systems often struggle to integrate new digital technologies due to organizational resistance and knowledge gaps. Moreover, Al Rahahleh et al. (2023) suggested that entrenched organizational structures impede the creation of collaborative, digitally capable environments. Therefore, healthcare leaders must actively address cultural and regulatory inertia to facilitate sustainable innovation effectively.

Building upon the challenges posed by historical practices, cultural norms and regulatory rigidities represent substantial barriers to innovation and digital transformation

within healthcare systems. From cultural and regulatory perspectives, path dependencies hinder innovation across the public sector (Lindroth et al., 2022), within contemporary medical curricula (Neumann et al., 2021), and affect staff morale (Naamati-Schneider et al., 2024a). Furthermore, entrenched organizational routines significantly impede the adoption of disruptive innovations (Hameed et al., 2024) and the deployment of contemporary digital infrastructures (Snowdon et al., 2024). Thus, cultural resistance often obstructs digital innovations that could disrupt existing practices. Given these complex cultural and regulatory challenges, healthcare systems must employ transformative leadership and strategic change management strategies to overcome inertia and broadly promote innovation.

Expanding beyond healthcare-specific challenges, organizational inertia consistently appears as a widespread impediment to digital innovation across various industries. Shaked (2021) demonstrated that resistance to change driven by organizational inertia is prevalent beyond any single industry context. For example, Servant et al. (2024) observed that deeply ingrained traditional processes create systemic slowdowns that impede digital innovation adoption across industries. Acknowledging the widespread impact of inertia, adopting strategies such as transformational leadership and incremental adaptation becomes essential for overcoming barriers and achieving sustained organizational change.

Addressing this cross-industry phenomenon, overcoming inertia demands transformational leadership, strategic change management, and human-centered approaches. Philip (2021) advocated transformational leadership as essential for

effectively challenging deeply rooted organizational practices. Persson and Rydenfalt (2021) promoted a digital ergonomics approach emphasizing user well-being, efficiency, and improved system performance within technology-driven environments. Similarly, Levasluoto et al. (2021) underscored digitalization and health economic modeling as essential for enabling sustainable transitions within healthcare, reinforcing the broader significance of transformational strategies. However, Wendt et al. (2022) cautioned against entirely discarding traditional systems, recommending instead a thoughtfully incremental approach to change. Given leadership's critical role in overcoming inertia, intentional practices focused on dismantling entrenched habits are necessary to cultivate an organizational culture receptive to continuous innovation.

Building upon transformational leadership's essential role, internal organizational inertia consistently emerges as a significant barrier to achieving digital transformation. Ullagaddi (2024) highlighted organizational inertia rooted in traditional practices as a critical internal barrier impeding digital innovations and resultant transformations. Consequently, healthcare systems require effective IT leadership strategies to proactively address internal inertia and foster sustainable digital transformation initiatives.

Internal Barriers Conclusion

Internal barriers significantly impede healthcare systems' capacity to leverage DCDT effectively. Organizations must proactively address rigid strategic planning, resistance to change, hierarchical silos, and organizational inertia to enhance flexibility, responsiveness, and innovation (Albino et al., 2023). Successfully overcoming these internal obstacles necessitates agile strategies that balance structured planning with

adaptability, alongside proactive change management approaches designed to foster cultural openness and mitigate resistance (Albino et al., 2023; Philip, 2021). Additionally, organizations must dismantle hierarchical silos by promoting collaborative, cross-functional structures that facilitate the effective integration of digital technologies (Albino et al., 2023; Philip, 2021). Addressing inertia created by path dependencies requires transformational leadership, incremental systemic adaptations, and human-centered strategies to sustainably embed digital transformation into organizational practices (Albino et al., 2023; Hanelt et al., 2021; Philip, 2021). Ultimately, recognizing and strategically mitigating these internal constraints enables healthcare IT leaders to navigate digital transformation challenges, fostering enduring organizational resilience and sustained competitive advantage.

Internal Enablers

Internal enablers constitute the second category of internal factors that facilitate healthcare systems' ability to leverage DCDT. This section examines key internal enablers, including cross-functional teams, fast decision-making, executive support, IT capability, and data governance. According to Albino et al. (2023), *Internal Enablers* significantly enhance an organization's capacity to adapt and adopt digital technologies effectively in response to evolving market conditions. Consequently, understanding these enabling factors provides healthcare IT leaders with valuable insights into the organizational strengths that can strategically inform and support their successful implementation of DCDT initiatives.

Cross-Functional Teams

Cross-functional teams represent essential internal enablers that foster innovation and enhance agility during digital transformation initiatives within healthcare systems. Albino et al. (2023, p. 231) defined the underlying *Cross-Functional Teams* microfoundation as "a group of people with different functional capabilities working for a common iterative goal." These teams are central to digital transformation, effectively uniting professionals from diverse backgrounds to pursue shared objectives (Albino et al., 2023). Similarly, Verhoef et al. (2021) emphasized that agile organizational structures and flexible operational forms are critical for supporting innovation during digital transformation. However, despite these benefits, Al Rahahleh et al. (2023) and Neumann et al. (2021) cautioned that breaking down traditional silos could introduce new challenges, such as role confusion or inefficient resource allocation, particularly if oversight and governance are insufficient. Consequently, healthcare leaders must proactively address cultural and structural barriers to sustain effective collaboration and fully leverage cross-functional teams during digital transformation efforts.

Recognizing these complexities, effective cross-functional collaboration in healthcare aligns clinical and technological expertise but inherently faces cultural and structural challenges. Although collaboration between clinical experts and technical teams can substantially improve patient outcomes by integrating clinical insights with IT-driven solutions, differences in organizational culture and hierarchical structures frequently impede sustained progress (Afridi & Khan, 2024; Snowdon et al., 2024). For instance, Binci et al. (2022) demonstrated that effective clinician-technology

collaboration significantly enhances outcomes in remote monitoring initiatives but can be undermined by persistent cultural and structural misalignments. Moreover, while cross-functional healthcare collaboration consistently fosters improved patient care and technology adoption, friction caused by differing team cultures and operational norms highlights the need for strong leadership and a unified vision to bridge gaps and ensure goal alignment (Browder et al., 2024; Lindroth et al., 2022; Wendt et al., 2022). Thus, healthcare systems must strategically balance team autonomy with clear accountability measures to optimize collaborative performance and maximize digital transformation outcomes.

Building upon the identified challenges of cross-functional collaboration, effectively managing healthcare cross-functional teams requires balancing creative autonomy with disciplined operational accountability. Verhoef et al. (2021) highlighted the organizational tension between fostering agility and maintaining disciplined strategic alignment, underscoring the necessity of further inquiry into frameworks that maintain innovation without sacrificing accountability during digital transformation processes. Consequently, exploring agile governance frameworks becomes crucial for strategically enhancing the alignment and effectiveness of cross-functional collaboration during healthcare digital transformation initiatives.

Fast Decision-Making

Fast decision-making significantly enhances healthcare systems' ability to respond effectively within dynamic operational environments. Albino et al. (2023, p. 231) defined the underlying *Fast Decision-Making* microfoundation as "competing in an

unpredictable context demands a fast, traceable, visible, and flexible decision-making approach." Reinforcing this viewpoint, Browder et al. (2024) and Ullagaddi (2024) emphasized the critical role of data-driven methodologies and rapid feedback loops in enabling organizations to swiftly adjust strategies in response to dynamic market conditions, thereby mitigating associated business risks. Afridi and Khan (2024) similarly highlighted how organizations leveraging real-time data enhance their decision-making speed, directly translating into operational efficiencies and improved patient outcomes. Supporting these findings, Binci et al. (2022) observed that real-time clinical data from remote monitoring initiatives facilitated quicker clinical decisions, improved operational efficiency, and enhanced patient care outcomes. Consequently, healthcare systems recognizing the strategic value of fast decision-making must also proactively adopt agile methodologies and supportive organizational frameworks to facilitate timely and effective responses.

Building upon the critical role of fast decision-making, implementing agile methodologies alongside supportive organizational factors further strengthens decision-making capabilities in healthcare systems undergoing digital transformation. For instance, Snowdon et al. (2024) noted that digitally mature hospitals are particularly well-equipped to support performance monitoring and leadership-driven decisions, significantly improving responsiveness within dynamic care environments. Furthermore, sustained rapid decision-making in digital contexts relies heavily on cultural, technical, and leadership factors, emphasizing the need for robust support systems (Hameed et al., 2024; Servant et al., 2024). Despite these advantages, healthcare systems must

strategically balance rapid decision-making capabilities with comprehensive risk management to prevent unintended adverse outcomes.

Considering the strategic advantages associated with agile decision-making, healthcare systems must manage the accompanying risks carefully to avoid exacerbating existing organizational vulnerabilities. Albino et al. (2023) cautioned that excessively rapid decision-making, if unsupported by robust leadership structures and adequate cultural readiness, may amplify existing organizational constraints. For example, McGraw and Mandl (2021) highlighted potential issues arising from insufficient structural guidance, including resource strains and regulatory compliance difficulties. Therefore, ensuring strategic alignment between decision-making speed and organizational stability is crucial for sustainable digital transformation efforts, underscoring the critical role of executive support in effectively guiding these dynamics.

Executive Support

Executive support is a critical internal enabler significantly influencing the effectiveness of digital transformation initiatives within healthcare systems. Albino et al. (2023, p. 231) defined the underlying *Executive Support* microfoundation as "a clear understanding and alignment in the senior executive team that spreads company-wide commitment, intensifies the policy strength, and generates the social capital that supports the digital transformation journey." This alignment creates social capital among employees, cultivating organization-wide dedication toward achieving targeted outcomes through digital transformation (Albino et al., 2023). Reinforcing this point, Al Rahahleh et al. (2023) suggested that leadership behaviors such as role modeling collaboration and

fostering mutual respect are crucial for overcoming internal barriers and supporting digital transformation efforts. Similarly, Browder et al. (2024) and Wendt et al. (2022) emphasized that executives who demonstrate strong leadership commitment can significantly enhance innovation and organizational resilience, particularly in times of crisis, by facilitating rapid digital technology adoption. Laksono and Darmawan (2021) further highlighted the importance of strategic leadership in disruptive environments, whereas Awad et al. (2021), Binci et al. (2022), and Dullabh et al. (2022) noted that successful digital transformation relies substantially on leadership-driven organizational commitment and structured resource investment. Given executive support's critical role, further exploration is necessary to clarify how leadership specifically drives innovation, ensures strategic alignment, and facilitates comprehensive digital transformation.

Building upon the pivotal role of executive support, effective leadership guides digital innovation by establishing a clear strategic vision, ensuring comprehensive transformation across organizations. Cresswell et al. (2022) emphasized the importance of a well-defined strategic vision as essential for achieving effective digital transformation within healthcare systems. Moreover, organizational commitment and targeted resource investment are necessary for successfully integrating innovations, ranging from remote patient monitoring (Binci et al., 2022) to patient-centered care models derived from digital health strategies (Dullabh et al., 2022; Stoumpos et al., 2023). Furthermore, horizon scanning and scenario planning require consistent leadership engagement to identify emerging opportunities and strategically manage uncertainties (Rawson & Stevens, 2023). Najem et al. (2024) similarly underscored the critical role of

active board participation in effectively overseeing digital transformation initiatives. Collectively, these findings indicate that leaders must proactively engage in strategic foresight, resource mobilization, and change management to sustain digital transformation outcomes. However, despite widespread agreement on leadership's importance, identifying the specific leadership competencies essential for sustaining long-term digital transformation success remains a vital area requiring further investigation.

Given the necessity for clearer identification of essential leadership competencies, further research is crucial to define precisely how leaders can optimally fulfill their roles in facilitating digital transformation. Najem et al. (2024) highlighted the significance of board-level involvement, suggesting additional studies are necessary to determine specific competencies needed for effective oversight of technology initiatives. Consequently, beyond exploring leadership competencies, examining broader capabilities—such as robust IT infrastructure—is critical for underpinning and successfully executing digital transformation initiatives within healthcare systems.

IT Capability

Robust IT capability is essential for healthcare systems to modernize legacy infrastructures and effectively integrate emerging technologies during digital transformation initiatives. Albino et al. (2023, p. 231) defined the underlying *IT Capability* microfoundation as an organization's ability "to integrate new resources into an organization's fragmented legacy Information Systems," emphasizing that "an organization's IT application portfolio, its IT systems, and its general IS infrastructure

require the IT resources adaptability to remodel businesses." Consistent with this perspective, literature underscores the critical importance of robust infrastructures and interoperable systems for successful digital transformation (Albino et al., 2023; Awad et al., 2021; Wendt et al., 2022). For example, Browder et al. (2024) emphasized IT capabilities, including cloud computing and advanced analytics, as vital for enhancing organizational resilience. Furthermore, digital platforms that streamline clinical workflows and foster cross-functional collaboration require careful attention to data privacy concerns (Al Rahahleh et al., 2023; Babar et al., 2024; Bevere & Faccilongo, 2024; Binci et al., 2022; McGraw & Mandl, 2021). Recognizing IT capability's pivotal role, healthcare systems must strategically align their technological resources and infrastructure to ensure comprehensive digital resilience.

Building upon the critical role of IT capability, achieving effective digital transformation in healthcare necessitates strategic alignment across key domains, including cybersecurity, governance, interoperability, and leadership readiness. Specifically, Akinwale and AboAlsamh (2023) identified innovation capability as a key performance enabler for organizations navigating digital transformation. Similarly, Garcia-Perez et al. (2023) emphasized the necessity for organizations to thoroughly understand cybersecurity threats to establish robust digital resilience. To address governance-related challenges, Snowdon et al. (2024) and Lindroth et al. (2022) advocated implementing comprehensive governance frameworks and strategic oversight structures. Lindroth et al. further highlighted that effective IT governance is essential to balance digital portfolios and align resource allocation with organizational objectives.

Additionally, Naamati-Schneider et al. (2024a) underscored the benefits of cloud-based and AI-driven solutions for operational efficiency, while Koebe and Bohnet-Joschko (2023) reinforced the critical role of interoperability for efficient data exchange. Recognizing these strategic necessities, Dullabh et al. (2022) called for expanded research into digital technologies delivering evidence-based information to support clinical decision-making. Consequently, aligning these IT capabilities strategically prepares healthcare systems to implement robust data governance frameworks, further sustaining their digital transformation efforts.

Data Governance

Effective data governance ensures secure, ethical, and strategically aligned data utilization during digital transformation initiatives. Albino et al. (2023, p. 231) defined the underlying *Data Governance* microfoundation as overseeing the exponential growth of data from "social media, digital transactions, embedded sensors," and "mobile devices," enabling recommender systems or predictive analytics for data-driven decision-making while managing ethics such as data ownership and privacy rights. Supporting this perspective, Gimpel et al. (2021) emphasized that structured governance is critical for guiding digital transformation efforts within organizations. Given the strategic importance of data governance, healthcare systems must establish frameworks that effectively balance ethical integrity with agile innovation to strategically leverage data during digital transformation processes.

Building upon the strategic role of data governance, well-balanced governance structures empower healthcare systems to ethically leverage data across diverse

technological and institutional landscapes. Albino et al. (2023) highlighted that the proliferation of data through technologies such as social media, IoT, and mobile platforms necessitates a governance approach that combines rigor with flexibility to maintain data integrity, particularly when used in predictive analytics for patient care. Similarly, Najem et al. (2024) argued that leveraging technology-enabled data requires governance frameworks that ensure ethical practices, reinforced by those emphasizing the importance of robust privacy and security considerations within IT governance processes. Consequently, healthcare systems must thoughtfully implement governance models that harmonize innovation capabilities with stringent data protection measures to ensure responsible data use.

Considering the necessity of balancing innovation and data protection, data governance can serve as both an enabler and barrier to digital transformation in healthcare, contingent on its structural flexibility and practical implementation. While Binci et al. (2022) stressed the importance of structural flexibility to foster digital health adoption, Neumann et al. (2021) cautioned that overly stringent data protection regulations could delay timely implementation of critical digital capabilities. Furthermore, researchers such as Hameed et al. (2024), Snowdon et al. (2024), and Servant et al. (2024) noted the inherent complexity in healthcare data governance, identifying its potential dual role as both facilitator and limiter of organizational innovation. For example, Babar et al. (2024) illustrated that federated learning models relying on decentralized data analysis require agile governance structures to succeed. Therefore, healthcare systems must balance rigorous governance with the agility

necessary for effective collaborative data sharing, ultimately supporting digital transformation efforts.

In response to data governance's dual roles, agile data governance frameworks have become essential for aligning legal, ethical, and strategic objectives within evolving digital transformation contexts. While Ullagaddi (2024) identified IT governance—and Vogel et al. (2024) emphasized centralized IT strategy—as critical to achieving improved digital maturity, Neumann et al. (2021) pointed out knowledge gaps regarding optimal alignment among legal compliance, societal trust, and innovation goals, revealing opportunities for further research into agile governance models. Additionally, Verhoef et al. (2021) highlighted the need for clearer understanding of how organizations might effectively balance agility with operational control, echoing Shaked's (2021) concerns that rigid governance structures could hinder adaptability to rapidly evolving market conditions. Therefore, literature strongly suggests that healthcare systems integrate adaptive, flexible data governance structures into their digital transformation strategies, enabling continuous compliance, agility, and responsiveness to technological advancements, thereby effectively positioning them for sustained digital maturity.

Internal Enablers Conclusion

Internal enablers significantly empower healthcare systems' capacity to leverage DCDT effectively. Organizations must proactively cultivate cross-functional teams, fast decision-making processes, executive support, robust IT capabilities, and agile data governance structures to enhance innovation, responsiveness, and adaptability (Albino et al., 2023; Najem et al., 2024). Successfully harnessing these internal enablers requires

clearly defined governance frameworks, agile methodologies, and strong executive commitment, ensuring alignment between digital strategies, organizational goals, and patient-centered outcomes (Albino et al., 2023; Ullagaddi, 2024). Additionally, strategically balancing robust IT infrastructures and flexible data governance frameworks promotes sustainable integration of emerging technologies while maintaining regulatory compliance (Albino et al., 2023; Ullagaddi, 2024). Ultimately, recognizing and actively utilizing these internal enablers allows IT leaders to effectively guide healthcare systems through digital transformation initiatives, thereby fostering organizational agility and ensuring sustained transformational success.

Dynamic Capabilities

This section examines dynamic capabilities, specifically focusing on the microfoundations of digital sensing, digital seizing, and digital transformation. Albino et al. (2023) defined *Dynamic Capabilities* as enhancing an organization's ability to sense emerging digital technology trends, seize identified opportunities, and transform organizational processes and structures in response to market dynamics. However, technology alone does not guarantee successful organizational transformation (Naamati-Schneider et al., 2024b). Additionally, dynamic capabilities involve organizational processes that facilitate understanding of the business environment and recognition of emerging digital opportunities (Pundziene et al., 2022). These capabilities are further strengthened by internal dissonant ties—interpersonal employee relationships characterized by conflicting or challenging interactions—which stimulate diverse perspectives and thus enhance innovative potential (Xiao et al., 2023). Consequently,

understanding dynamic capabilities and their underlying microfoundations provides healthcare IT leaders valuable insights into how dynamic capabilities drive strategic renewal and desired expected outcomes, while internal barriers and internal enablers directly shape organizational readiness to effectively leverage the sequential microfoundations of digital sensing, digital seizing, and digital transformation.

Digital Sensing

Digital sensing is the first dynamic capabilities microfoundation. This section examines its key components and essential capabilities: digital scouting, digital scenario planning, and digital mindset crafting. According to Albino et al. (2023), the dynamic capability, *Digital Sensing,* enables organizations to proactively identify and leverage sector dynamics, effectively responding to emerging opportunities. Digital sensing relies heavily on structured organizational processes designed to enhance environmental awareness and facilitate the early detection of digital trends and innovations (Pundziene et al., 2022). However, barriers such as internal silos and weak collaborative cultures frequently hinder effective knowledge sharing, thereby undermining digital sensing capabilities (Al Rahahleh et al., 2023). Consequently, healthcare IT leaders must strategically address these internal challenges to maximize the benefits of digital sensing, enabling informed strategic decisions and improved organizational performance. As the foundational microfoundation in the DCDT process, digital sensing prepares IT leaders to strategically leverage subsequent digital seizing capabilities, setting the stage for sustained digital transformation initiatives.

Digital Scouting. Digital scouting enables organizations to monitor external technological signals and customer trends, directly informing strategic internal decision-making. Albino et al. (2023, p. 232) defined the underlying *Digital Scouting* microfoundation as "scanning for technological trends, screening digital competitors, reaching and engaging customers and online communities, and sensing customer journey pain points [which] help organizations identify outside relevant information for internal teams." Supporting this perspective, Najem et al. (2024) emphasized that digital scouting is crucial for anticipating market competition shifts, allowing organizations to adapt their products and services proactively to evolving market demands. Consequently, healthcare systems that effectively leverage digital scouting can achieve greater agility in responding to external market changes.

Building upon the agility afforded by digital scouting, organizations use these capabilities to identify and integrate emerging technologies that enhance their products, services, and cybersecurity postures. For instance, Hameed et al. (2024) underscored the importance of continually monitoring technological advancements to determine their potential applicability in healthcare. Similarly, Binci et al. (2022) demonstrated that technologies like remote monitoring and IoT significantly improve patient care through enhanced vital signs monitoring and chronic disease management. Additionally, Garcia-Perez et al. (2023) emphasized how adopting advanced cybersecurity technologies can strengthen healthcare systems' proactive and reactive threat mitigation strategies. Given these benefits, continuous digital scouting is essential for healthcare systems aiming to remain innovative, secure, and responsive within the rapidly evolving digital landscape.

Recognizing this need for continuous monitoring, organizations can further enhance responsiveness and competitiveness by employing multifaceted digital scouting strategies. McGraw and Mandl (2021) advocated for a multidimensional approach, while Joel et al. (2024) illustrated how leveraging data analytics and customer feedback allows startups to effectively tailor their offerings to consumer preferences. Additionally, Wendt et al. (2022) noted that small and medium-sized enterprises could leverage digital tools to monitor market shifts and maintain strong client relationships. Thus, adopting comprehensive, data-driven digital scouting approaches equips healthcare systems with the essential foresight and agility needed to successfully navigate dynamic environments and capitalize on emerging market opportunities.

Given the importance of foresight and agility, organizations must prioritize developing robust digital scouting capabilities to effectively navigate rapid technological and market changes. Shaked (2021) highlighted the critical role of digital scouting capabilities, while Verhoef et al. (2021) reinforced the broader significance of digital agility for sensing and responding promptly to new market opportunities. Similarly, Warner and Wager (2019) explicitly linked digital scouting capabilities to achieving strategic renewal and expected outcomes. Therefore, embedding digital scouting into strategic processes is essential for healthcare systems seeking sustained adaptability and long-term competitiveness within an evolving landscape.

Digital Scenario Planning. Digital scenario planning enables organizations to anticipate and strategically prepare for future digital developments by integrating data-driven insights with strategic foresight. Albino et al. (2023, p. 232) defined the

underlying *Digital Scenario Planning* microfoundation as "interpreting future digital scenarios and formulating digital strategies based on internal and external data," highlighting actions organizations take to evaluate potential future opportunities proactively. Consistent with this definition, Albino et al. (2023) emphasized that integrating comprehensive internal and external data sources positions organizations to identify and strategically pursue future opportunities. Supporting this viewpoint, Koebe and Bohnet-Joschko (2023) argued that scenario planning equips healthcare institutions to effectively anticipate and adapt to forthcoming changes, while Nielsen et al. (2024) demonstrated how public-sector managers leverage narrative management and communication strategies to facilitate digital transformation efforts. Consequently, healthcare systems must develop robust digital scenario-planning capabilities to foster sustained adaptability, innovation, and competitiveness in complex digital environments.

Recognizing the strategic value of digital scenario planning, organizations leverage this capability to anticipate uncertainty more effectively, strategically allocate resources, and enhance their adaptability within dynamic environments. Lindroth et al. (2022) highlighted the importance of balancing resource allocation to manage current operational efficiency while also proactively anticipating future organizational needs. Additionally, Shafizadeh (2024) illustrated that enhancing organizational capacity to anticipate and adapt to uncertain conditions significantly strengthens overall adaptability. Given these insights, healthcare systems that effectively employ scenario planning reinforce their strategic foresight and capability to navigate emerging challenges successfully.

Although scenario planning is critical for managing uncertainty, its effectiveness is contingent upon alignment with emerging digital technologies. For instance, Vallatos et al. (2021) demonstrated how adaptive manufacturing and distributed collaboration allowed organizations to meet emergent demands during the COVID-19 pandemic despite supply chain disruptions. Conversely, Hameed et al. (2024) argued that scenario planning outcomes might be constrained if organizations fail to align their processes adequately with evolving technological developments. Thus, healthcare systems must actively incorporate technological awareness into their scenario-planning processes, maximizing their adaptability to rapidly changing digital contexts.

By aligning scenario planning closely with technological advancements, organizations can leverage predictive tools to improve clinical decision-making and patient outcomes. For example, Binci et al. (2022) described how advanced predictive technologies enable caregivers to anticipate patient health deterioration and proactively modify treatment strategies. Nevertheless, Naamati-Schneider et al. (2024a) cautioned that implementing predictive capabilities could provoke ethical concerns among healthcare professionals, creating potential moral conflicts in patient care decisions. To mitigate such ethical issues, Naamati-Schneider et al. (2024a) recommended integrating ethical leadership principles into scenario-planning activities to manage predictive clinical challenges responsibly. Therefore, healthcare systems should strategically combine technological foresight with robust ethical governance frameworks to ensure responsible management of predictive healthcare technologies.

Beyond enhancing clinical decisions, effective scenario planning also strengthens organizational agility during crises and supports system-wide sensemaking. Rawson and Stevens (2023) emphasized scenario planning's crucial role in helping organizations anticipate uncertainties and strategically adapt to disruptive events proactively. Additionally, Gjellebaek et al. (2020) suggested further exploring middle management's contributions to scenario-planning strategies, asserting that their involvement could significantly enhance collective understanding and directional clarity throughout the organization. Consequently, future research should examine how broader organizational participation in scenario planning might strengthen preparedness and resilience across healthcare systems.

Digital Mindset Crafting. Digital mindset crafting is a strategic capability enabling organizations to adopt and sustain digital transformation initiatives. Albino et al. (2023, p. 232) defined the underlying *Digital Mindset Crafting* microfoundation as "establishing a long-term digital vision, allowing an entrepreneurial mindset, advocating a digital mindset, arranging a visionary/innovative skill team to define the right digital strategy," emphasizing capabilities that empower internal resources to explore and innovate using emerging technologies. Cultivating a digital mindset fosters an organizational culture that actively embraces innovation and prioritizes digital-first thinking. Supporting this perspective, Albino et al. (2023) and Thanislas (2024) emphasized the significance of transitioning toward digital-first business models, particularly to address younger generations' expectations around virtual care. Similarly, Akinwale and AboAlsamh (2023) highlighted that developing innovation capabilities

among healthcare staff significantly enhances organizational performance, while Nadkarni and Prugl (2020) argued that senior leaders must adopt digital mindsets to navigate complexity and effectively leverage emerging technologies. Therefore, healthcare systems must strategically emphasize workforce development to embed digital skills comprehensively across the entire organization.

Recognizing the critical importance of digital mindset crafting, developing a digitally adept workforce becomes essential for embedding digital capabilities effectively within healthcare systems. Binci et al. (2022) stressed that continuous training of staff in digital technologies ensures workforce readiness and resilience for digital adoption. Reinforcing this view, Brommeyer and Liang (2022) advocated for competency-based models that empower employees to make informed decisions within digital ecosystems. Additionally, Solberg et al. (2020) highlighted the significant influence of employee belief systems on engagement with digital initiatives, underscoring the importance of aligning organizational culture with digital transformation goals. Moreover, Volpentesta et al. (2023) and Hameed et al. (2024) emphasized leadership's pivotal role in actively cultivating a digital-first orientation, essential for shifting organizational norms and maintaining transformation momentum. Specifically, Volpentesta et al. (2023) argued that leadership must adopt and reinforce digital mindsets to overcome entrenched organizational logic and effectively guide complex DTs. Consequently, fostering workforce digital readiness sets the stage for embedding a culture of experimentation, essential for ongoing adaptability and innovation within healthcare systems.

Building upon workforce digital readiness, establishing a culture of experimentation further enhances organizational adaptability and innovation in healthcare settings. Vallatos et al. (2021) underscored the strategic value of organizational experimentation, such as rapid prototyping, as crucial for responsiveness to digital changes. Similarly, Shaked (2021) argued that organizations proactively engaging in digital experimentation encounter fewer barriers during digital transformation. Therefore, healthcare systems that consistently cultivate digital mindsets and embrace experimental methodologies significantly enhance their ability to sustain innovation and adapt effectively within dynamic environments.

Digital Seizing

Digital seizing is the second dynamic capabilities microfoundation. This section examines its essential components, including strategic agility, rapid prototyping, and balancing digital portfolios. According to Albino et al. (2023), the dynamic capability, *Digital Seizing*, enables organizations to transform identified technological opportunities into actionable innovations effectively. Successful digital seizing depends significantly on strategic agility, empowering organizations to adapt quickly and navigate implementation barriers (Al Rahahleh et al., 2023). Additionally, rapid prototyping facilitates rapid customization of products and services, enabling organizations to respond swiftly to evolving consumer demands (Awad et al., 2021). Consequently, understanding digital seizing and its associated capabilities provides critical insights for healthcare IT leaders, enabling informed strategic decisions that enhance dynamic capabilities and overall organizational performance. Building upon insights from digital

sensing, digital seizing strategically equips IT leaders to prepare effectively for the final sequential step—digital transformation.

Strategic Agility. Strategic agility is essential for organizations to quickly adapt to emerging opportunities in dynamic market conditions. Albino et al. (2023, p. 233) defined the underlying *Strategic Agility* microfoundation as "pacing strategic responses, rapidly reallocating resources, and accepting redirection and changes." Emphasizing its importance, Warner and Wager (2019) identified strategic agility as a fundamental component of digital seizing capabilities, directly linking it to maintaining competitiveness through digital innovation adoption. For instance, Wendt et al. (2022) and Browder et al. (2024) demonstrated how healthcare institutions maintained uninterrupted operations during the COVID-19 crisis by swiftly reallocating resources and streamlining processes. Similarly, Binci et al. (2022) observed organizations effectively reorganizing workflows and reallocating resources to support remote monitoring technologies. Afridi and Khan (2024) and Akinola and Telukdarie (2023) further supported this by highlighting advanced technologies like AI and IoT as critical enablers for rapid adaptation of patient care models and resource optimization. Moreover, Li and Carayon (2021) emphasized that integrating advanced digital technologies into interconnected healthcare systems is crucial for achieving effective coordination and improved care delivery across the healthcare ecosystem. Consequently, strategic agility requires continuous alignment and integration of organizational strategies to enhance overall digital transformation effectiveness.

Recognizing the critical role of strategic agility, healthcare systems must prioritize continuous organizational alignment and strategic integration to maximize digital transformation effectiveness. Brommeyer and Liang (2022) advocated integrating digital health policies directly into core organizational objectives, whereas Frick et al. (2021) emphasized aligning stakeholder mindsets to enable successful digital transformation outcomes. Further supporting these insights, C.-W. Huang et al. (2023) demonstrated that comprehensive process transformation and continual improvements in user interaction significantly enhance operational efficiency and responsiveness to emerging challenges. Additionally, W.-L. Huang et al. (2024) highlighted operational efficiency gains through Lean Six Sigma methodologies and Robotic Process Automation. Adama and Okeke (2024) and Volpentesta et al. (2023) underscored the necessity of adapting organizational practices to leverage new capabilities fully, effectively responding to evolving market dynamics and disruptive technologies. Specifically, Volpentesta et al. (2023) argued that incumbent organizations must overcome structural inertia, reconfigure routines, and strategically respond to digital disruption. Complementing these findings, Prashar (2024) identified structural, regulatory, and resource-based enablers of agility as vital for healthcare systems to respond effectively within dynamic environments. Lastly, Unterhofer et al. (2022) stressed the systematic implementation of agile methodologies and operational improvements via structured digital strategies, significantly enhancing hospitals' overall efficiency and responsiveness. Thus, maintaining strategic alignment across technological

capabilities, cultural readiness, and operational processes becomes imperative for sustaining long-term digital transformation success in healthcare systems.

Rapid Prototyping. Rapid prototyping is a key capability within digital seizing, enabling organizations to swiftly develop and refine digital innovations. Albino et al. (2023, p. 233) defined the underlying *Rapid Prototyping* microfoundation as "creating minimum viable products by using approaches such as digital product management, process flexibility, lean startup, design thinking, continuous deployment, and integrated development," along with digital innovation labs, as essential organizational capabilities for creating new digital assets. Supporting this viewpoint, Egan et al. (2021) illustrated how methodologies like Lean Six Sigma effectively optimize hospital workflows, demonstrating significant efficiency gains and reduced waste, thereby reinforcing rapid prototyping's practical applicability. Consequently, healthcare systems significantly benefit from applying these iterative, practical prototyping methods in their innovation processes due to enhanced responsiveness and continuous improvement capabilities.

Building upon rapid prototyping's practical significance, implementing rapid prototyping in healthcare contexts accelerates innovation, adaptation, and timely implementation of digital solutions. For instance, Chrysikou et al. (2023) and Servant et al. (2024) provided compelling examples of rapid design adaptation processes as addressing critical healthcare demands. Similarly, Shaked (2021) highlighted rapid prototyping's role in swiftly developing prototypes that directly meet immediate hospital needs. Further emphasizing prototyping's broader value, Ullagaddi (2024) underscored its importance in enabling healthcare systems to achieve quicker compliance with

regulatory requirements. Additionally, Vallatos et al. (2021) demonstrated how prototyping effectively bridges the gap between immediate solution requirements and more extensive manufacturing processes. Thus, collectively, these insights emphasize rapid prototyping as a strategic capability, essential for healthcare systems seeking sustainable agility and successful digital transformation.

Balancing Digital Portfolios. Balancing digital portfolios is an essential strategic microfoundation enabling organizations to manage digital transformation effectively. Albino et al. (2023, p. 233) defined the underlying *Balancing Digital Portfolios* microfoundation as "balancing internal and external options, scaling up innovative business models, and setting an appropriate execution speed," emphasizing organizational actions required to plan, select, and design structures and processes aligned with digital transformation. Complementing this perspective, the literature underscores the critical need to manage tensions among legacy systems, emerging technologies, and simultaneous initiatives. For example, Johansson et al. (2022) argued that reconciling competing priorities, such as clinical demands and scholarly research, fosters digital ambidexterity. Supporting this view, Binci et al. (2022) illustrated how integrating remote monitoring practices into broader digital transformation strategies enhances healthcare delivery. Further, Lindroth et al. (2022) and Shaked (2021) demonstrated that maintaining a balance between internal productivity and external situational awareness strengthens organizational effectiveness by effectively managing inherent tensions. Therefore, given the strategic significance of balancing digital

portfolios, organizations must explicitly align portfolio allocation with clearly articulated organizational goals to maximize digital investment effectiveness.

Recognizing the importance of strategic portfolio alignment, clearly linking portfolio allocation with organizational objectives significantly enhances returns from digital initiatives. Hameed et al. (2024) highlighted that strategic integration of digital technologies must be consistently aligned with healthcare systems' broader objectives, reinforcing the importance of embedding digital initiatives within a cohesive, goal-oriented digital transformation framework. Vogel et al. (2024) further emphasized that centralized IT strategies enable economies of scale and coordinated cross-investments, thereby enhancing strategic alignment across various organizational departments and reducing redundant initiatives. These findings underscore that careful balancing and centralized coordination of digital initiatives amplify their organizational impact. Consequently, further research on refining portfolio-balancing methodologies specifically within healthcare contexts remains critical for improving strategic decision-making and achieving greater organizational effectiveness.

Digital Transformation

Digital transformation is the third dynamic capabilities microfoundation. This section examines key digital transformation microfoundations and its essential capabilities, including navigating innovation ecosystems, redesigning internal structures, and improving digital maturity (Albino et al., 2023). Digital transformation in healthcare is critical to achieving long-term sustainability, adaptability, and ongoing systemic improvement (Braithwaite et al., 2022; Levasluoto et al., 2021). According to Albino et

al. (2023), the dynamic capability, *Digital Transformation*, reconfigures organizational resources, adapts processes, integrates external capabilities, and fosters digital innovation, thus enabling ongoing strategic renewal and competitive advantage. Successful digital transformation, however, requires more than just the integration of advanced technologies such as Internet-of-Things (IoT) and robotics (Awad et al., 2021). Crucially, it also depends on cultivating organizational cohesion to mitigate the silo effect (Al Rahahleh et al., 2023) and enhancing employee digital literacy for improved technology adoption (Akinola & Telukdarie, 2023). Given these multifaceted requirements, understanding the digital transformation microfoundation and its essential capabilities equips healthcare IT leaders to make informed strategic decisions that strengthen dynamic capabilities and enhance overall organizational performance. As the culmination of the sequential process—digital sensing, digital seizing, and digital transformation—the digital transformation microfoundation is the last capability step in transforming the organization—adaptation of the organization and adoption of digital technologies—to achieve desired outcomes in strategic renewal quantified business outcomes.

Navigating Innovation Ecosystems. Navigating innovation ecosystems involves collaborating strategically with external partners and leveraging complementary resources to enhance product and service offerings. Albino et al. (2023, p. 234) defined the underlying *Navigating Innovation Ecosystems* microfoundation as "joining a digital ecosystem, interacting with multiple external partners, and exploiting new possibilities of co-creation or coopetition," enabling organizations to integrate external resources

effectively with existing capabilities. As healthcare becomes increasingly competitive—shaped by strategic partnerships among technology firms, startups, and peer institutions—digital technologies serve as vital catalysts, repositioning organizations continuously to maintain sustainable competitive advantage (Viswanadham, 2021). Reinforcing this viewpoint, Viswanadham (2021) emphasized that successfully navigating healthcare innovation ecosystems requires dynamic networks involving diverse stakeholders committed to adopting digital innovations and collaboratively developing patient-centric, value-driven care models. Similarly, Stoumpos et al. (2023) demonstrated that digital technologies significantly enhance patient engagement through effective caregiver collaboration, underscoring collaboration's critical role in accessing and leveraging digital innovations. Given the collaborative dynamics within innovation ecosystems, healthcare systems must strategically manage associated challenges to capitalize on external partnerships fully.

Acknowledging these collaborative dynamics, organizations face considerable challenges, including regulatory constraints, limited digital readiness, and stakeholder misalignment. Shaked (2021) advocated external collaboration as a vital mechanism for bolstering organizational innovation capacity. Supporting this assertion, Vallatos et al. (2021) highlighted the importance of open innovation practices involving external partners as fundamental for successful digital transformation. Likewise, Verhoef et al. (2021) emphasized digital networking capabilities and collaboration within connected ecosystems as essential to achieving digital transformation goals. Further reinforcing these perspectives, Volpentesta et al. (2023) argued that strategic collaboration with

external entities significantly aligns digital capabilities with internal organizational needs. Additionally, Hameed et al. (2024) confirmed that overcoming technical and organizational barriers is foundational for achieving successful digital transformation, particularly through active participation in broader innovation ecosystems. Consequently, healthcare systems must prioritize strategic partnerships and advance digital maturity to effectively address ecosystem-related challenges, enhancing their capability to leverage external innovations sustainably.

Redesigning Internal Structures. Redesigning internal structures is fundamental for organizations pursuing digital transformation. Albino et al. (2023, p. 234) defined the underlying *Redesigning Internal Structures* microfoundation as actions organizations undertake, including "defining digital transformation leadership, creating a digital business unit, business model digitizing, and designing team-based structures" to develop the resources and processes essential for supporting digital change. Complementing this view, Volpentesta et al. (2023) argued that effective digital transformation necessitates realigning internal frameworks to digital objectives. Additionally, Huaytan et al. (2024) reinforced this perspective by identifying infrastructure limitations, integration challenges, and data security concerns as significant internal barriers to digital transformation within healthcare systems. Given these strategic imperatives, scholarly debates emphasize carefully considering incremental versus extensive approaches to structural redesign.

Reflecting these strategic considerations, ongoing scholarly discourse continues to debate incremental versus comprehensive approaches to internal restructuring. Advocates

of incremental approaches, such as Wendt et al. (2022), argued these methods yield sustainable outcomes and minimize the risk of transformation itself becoming an obstacle. Supporting this view, Shaked (2021) illustrated how incremental adjustments in hospital operations and patient-care protocols progressively improve operational efficiency. Conversely, W.-L. Huang et al. (2024) demonstrated the effectiveness of comprehensive Lean Six Sigma and Robotic Process Automation interventions in achieving substantial process enhancements. Further, Azizan et al. (2021) highlighted internal factors, including leadership and teamwork, as crucial determinants of successful digital transformation. Meanwhile, Bevere and Faccilongo (2024) and Servant et al. (2024) emphasized that thoughtfully executed internal restructuring strategies are essential to long-term organizational sustainability. Consequently, healthcare systems must strategically consider these perspectives, recognizing incremental digital transformational strategies' advantage while cautiously evaluating the potential complexity digital comprehensive transformational changes may introduce.

Despite acknowledging incremental digital transformational strategies' benefits, comprehensive structural digital transformations may unintentionally introduce complexity, hindering organizational agility. Chrysikou et al. (2023) cautioned against overly ambitious restructuring efforts due to potential complexities that could undermine agility and responsiveness. To mitigate this risk, C.-W. Huang et al. (2023) recommended comprehensive strategic planning combined with careful organizational alignment as critical for effective digital transformation. Similarly, Vallatos et al. (2021) advocated for incremental digital transformations guided by long-term digital strategies to ensure

adaptability without overwhelming the organizational structure. Reinforcing this balanced approach, Adama and Okeke (2024) emphasized the importance of harmonizing structural changes with collaborative organizational practices to achieve desired outcomes. Therefore, healthcare systems must strategically balance incremental and comprehensive restructuring approaches to maintain agility and responsiveness throughout their digital transformation journeys.

Improving Digital Maturity. Improving digital maturity is crucial for organizations adapting resources to new digital strategies. Albino et al. (2023, p. 234) defined the underlying *Improving Digital Maturity* microfoundation as "identifying digital workforce maturity, recruiting external digital talent, and leveraging digital knowledge inside the firm," highlighting capabilities necessary for optimizing resources to support digital transformation. Supporting this definition, Albino et al. (2023) and Browder et al. (2024) indicated that organizations enhance digital maturity by systematically integrating advanced technologies into daily operations. Specifically, Vogel et al. (2024) found that hospitals within large healthcare systems demonstrate higher digital maturity through centralized IT strategies, standardized infrastructure, and cross-financed digital investments. Further emphasizing leadership's role, Nielsen et al. (2024) advocated improving leadership narratives—such as strategic communication and managerial storytelling—as essential for reinforcing digital maturity. Therefore, healthcare systems must strategically consider various factors and priorities influencing digital development to enhance overall maturity.

Recognizing the strategic significance of digital maturity, organizations must carefully navigate diverse factors and priorities shaping their digital development. For instance, Mosch et al. (2022) highlighted adaptability, user-centered design, and digital expertise as critical facilitators of digital maturity. In contrast, Shaked (2021) and Ullagaddi (2024) emphasized scalability as an essential element influencing digital maturity levels. Additionally, Volpentesta et al. (2023) stressed the coordinated integration of people, processes, and technologies to drive sustainable digital transformation. Moreover, Binci et al. (2022) argued for strengthening digital proficiency among the clinical workforce, particularly addressing age-related adoption gaps, while Akinwale and AboAlsamh (2023) reinforced the importance of broad digital literacy. Given these varied insights, further research remains necessary to fully understand digital maturity's long-term trajectory and its sustained impacts on organizational effectiveness.

Building upon the diverse insights regarding digital maturity, additional research is essential to clarify its long-term evolution and organizational benefits. Fragao-Marques and Ozben (2023) observed that higher digital maturity levels significantly improve the accessibility and efficiency of digital products and services. Similarly, Hameed et al. (2024) emphasized that enhanced digital maturity enables organizations to leverage advanced technologies effectively, while Vallatos et al. (2021) directly linked higher maturity levels to notable operational efficiency gains. However, Verhoef et al. (2021) cautioned that a deeper understanding of how digital transformation influences organizational performance over extended periods remains incomplete, advocating continued scholarly investigation. Therefore, ongoing research into digital maturity is

vital to effectively capture, sustain, and leverage its strategic organizational advantages over time.

Dynamic Capabilities Conclusion

Dynamic capabilities enhance healthcare systems' capacity to strategically adapt through digital transformation. To achieve sustainability, healthcare systems must proactively leverage the sequential microfoundations of digital sensing, digital seizing, and digital transformation, along with their associated essential capabilities, to effectively respond to external triggers (Albino et al., 2023). Digital sensing, underpinned by robust digital scouting, proactive digital scenario planning, and strategic digital mindset crafting, equips organizations with the foresight needed to anticipate technological advancements and market shifts (Albino et al., 2023; Pundziene et al., 2022). Building upon these insights, digital seizing capabilities—including strategic agility, rapid prototyping, and balancing digital portfolios—enable healthcare systems to swiftly convert opportunities into actionable innovations, ensuring strategic alignment with organizational goals (Albino et al., 2023; Binci et al., 2022; Wendt et al., 2022). Finally, healthcare systems achieve enduring digital transformation success by effectively navigating innovation ecosystems, strategically redesigning internal structures, and systematically enhancing digital maturity (Albino et al., 2023; Vogel et al., 2024; Volpentesta et al., 2023). Recognizing and strategically leveraging these DC, their microfoundations, and associated essential capabilities thus equips healthcare systems for comprehensive digital transformation, promoting sustained adaptability, innovation, and measurable organizational performance. Consequently, healthcare IT leaders must proactively

formulate strategies that leverage dynamic capabilities to create and capture sustainable organizational value.

Strategic Renewal

Strategic renewal is the first of two outcomes resulting from leveraging DCDT: strategic renewal and expected outcomes. This section examines strategic renewal, including developing digital products and services, pursuing digital business processes, and constructing innovative business models. Albino et al. (2023) defined *Strategic Renewal* as innovation-oriented activities aimed at strengthening an organization's market positioning and enhancing long-term adaptability. By achieving strategic renewal, healthcare systems significantly enhance their agility and resilience in rapidly evolving markets (Browder et al., 2024). Consequently, understanding these strategic renewal outcomes provides healthcare IT leaders with essential insights necessary to formulate strategies that leverage DCDT, ensuring sustained innovation and adaptability within their organizations.

Development of Digital Products and Services

Innovation in digital products and services is pivotal for achieving strategic renewal through digital transformation in healthcare systems. Albino et al. (2023, p. 235) proposed that organizations leverage digital transformation "to develop new digital products and services," underscoring the essential role innovation plays in strategic renewal. Supporting this view, Santarsiero et al. (2023) demonstrated how innovation labs foster human-centric, open innovation by actively engaging diverse stakeholders. Additionally, Hassan et al. (2022) illustrated that Big Data analytics significantly

enhances precision medicine and personalized care strategies, offering data-driven insights that can improve healthcare outcomes. Collectively, these findings indicate that innovation in digital products and services directly contributes to organizational renewal. To harness these capabilities, healthcare systems must proactively address common implementation barriers.

Acknowledging these prevalent implementation barriers, organizations face considerable challenges in fully realizing strategic renewal through the adoption of digital products and services. Naamati-Schneider et al. (2024a) cautioned that digital adoption and accessibility barriers, particularly among underserved populations, might limit anticipated benefits. Conversely, Binci et al. (2022) highlighted how remote patient monitoring effectively enhances chronic care management, enabling early interventions and better patient outcomes. Nevertheless, significant constraints remain, as noted by Najem et al. (2024), who emphasized that successful adoption of technologies such as AI depends heavily on organizational strategic alignment and cultural readiness. These insights suggest that although digital technologies offer substantial potential, healthcare systems must systematically overcome adoption and readiness barriers to maximize strategic impact. Consequently, proactive market scanning techniques become essential tools for identifying and capitalizing on emerging digital innovation opportunities.

By strategically employing proactive market scanning, healthcare systems can effectively overcome innovation barriers and respond swiftly to emerging market demands with innovative digital products and services. For instance, advancements in personalized medicine, wearable medical technologies (Fragao-Marques & Ozben, 2023),

and blockchain applications (Hameed et al., 2024) represent transformative shifts toward higher quality and more accessible healthcare services. However, Vogel et al. (2024) highlighted that larger healthcare systems with greater financial resources could inadvertently widen innovation gaps, limiting smaller entities' ability to invest in new technologies. Similarly, Naamati-Schneider et al. (2024a) identified shortcomings in patient-centric design as critical areas requiring attention to enhance care accessibility. Moreover, Najem et al. (2024) underscored the importance of further investigating strategic and cultural factors influencing the widespread adoption of AI. Addressing these innovation gaps remains crucial for healthcare systems striving to exploit digital transformation opportunities, thereby achieving ongoing strategic renewal.

Pursuing Digital Business Processes

Leveraging digital business processes is essential for organizations aiming to achieve strategic renewal through digital transformation. Albino et al. (2023, p. 235) proposed that organizations utilize digital transformation specifically "to pursue digital business processes," highlighting their critical role in healthcare transformation. Supporting this perspective, the literature consistently emphasizes numerous positive outcomes from digital business processes. For instance, Binci et al. (2022) demonstrated how digital transformation enables earlier clinical interventions, reduces hospital visits, and facilitates proactive care delivery. Additionally, Shaked (2021) illustrated the transformative impact of digitally reconfiguring resources and patient workflows, while Vallatos et al. (2021) highlighted innovative processes for producing customized medical equipment essential to contemporary care. Similarly, Vogel et al. (2024) revealed that

higher digital maturity—driven by centralized IT strategies and scalable investments—markedly enhances operational efficiency. Recognizing these transformative benefits provides a foundation for exploring further operational efficiencies achievable through digital transformation initiatives.

Building upon these transformative benefits, digitized business processes significantly enhance operational efficiency, a critical outcome of healthcare digital transformation. Hameed et al. (2024) and Varzaru (2022) emphasized the importance of digital tools in streamlining healthcare operations, substantially reducing waste, and improving overall effectiveness. Complementing these insights, Verhoef et al. (2021) highlighted the strategic value of leveraging digital transformation to develop innovative business models and enhance customer experiences. However, despite widespread recognition of the market shift towards digitized processes and their importance in healthcare, a notable research gap persists concerning how innovative digital business models contribute to long-term competitive sustainability. Addressing this research gap remains essential to deepen understanding and guide healthcare systems in sustaining competitiveness through strategic digital business model innovation.

Building Innovative Business Models

Developing innovative business models through digital transformation enables organizations to enhance competitiveness and improve patient care delivery. Albino et al. (2023, p. 235) proposed that organizations leverage digital transformation specifically to "build innovative business models," underscoring the transformative potential of digital strategies. Shaked (2021) emphasized the necessity for healthcare systems to actively

monitor market conditions, ensuring timely responses to emerging business models. Furthermore, Akinola and Telukdarie (2023) illustrated how digital capabilities facilitate the creation of care models that significantly increase patient value. Complementing this viewpoint, Hameed et al. (2024) identified contemporary digital technologies such as AI and blockchain as key enablers for patient-centric business innovations. Similarly, Bevere and Faccilongo (2024) highlighted the role of digital innovation in enhancing operational efficiency, while Vial (2019) argued that ongoing digital transformation fosters strategic renewal through continuous adaptation and innovation. Thus, innovative business models play a pivotal role in driving competitiveness and operational responsiveness in healthcare, prompting organizations to increasingly leverage digital capabilities.

Building upon the strategic development of innovative business models, organizations utilize digital capabilities to establish responsive, patient-aligned care models that also enhance operational efficiency. Servant et al. (2024) underscored the importance of using data-driven insights to create business models that precisely align with evolving patient expectations. For instance, Casale et al. (2021) demonstrated that healthcare systems adopting remote patient monitoring met patient needs while significantly improving caregiver efficiency, particularly through enhanced home healthcare services. Similarly, telemedicine, through video-based consultations, has become a critical model, offering consumer-centric value (Adeghe et al., 2024). The accelerated adoption of telemedicine during the COVID-19 pandemic notably emphasized its value as an essential innovation within healthcare delivery models (Wendt et al., 2022). Collectively, these examples illustrate how digital tools enable scalable,

personalized care solutions, providing substantial value to providers and patients. However, despite these notable advantages, realizing the full potential of digital business models requires healthcare systems to effectively manage associated risks and further address lingering research questions on sustainability and implementation challenges.

Strategic Renewal Conclusion

Strategic renewal represents critical improvements in organizational market positioning by enhancing healthcare systems' agility and adaptability in creating and sustaining stakeholder value propositions. To effectively achieve strategic renewal, organizations must proactively develop innovative digital products and services, implement transformative digital business processes, and continuously construct innovative business models that respond dynamically to emerging patient needs and evolving market trends (Albino et al., 2023; Binci et al., 2022; Hameed et al., 2024). Realizing these strategic renewal objectives involves systematically engaging in proactive market scanning, effectively overcoming barriers to technology adoption, and ensuring that digital innovations remain closely aligned with patient-centered outcomes (Fragao-Marques & Ozben, 2023; Naamati-Schneider et al., 2024a; Najem et al., 2024). Furthermore, addressing potential innovation divides is essential to ensure equitable patient accessibility and maintain consistently high-quality care delivery across diverse populations (Naamati-Schneider et al., 2024a; Vogel et al., 2024). Thus, healthcare IT leaders employing DCDT strategies can strategically position their organizations to achieve sustained enhancements in market positioning, agility, and adaptability,

continually strengthening their capability to create and deliver enduring stakeholder value.

Expected Outcomes

Expected outcomes are the second of two outcomes derived from leveraging DCDT. This section examines the expected outcomes from digital transformations, including tangible, quantifiable expected outcomes, specifically focusing on cost savings achieved through increased efficiency, business process re-engineering, and the creation of new business models. Albino et al. (2023) defined *Expected Outcomes* as measurable, operationally focused results, including improved operational efficiencies, enhanced customer experiences, and increased revenue streams. Successfully achieving these outcomes enables healthcare systems to optimize their operational efficiency, thereby enhancing organizational sustainability (Albino et al., 2023; Browder et al., 2024). Consequently, healthcare IT leaders understanding these quantifiable expected outcomes from digital transformations equip them to strategically leverage DCDT.

Cost Savings From Efficiency

Realizing cost efficiencies through digital transformation is essential for healthcare systems aiming to provide high-value care using fewer resources. Albino et al. (2023, p. 235) defined this outcome as "a more efficient deployment of the existing resources." The existing literature consistently identifies cost efficiencies as a primary benefit derived from healthcare's adoption of digital technologies (Beauvais et al., 2021). Supporting this perspective, Browder et al. (2024) emphasized how streamlined workflows, integrated digital solutions, and advanced data analytics simultaneously

reduce operational costs and enhance patient care. For example, Binci et al. (2022) found that advanced technologies like remote patient monitoring significantly reduced hospital readmissions and streamlined clinical processes, enabling healthcare providers to reallocate resources towards higher-value activities. Similarly, Kraus et al. (2021) illustrated how digital health technologies improve operational efficiency by refining administrative procedures and decreasing clinicians' reaction times, thus elevating overall care quality. Moreover, Azizan et al. (2021) highlighted digital technologies as critical drivers for organizational performance improvements, while Naamati-Schneider et al. (2024a) demonstrated how electronic health records outperform traditional paper systems in efficiency and care quality. Furthermore, Akinola and Telukdarie (2023) showed that telehealth minimizes infrastructure investments while expanding caregiver reach, an advantage further emphasized by Greenhalgh et al. (2020), who noted telehealth's capacity to sustain care delivery during health crises. Consequently, while telehealth and electronic health records significantly support cost-saving initiatives, healthcare systems increasingly explore emerging digital technologies to further amplify operational efficiencies.

Building upon the foundational benefits of telehealth and electronic health records, emerging digital technologies offer additional opportunities to enhance operational efficiency and reduce healthcare system costs. Integrated systems effectively eliminate redundancies by improving data accessibility, coordination, and clinical decision-making (Al Rahahleh et al., 2023). Additionally, advanced technologies like Big Data analytics and middleware significantly reduce inefficiencies, enhancing care quality

by streamlining information flows (Fragao-Marques & Ozben, 2023). Furthermore, Bevere and Faccilongo (2024) highlighted eco-friendly digital solutions as a means to reduce energy consumption while improving organizational performance. Collectively, these advancements illustrate the growing capability of the digital ecosystem to enhance operational effectiveness and minimize unnecessary expenditures in healthcare. Nevertheless, healthcare systems must pursue a balanced strategy that transcends immediate cost reduction goals to sustain long-term value from emerging digital efficiencies.

Recognizing the immediate benefits from emerging digital efficiencies, healthcare systems should adopt a balanced strategic approach to digital transformation that extends beyond short-term cost savings to secure lasting value. Lindroth et al. (2022) cautioned against adopting narrow, short-term strategies, warning these approaches might undermine sustainable value capture. Similarly, Hassan et al. (2022) emphasized that despite Big Data analytics' significant promise for personalized medicine, persistent computational and methodological challenges require further investigation. Complementing this viewpoint, Greenhalgh et al. (2020) advocated deeper research into clinical, technical, organizational, and policy dimensions of rapidly scaled telehealth consultations, highlighting the necessity of understanding their long-term implications. Furthermore, Laksono and Darmawan (2021) underscored the importance of adaptive leadership strategies, such as systems thinking and contextual intelligence, as critical for managing digital transformation and maintaining sustained organizational performance. Consequently, as the digital transformation landscape evolves, continuous research

remains imperative to comprehensively evaluate long-term economic impacts and guide financially sustainable innovations within healthcare systems.

Business Process Re-Engineering

Business process re-engineering (BPR) serves as a foundational mechanism enabling digital transformation to enhance organizational performance. Albino et al. (2023, p. 235) described the capacity of digital transformation to produce BPR, thereby "enhancing customer experience and producing efficient results." Consistently, the literature highlights digital transformation as a key catalyst for BPR, resulting in improved customer satisfaction, greater operational efficiency, enhanced workflow precision, and strengthened accountability (Chrysikou et al., 2023; Mosch et al., 2022; Vallatos et al., 2021; Vial, 2019). Supporting these views, Shaked (2021) argued that hospitals engaging in BPR better align with contemporary market demands, while Volpentesta et al. (2023) emphasized that effective re-engineering is critical for fully realizing digital capabilities. Given the strategic importance of BPR in driving organizational improvements, it remains essential to investigate how specific digital technologies directly influence clinical and operational re-engineering outcomes.

Building on this strategic imperative, emerging scholarship has begun to explore how specific digital technologies enhance re-engineering outcomes within clinical and operational healthcare domains. For example, Awad et al. (2021) and Fragao-Marques and Ozben (2023) demonstrated how automation and IoT solutions facilitate proactive equipment maintenance, accurate medication dispensing, and streamlined task execution. Additionally, Binci et al. (2022) illustrated that re-engineering traditional patient

monitoring processes through remote technologies significantly improves clinical decision-making and patient management. Further reinforcing the importance of effective re-engineering, Azizan et al. (2021) identified essential success factors for digitalization, including strong leadership and robust decision-making frameworks, whereas Servant et al. (2024) positioned BPR as critical to achieving outcomes. Moreover, Ullagaddi (2024) highlighted how effective BPR practices support enhanced regulatory compliance. Despite recognizing these benefits, Mosch et al. (2022) identified a critical gap regarding the integration of digital technologies into established healthcare processes, proposing a dedicated framework to address this gap. Consequently, addressing this research need remains pivotal for optimizing BPR outcomes, ensuring comprehensive and sustained transformation in healthcare systems.

New Business Models

Innovative business models represent a critical outcome of digital transformation, empowering organizations to sustain competitive advantage through enhanced value creation and operational restructuring. Albino et al. (2023, p. 235) stated that digital transformation can significantly "reconfigure the organization's revenue and cost structure, giving rise to a new business model driven by digital technologies." Reinforcing this viewpoint, Volpentesta et al. (2023) emphasized that successful business model innovation driven by digital transformation demands robust organizational capabilities. However, incumbents in digital healthcare platforms frequently encounter challenges in adopting innovative business models due to entrenched practices and difficulties establishing new income streams (Pundziene et al., 2022). Therefore,

effectively overcoming internal resistance and developing capabilities to deliver radically innovative value propositions are crucial steps toward successful digital transformation. Given the significance of innovative business models for achieving sustained competitive advantage, healthcare systems must strategically leverage digital innovations to continually refine their approaches, addressing evolving patient expectations and market pressures.

In alignment with the necessity for sustained competitive advantage, healthcare systems increasingly leverage digital transformation capabilities to reinvent business models responsive to evolving patient needs and market dynamics. For instance, Babar et al. (2024) and Hameed et al. (2024) illustrated how healthcare systems successfully use information and communication technologies to facilitate data-driven innovations. These innovations include digitally enabled care models, proven effective in enhancing patient engagement and improving care outcomes (Akinola & Telukdarie, 2023; Awad et al., 2021; Binci et al., 2022; Servant et al., 2024; Stoumpos et al., 2023; Ullagaddi, 2024). Furthermore, advanced technologies such as digital twins of patient anatomy have emerged, significantly enhancing precision care and clinical outcomes (Shaked, 2021). Given the importance of maintaining patient-centric innovation and sustained market competitiveness, further research into advancements in digital business models remains critical for healthcare systems committed to maximizing patient value delivery.

Expected Outcomes Conclusion

Expected outcomes represent quantitative improvements in organizational performance, enhancing organizations' measurable operational efficiencies and financial

sustainability. These outcomes strengthen healthcare systems' ability to generate and sustain quantifiable value for stakeholders. Achieving these outcomes requires healthcare systems to proactively pursue measurable cost savings through operational efficiencies, systematically re-engineer business processes, and implement new, financially viable digital business models (Albino et al., 2023; Browder et al., 2024). Realizing such expected outcomes involves leveraging advanced digital technologies—including Big Data analytics, automation, AI, Internet of Medical Technology (IoMT), telehealth, remote patient monitoring, and electronic health records—to streamline processes, optimize resource utilization, and improve the efficiency and cost-effectiveness of patient care delivery (Akinola & Telukdarie, 2023; Babar et al., 2024; Binci et al., 2022; Fragao-Marques & Ozben, 2023). Consequently, achieving these technology-enabled efficiencies sets the foundation for strategically re-engineering business processes and developing sustainable digital business models.

Empirical evidence indicates that strategically re-engineering business processes is essential for maximizing the value derived from technology-driven enhancements. Effectively re-engineering these processes promotes workflow precision, increases productivity, and improves stakeholder satisfaction through tangible operational improvements (Mosch et al., 2022; Servant et al., 2024; Vallatos et al., 2021). Additionally, developing financially sustainable digital business models enables healthcare systems to allocate resources strategically, respond effectively to competitive market dynamics, and meet evolving patient expectations (Akinola & Telukdarie, 2023; Shaked, 2021; Snowdon et al., 2024). Consequently, IT leaders leveraging DCDT

strategies can position healthcare systems for sustained quantitative improvements in efficiency and financial sustainability. This strategic positioning continuously enhances the organization's capacity to deliver measurable and enduring value to stakeholders.

Conclusion

Strategic Imperatives

IT leaders in healthcare systems play a critical role in navigating digital transformation by strategically recognizing and managing external triggers, internal barriers, internal enablers, dynamic capabilities, and the resulting outcomes of strategic renewal and expected outcomes. Proactively recognizing external triggers requires strategic foresight and leadership capabilities to identify emerging opportunities and effectively manage associated risks (Albino et al., 2023; Hanelt et al., 2021). Simultaneously, addressing internal barriers demands agile strategic planning, transformational leadership, and cultural adaptability to ensure effective digital transformation implementation (Albino et al., 2023; Philip, 2021). Moreover, harnessing internal enablers—such as cross-functional collaboration, rapid decision-making, executive support, robust IT infrastructure, and agile data governance—enhances organizational responsiveness, drives innovation, and facilitates the sustainable integration of digital technologies (Albino et al., 2023; Najem et al., 2024). Therefore, understanding the interconnected role of these factors, external and internal, triggers and equips healthcare IT leaders with improved knowledge to leverage DCDT strategically, laying a solid foundation for ongoing strategic renewal and achieving quantifiable expected business outcomes.

Building upon these external and internal factors, healthcare systems must strategically deploy dynamic capabilities to achieve sustained organizational adaptability, innovation, and performance improvements. Systematically leveraging dynamic capabilities through the microfoundations of digital sensing, digital seizing, and digital transformation provides healthcare systems with essential strategic capabilities to adapt, innovate, and achieve sustained performance enhancements (Albino et al., 2023; Binci et al., 2022; Volpentesta et al., 2023). Leveraging these capabilities enables healthcare systems to attain strategic renewal, characterized by innovation-focused activities, as well as measurable expected outcomes, such as enhanced operational efficiency, optimized processes, and financially sustainable business models (Albino et al., 2023; Browder et al., 2024). Consequently, as a strategic imperative, IT leaders in healthcare systems must actively formulate strategies that leverage DCDT, positioning their organizations for sustained agility, adaptability, and sustainability. This strategic orientation ensures continuous enhancement of organizational performance, delivers measurable stakeholder value, and ultimately contributes positively to broader societal health outcomes.

Future Research

While the contemporary body of knowledge offers relevant insights, scholars have identified research gaps and recommended future research that extend beyond this study's focus. For example, Gjellebaek et al. (2020) suggested further exploring middle management's role in scenario planning and organizational sensemaking. Similarly, Greenhalgh et al. (2020) advocated for additional research on the clinical, technical, organizational, and policy consequences arising from the rapid expansion of video

consultations during health emergencies. Additionally, Laksono and Darmawan (2021) recommended deeper examination into leadership strategies such as systems thinking and contextual intelligence for effectively managing digital disruptions in healthcare. Mosch et al. (2022) highlighted a need for frameworks to improve the integration of digital technologies within traditional healthcare processes. Furthermore, Naamati-Schneider et al. (2024a) emphasized significant gaps related to patient-centric design aimed at enhancing care accessibility. Addressing these broader research areas remains crucial for the comprehensive advancement of digital transformation knowledge, though they extend beyond the scope of this study.

Conversely, several identified research gaps and future research recommendations align directly with this study's research question: What strategies do some IT leaders in healthcare systems use to leverage DCDT? Specifically, Verhoef et al. (2021) underscored the need for further investigation into strategic resources, organizational structures, and metrics essential for effective digital transformation—directly relevant to how IT leaders strategically enhance digital maturity. Moreover, Kraus et al. (2021) broadly called for research into the organizational and managerial implications of digital transformation. Similarly, Adeghe et al. (2024) pointed to the limited research on financially sustainable telemedicine business models, and Najem et al. (2024) emphasized the necessity of exploring strategic and cultural readiness for AI adoption—both clearly linked to leadership-driven digital transformation strategies. Additionally, Hameed et al. (2024) recommended investigating how leaders overcome technical and organizational barriers within innovation ecosystems, aligning closely with the core

principles of dynamic capabilities frameworks. Finally, Laksono and Darmawan (2021) highlighted the critical importance of adaptive leadership strategies to maintain enduring organizational performance through digital transformation. Thus, this study addresses these research gaps by exploring practical strategies IT leaders in healthcare systems employ to leverage DCDT, thereby filling existing knowledge gaps, enhancing theoretical understanding, advancing IT practice, and positively influencing societal health outcomes.

Transition and Summary

In Section 2, I critically examined the contemporary body of knowledge on the specific IT problem that some IT leaders in healthcare systems lack strategies to leverage DCDT. The literature review systematically compared, contrasted, and synthesized scholarly literature within the last 5 years on leveraging DCDT in the healthcare sector, guided by the DCFDT. Specifically, the review analyzed and organized the literature on the framework's constructs: external triggers, internal barriers, internal enablers, dynamic capabilities—including their microfoundations of digital sensing, digital seizing, and digital transformation—and their two outcomes of strategic renewal and expected outcomes. Furthermore, this examination highlighted research gaps and future research, clarifying how this study is positioned to extend theoretical insights on the research topic.

Building upon these identified knowledge gaps from Section 2, Section 3 addresses the research methodology, outlining the specific project design, ethical considerations, participant selection criteria, data collection processes, and analytical techniques. Section 3 also describes the approaches employed to ensure the reliability,

validity, and trustworthiness of this study's findings, thus setting the foundation for a rigorous exploration of strategies IT leaders in healthcare systems leverage DCDT.

Section 3: The Project

Project Ethics

I was well-positioned to investigate this topic, aiming to enrich the body of knowledge on leveraging DCDT in healthcare's dynamic sector. Structured qualitative data collection methods were essential for obtaining rich, contextually relevant insights into qualitative research. According to Busetto et al. (2020) and Jimenez and Orozco (2021), researchers play a pivotal role in qualitative studies, specifically by designing interview protocols, conducting semistructured interviews, performing detailed document analyses, and validating interpretations through co-coding, methodological triangulation, and member checking. In Appendix A, I provide the interview protocol and open-ended questions that guided the interviews with participants, designed to elicit detailed insights into what strategies IT leaders in healthcare systems used to leverage DCDT. Given these structured qualitative data collection tools, completing formal research ethics training further enhanced methodological rigor and ethical compliance.

Building upon structured qualitative methods, formal research ethics training was critical for conducting ethically sound studies involving human participants. To ensure ethical compliance, I had completed formal training in protecting human research participants and received a training completion certificate, verifying that I successfully completed the online training titled Protecting Human Research Participants by an accredited body. This foundational training guided the ethical design and approach of this study, reinforcing adherence to established ethical guidelines. With formal ethical

training completed, following established ethical guidelines ensured participant protection and significantly enhanced the integrity of the qualitative research process.

Complementing formal research ethics training, strict adherence to ethical guidelines was essential for protecting participants and maintaining qualitative research integrity. Researchers must prioritize participant well-being and data protection by following principles outlined in *The Belmont Report* (Nagai et al., 2022). Aligned with *The Belmont Report*, my study demonstrated respect for persons through informed consent, observed beneficence by minimizing potential risks and maximizing benefits, and ensured justice through equitable participant selection. Through my recruitment email invitation, my follow-up email to participants with additional context regarding my study topic to improve the interview's content clarity and productivity, and the participant consent form, I outlined this study's purpose, procedures, and privacy safeguards. Recognizing the importance of ethical participant management, rigorous data confidentiality protocols were crucial and adhered to for effectively protecting participant identities.

Consistent with ethical guidelines, implementing rigorous confidentiality protocols was vital for protecting participant identities and maintaining ethical research standards. All participants and related publicly available documents were assigned unique alphanumeric pseudonyms (e.g., P1, P2; O1, O2); using pseudonyms effectively protects participant confidentiality and anonymity in qualitative studies (Subedi, 2025). Additionally, interview transcripts and collected documentation were securely encrypted, password-protected, and stored on access-controlled drives. Following Walden

University's data retention policy, data will be securely stored for 5 years from this study's publication date, after which they will be permanently destroyed. Given these stringent confidentiality and data management protocols, obtaining formal institutional review board (IRB) approval was essential to confirm ethical compliance and enhance research rigor.

Building upon these confidentiality measures, this study received formal approval from Walden University's IRB (IRB Approval No. 07-22-25-1099097), reflecting my commitment to ethical integrity, confidentiality, and rigorous academic standards throughout this research. IRB approval thus underscored my dedication to ethically responsible and methodologically robust research practices.

Nature of the Study

A pragmatic qualitative research design provided a flexible, problem-centered framework well-suited to exploring complex, real-world phenomena in healthcare IT leadership. This study adopted a pragmatic qualitative design to examine strategies some IT leaders in healthcare systems used to leverage DCDT. The pragmatic orientation enabled rigorous examination of real-world interventions, producing contextually relevant and actionable insights that informed decision-making—especially critical in healthcare settings where cost, quality, and access to care intersect. Metcalfe (2008) emphasized that pragmatic inquiry interprets real-world events through multiple perspectives, focusing on actionable outcomes and reflective practices to generate context-specific knowledge. Consequently, this approach facilitated systematic exploration through open-ended questioning, producing high-quality evidence applicable

to healthcare operational realities. Ultimately, the pragmatic qualitative design aligned with this study's purpose of generating valuable, grounded insights to advance digital transformation strategies.

Building upon this flexible, problem-centered framework, thematic analysis served as the primary method for interpreting participant responses and identifying patterns aligned with the DCFDT. Reflexive thematic analysis is particularly suitable for pragmatic research due to its flexibility in managing complex, evolving data, enabling both inductive and deductive reasoning (Braun & Clarke, 2024a, 2024b). This method fostered the development of contextually rich themes grounded firmly in participants' lived experiences and supported by the researcher's active engagement with the data. Data were systematically transcribed, coded, and analyzed using qualitative analysis software, ensuring enhanced traceability, rigor, and transparency throughout the analytic process. Mishra and Dey (2022) and Naeem et al. (2023) affirmed that thematic analysis provides the necessary structure for generating insightful interpretations, while effectively accommodating qualitative data complexity. Thus, this combined methodological approach aligned effectively with the pragmatic goals of this study, yielding nuanced, evidence-based insights into how dynamic capabilities were operationalized within healthcare systems pursuing digital transformation.

Population, Sampling, and Participants

Establishing clear participant selection criteria ensured alignment between this study's purpose and participants' experiential relevance. A carefully determined sample size was essential to achieve rigor and methodological alignment in qualitative research.

McDermott (2023) emphasized methodological considerations, inherent challenges, and practical solutions involved in studying small samples scientifically, advocating matched controls and counterfactual comparisons to enhance methodological rigor. Conversely, Boddy (2016) explicitly argued that smaller, carefully selected sample sizes can deepen understanding of complex phenomena, highlighting the necessity of right-sizing samples to align with the research's intended outcomes. Additionally, purposeful sampling provided richer insights into qualitative phenomena compared to broader, generalized methods, guiding the selection of participants who could best answer the primary research question (Dahal et al., 2024). Mohammadi et al. (2021) further reinforced the effectiveness of purposeful sampling in identifying information-rich cases that yield deeper understanding, whereas S. Campbell et al. (2020) and K. A. Campbell et al. (2021) emphasized selecting participants specifically suited to address research objectives. Regarding data saturation, Hennink et al. (2019) found saturation often occurs within three to six groups, depending on study parameters, whereas Lysfjord et al. (2024) suggested saturation is typically achieved within six to 12 interviews. Therefore, the participant population for this study comprised at least six healthcare IT leaders and continued until no new information emerged. In addition, 13 publicly available and governmental documents were analyzed to support this study's purpose. To facilitate identifying qualified participants, leveraging social media as a strategic recruitment tool was both appropriate and effective.

Recognizing the value of carefully determined sample sizes, social media provided a strategic and effective mechanism for identifying qualified participants in

qualitative research. Bautista et al. (2021) defined social media within a research context as user-managed online platforms where professionals share their profiles and content with audiences who value this information. Potential participants from the United States were identified through professional networking platforms and groups, specifically LinkedIn, thereby ensuring a robust and diverse participant sample. Moreover, potential participants were filtered based on the criterion of having at least 5 years of healthcare IT leadership experience, ensuring alignment with this study's objectives. Leveraging professional networking platforms enabled the implementation of a structured recruitment strategy, enhancing participant engagement and trust.

Building upon the strategic use of social media, employing a structured recruitment strategy further enhanced participant engagement and fostered trust in qualitative research. Utilizing a clearly defined recruitment strategy promoted rapport-building and active participant engagement (Negrin et al., 2022). To facilitate initial engagement, an email template was used to communicate authenticity, credibility, and clarity of the research purpose, accompanied by a consent form. Participants' rights to confidentiality were explicitly communicated through the email and reviewed immediately prior to interview start, emphasized that interview transcripts and associated study data were treated as strictly confidential, securely stored with appropriate encryption, password protected, and shall be permanently destroyed 5 years after this study's publication date. Additionally, the option for participants to withdraw from this study at any time was clearly re-stated in the initial communications and at the beginning of interviews, thereby reinforcing trust and transparency. Given that active listening and

genuine interest significantly enhance research engagement (Lavee & Itzchakov, 2023), all communications and interviews were conducted professionally, attentively, and respectfully, increasing the likelihood of successful participant recruitment, interview completion, and document collection. Consequently, adopting this robust recruitment strategy, supported by intentional communication practices, significantly contributed to the execution of this study's data collection and subsequent analysis.

Data Collection Activities

In qualitative research, the researcher plays a central role in collecting and interpreting data to uncover deep, context-rich insights. Recognizing this critical role, semistructured interviews served as the primary data collection method to obtain detailed, contextually grounded information. Semistructured interviews allow researchers to explore participants' lived experiences while providing flexibility to pursue emerging themes (Buys et al., 2022). This format encouraged participants to elaborate on their strategies aligned with dynamic capabilities' essential capabilities. Interviews were conducted via an online secure videoconferencing platform to accommodate participants' availability and maintain social distance, consistent with ethical guidance (see Katz-Buonincontro, 2022, Chapter 2). Ultimately, this methodological flexibility balanced rigor with practicality, enabling meaningful interactions with healthcare IT leaders.

Considering the flexible nature of semistructured interviews, participants' emotional and practical needs were carefully accommodated throughout the interview process. Recognizing participants' busy schedules and potential stressors, their availability and comfort were prioritized, offering flexibility to reschedule interviews if

necessary. Melis et al. (2022) emphasized the importance of accommodating participant stress as a critical ethical consideration. Each interview lasted approximately 30 minutes, striking a balance between depth and participant comfort and availability. Thus, acknowledging these practical and emotional considerations ensured ethical sensitivity and enhanced the overall quality of data collection.

Complementing participant accommodation, an interview protocol guided the interview process, ensuring consistency and rigor across participant engagements. Structured protocols serve as systematic guides that promote reliability, facilitate open-ended exploration, and align closely with the research question (Toyon, 2023). The protocol detailed the sequence of questions, informed consent procedures, and guidelines for beginning and concluding interviews. Therefore, the structured protocol promoted methodological consistency while fostering thoughtful participant engagement.

Supporting the structured interview protocol, data collection involved the use of an online secure videoconferencing platform equipped with transcription services, supplemented by detailed field notes. Videoconferencing tools extend qualitative research opportunities by eliminating geographical barriers and supporting inclusive participant recruitment (Ntsobi et al., 2024, p. 1). Following each interview, transcripts were downloaded, verified verbatim against the original recordings, and imported into NVivo (Version 14) software for thematic analysis. NVivo enabled systematic coding, pattern recognition, and linking emerging themes to the DCFDT's dynamic capabilities, underlying microfoundations, and their essential capabilities. According to Ntsobi et al. (2024), computer-assisted qualitative data analysis software significantly strengthens data

organization and analytic rigor. Consequently, employing these digital tools ensured methodological transparency and analytical rigor in qualitative research.

To reinforce insights derived from interviews, I also collected documents—such as publicly available strategic plans, frameworks, and government publications—from publicly available websites. Document analysis, used alongside interviews, provides methodological triangulation, deepening contextual understanding and strengthening qualitative research credibility (Mwita, 2022). This triangulated approach validated emergent strategy themes, insights, and final thoughts participants provided during interviews. Thus, integrating document analysis enriched the robustness, validity, and contextual depth of this study's findings.

In addition to triangulation through document analysis, member checking was conducted to validate data accuracy and uphold the trustworthiness of findings. After each interview, transcripts and preliminary analyses were shared with participants, allowing them to review and confirm that interpretations accurately reflected their intended meanings. Member checking empowered participants to authenticate their contributions and ensured alignment between researcher interpretations and participants' perspectives (Sahakyan, 2023). For example, one participant provided one additional insight as part of the member checking process. Feedback obtained through this iterative process was incorporated into the final analysis, preserving the integrity and credibility of participant data. Consequently, member checking reinforced confirmability and reliability through collaborative validation.

Expanding upon member checking, triangulation of data sources—including semistructured interviews and publicly available documents—further enhanced internal validity and trustworthiness. Triangulation involves systematically analyzing multiple data sources to identify convergence, divergence, or integration, thereby confirming or refining emerging findings (Romero-Sanchez et al., 2024). This approach facilitated comprehensive understanding, improved interpretive accuracy, and mitigated potential biases (Arias Valencia, 2022). Therefore, triangulation significantly bolstered the robustness and analytical depth of qualitative insights obtained through the research.

Building on this triangulation strategy, this study utilized triangulated data to support the development of generalizations regarding this study's research question. Triangulation validated credible, evidence-based strategies by allowing comparative analysis across diverse data sources. Sridharan (2021) highlighted that triangulation strengthens the credibility of explanatory insights and supports the generation of contextually rich generalizations. Through these comprehensive data collection activities, this study employed a structured yet flexible approach, capturing rich, context-specific insights from healthcare IT leaders. This robust methodology ensured the analytical rigor, contextual richness, and practical relevance necessary to address real-world challenges in healthcare IT leadership.

Interview Questions

This study's qualitative pragmatic semistructured interview process used nine exploratory interview questions based on the essential capabilities within each dynamic capabilities' microfoundation: digital sensing, digital seizing, and digital transformation.

The first three interview questions were on digital sensing's underlying essential capabilities of digital scouting, digital scenario planning, and digital mindset crafting; the next three were on digital seizing's underlying strategic agility, rapid prototyping, and balancing digital portfolios; and the last three were on digital transformation's underlying essential capabilities of navigating innovation ecosystems, redesigning internal structures, and improving digital maturity (see Appendix A).

Data Organization and Analysis Techniques

The organization and analysis of qualitative data were critical to this doctoral study, ensuring that the collected information was managed securely and analyzed rigorously to generate trustworthy and meaningful findings. Recognizing the necessity of secure data management, data were systematically organized to preserve the integrity of participants' experiences, maintain confidentiality, and facilitate efficient analysis through iterative coding and thematic identification. Effective qualitative data organization techniques—such as structured coding schemes and comprehensive research logs—strengthened the validity of qualitative studies and supported the emergence of empirically grounded insights (Lim, 2024). These strategies ensured the analytical process remained methodical, transparent, and aligned with this study's research objectives.

Building upon systematic data organization strategies, anonymization procedures were implemented to protect participants and document sources upon completion of the member-checking process. Although Subedi (2025) acknowledged the challenges of ensuring complete confidentiality, researchers can effectively protect participant privacy

through thoughtful pseudonym strategies. Accordingly, each participant was assigned a unique alphanumeric identifier (e.g., P1, P2) to safeguard confidentiality. Interview transcripts, reflective notes, and relevant publicly available documents were encrypted and securely stored on a password-protected external hard drive, with a redundant encrypted copy in an offsite secure location. This dual-storage method complied with Walden University's data retention policy, requiring data preservation for 5 years followed by secure disposal. These confidentiality protocols, therefore, upheld ethical standards and institutional policies, protecting participant identities and study integrity.

Complementing these confidentiality measures, I used NVivo 14 software to facilitate rigorous, transparent, and efficient data analysis. NVivo is widely employed in qualitative research to enhance rigor, manageability, and traceability during the coding process (Jiancheng, 2024). All transcribed interviews were imported into NVivo. Each transcript was carefully reviewed, and coding was conducted inductively and deductively to categorize initial textual segments into a structured coding scheme. Additionally, reflective memos were captured evolving analytical interpretations throughout the data analysis. This structured use of qualitative software enhanced transparency, rigor, and clarity in the thematic analysis.

Building on rigorous data management with NVivo, reflexive thematic analysis (RTA) guided the identification of themes and patterns within the data. Thematic analysis emphasizes identifying and interpreting themes that provide fresh insights and deeper understanding (Mishra & Dey, 2022; Naeem et al., 2023), and RTA specifically highlights the researcher's active role in theme construction through reflective and

flexible engagement with data (Braun & Clarke, 2024a, 2024b). The RTA approach aligned closely with the purpose of this study, as it facilitated interpretive exploration of healthcare IT leaders' strategies and experiences, enabling nuanced themes to emerge from participant insights and the researcher's analytical perspectives. Consequently, RTA supported the generation of themes that reflected the complexity of healthcare IT leadership strategies within digital transformation contexts.

Complementing the interpretive depth of RTA, thematic analysis followed a structured, recursive six-step process: "(1) familiarizing oneself with the data, (2) generating codes, (3) constructing themes, (4) reviewing potential themes, (5) defining and naming themes, and (6) producing the report" (K. A. Campbell et al., 2021). Adopting these structured analytical steps allowed progression beyond surface-level insights toward deeper meanings and theoretical understandings from participant experiences. Additionally, maintaining a reflective research journal log throughout the analysis documented methodological decisions, analytic interpretations, and researcher reflections. These reflective practices contributed to analytical transparency and methodological rigor, highlighting the iterative complexity of qualitative research (Ortlipp, 2008). Thus, reflective documentation further reinforced interpretive rigor and methodological transparency.

To enhance credibility and confirmability derived from RTA, member checking was conducted iteratively. After initial transcript analysis, participants received summaries of preliminary analyses to review and confirm interpretations accurately reflected their intended meanings. Member checking allowed participants to validate their

contributions, aligning researcher interpretations with participant perspectives, thus mitigating researcher bias and improving the accuracy of findings (Carcary, 2020; Iivari, 2018). Additionally, triangulation of multiple data sources—including semistructured interviews and publicly available documents—strengthened the validity and credibility of interpretations by confirming, refuting, or corroborating emerging themes (Guha et al., 2021). Combining member checking and triangulation enhanced the reliability, validity, and confirmability of thematic findings.

Finally, leveraging credibility and confirmability strategies, coded data were synthesized into clearly defined parent/child themes aligned explicitly with this study's conceptual framework. This framework provided a lens through which emergent themes related to digital sensing, digital seizing, digital transformation—and their underly essential capabilities—were interpreted within the healthcare IT leadership context. NVivo's tools facilitated exploring theme co-occurrences and interrelationships across participant cases, enriching the understanding of dynamic capabilities' strategies healthcare IT leaders used. Ultimately, synthesizing data within this robust conceptual framework produced thematically coherent, contextually grounded, and practically relevant findings that significantly enhanced knowledge regarding digital transformation strategies among healthcare IT leaders.

Study Validity

Reliability

Reliability in qualitative research refers to the consistency and repeatability of study findings and processes. Systematic procedures ensured the dependability of the

research design and the reliability of the interview instruments in establishing this study's reliability. Dependability was addressed by comprehensively documenting the research process—including participant selection, data collection, and analytical methods—to enable future researchers to replicate or audit this study under similar conditions. Such comprehensive documentation of procedures and methodological decisions was essential for establishing dependability because it enabled replication, auditability, and transparency in qualitative research, as highlighted by Janis (2022) and Johnson et al. (2020). Specifically, Janis emphasized documenting strategies, including data collection and analysis processes, to facilitate consistent interpretations despite methodological variations. Similarly, Johnson et al. underlined that rigorous documentation practices create an audit trail, ensuring that future researchers can understand, replicate, and validate the qualitative study's process and outcomes. Additionally, I maintained a research log audit trail to record decisions, documented procedural changes, which supported transparency throughout the research process. Batten and Brackett (2022) stressed the need to document a list of references that satisfy the inclusion criteria but were ultimately excluded, along with the reasons for their exclusion. These structured documentation strategies reinforced this study's methodological integrity and supported confidence in the research outcomes.

Building upon methodological integrity, careful preparation of the interview process was essential to ensure consistency, credibility, and alignment with research objectives. Effective interview planning involves employing a concise script with a limited number of broad, open-ended questions to encourage storytelling while

minimizing interviewer bias through limited verbal or nonverbal influence (Siedlecki, 2022). Therefore, an interview protocol (see Appendix A) was utilized consistently across all participant interviews, ensuring methodological reliability. This structured yet flexible protocol allowed participants to express rich, open-ended responses, mitigated potential interviewer bias, and ensured coherence with the research objectives. Consequently, consistent application of this interview protocol enhanced data quality and alignment with this study's exploratory purpose.

Complementing the interview protocol, member checking further strengthened reliability by allowing participants to review and verify the accuracy of their interpreted interview summaries. Member checking—also termed informant feedback or respondent validation—provides participants the opportunity to review transcripts and preliminary interpretations, enabling confirmation or correction of researcher understanding (McKim, 2023; Rowlands, 2021). Participants were encouraged to validate, clarify, or refine interpretations to ensure an accurate representation of their experiences. This practice helped prevent misinterpretation, reduced researcher bias, and enhanced data dependability. Thus, member checking served as a critical reliability strategy, significantly contributing to the credibility and trustworthiness of the research findings.

Validity

To ensure credibility (internal validity), methodological triangulation was employed by collecting and analyzing data from multiple sources, including semistructured interviews and publicly available documents. Triangulation enhanced the accuracy of research findings by allowing comparisons across various data sources,

identifying consistent patterns, and corroborating insights (Guha et al., 2021). Additionally, member checking was conducted, enabling participants to confirm, clarify, or amend researcher interpretations to ensure their perspectives were accurately captured. Hayat et al. (2021) and Motulsky (2021) underscored member checking as a vital technique for reinforcing rigor and credibility in qualitative research. Collectively, these approaches ensured that the research findings authentically represented participant experiences, significantly enhancing this study's trustworthiness.

Building upon credibility, transferability (external validity) was addressed by providing rich, detailed descriptions of this study's design, participant demographics, data collection procedures, and relevant contextual factors. Transferability evaluates whether a study's findings can be generalized or applied beyond the immediate research context to similar populations, settings, or circumstances (Stalmeijer et al., 2024). By thoroughly documenting research methodologies and decision-making processes, readers were able to assess the applicability of findings within their specific contexts. Thus, transparency in methodological descriptions supported the potential transferability of insights to comparable healthcare IT environments.

Complementing transferability, confirmability was enhanced by maintaining detailed records of data analysis processes, including coding schemes, theme construction, and interpretive decisions. The creation of comprehensive audit trails ensured analytical transparency and demonstrated that findings were well-grounded in empirical data (Megheirkouni & Moir, 2023). Additionally, bracketing was employed by actively reflecting on and documenting personal assumptions, biases, and positionality to

minimize their influence during analysis (Liang et al., 2020). This reflective practice ensured neutrality and objectivity, increasing accountability and transparency within the analytical process. Together, audit trails and bracketing significantly strengthened the confirmability of this study.

Finally, to ensure analytical completeness, data saturation was pursued by continuing data collection until no new themes, information, or insights emerged from additional interviews. Data saturation is considered achieved when further data collection ceases to provide novel or relevant insights (Islam & Aldaihani, 2022). Systematic pursuit of saturation ensured the comprehensiveness of qualitative data collection, thereby enhancing thematic depth, reliability, and overall analytic rigor.

Transition and Summary

In Section 3, I outlined the methodology for this qualitative study, justified the selected pragmatic inquiry design, detailed participant selection criteria, and described comprehensive procedures for data collection, organization, and analysis. I addressed ethical considerations, aligning with *The Belmont Report* and Walden University's IRB standards. I described the data collection methods, including semistructured interviews guided by an interview protocol and analysis of publicly available organizational or government documents. I also explained the research strategies used to ensure reliability and validity, such as member checking, triangulating multiple data sources, maintaining audit log trails, and conducting thematic analysis supported by NVivo software. Collectively, these methods ensured data integrity, analytical rigor, and trustworthy interpretations.

Building upon the methodological rigor established, Section 4 presents this study's findings aligned with the DCFDT. The findings reveal emergent themes that illustrate specific strategies some IT leaders in healthcare systems use to leverage DCDT. By providing detailed insights into these strategies, the results advance understanding, offer practical strategies for IT leaders, and hold potential for broader societal impact by enhancing healthcare systems' sustainability and effectiveness in fulfilling their mission to serve their communities.

Section 4: Application to Professional Practice and Implications for Change

In this section, I present and interpret this study's findings in relation to the research question. The results follow the DCDT, consisting of three dynamic capabilities—digital sensing, seizing, and digital transformation—and their nine underlying microfoundations, grouped into three each. I aligned the results of each interview question from all participants with their respective microfoundation interview question, then triangulated the main themes and strategies that emerged for leveraging DCDT from participant interviews with publicly available industry documents, and triangulated them in relation to the body of knowledge for that microfoundation to assess their validity.

Furthermore, this section extends beyond reporting results to discuss implications for professional IT practice and positive social change. By linking emergent themes and strategies to the conceptual framework and existing literature, Section 4 demonstrates how the findings contribute to theory, inform leadership practice, and highlight areas for future research. Together, these discussions provide the basis for understanding how IT leaders in healthcare systems can leverage DCDT to drive ongoing strategic renewal and achieve desired expected outcomes in a dynamic healthcare sector.

Presentation of the Findings

I collected data for this study through semistructured interviews with six senior IT leaders in U.S. provider-based healthcare systems with strategic leadership experience. Guided by the DCFDT, I analyzed the data using thematic analysis to generate codes, construct themes, and interpret patterns of IT leadership strategies.

To establish credibility with the findings, it is important to highlight the professional experience and roles of the participants (Boddy, 2016; K. A. Campbell et al., 2021; S. Campbell et al., 2020; Mohammadi et al., 2021). As shown in Table 2, the participants served as experienced senior IT leaders in provider-based U.S. healthcare systems. Their experience in these roles ranged from 10 to 29 years, with a mean of 16 years, reflecting substantial tenure and expertise in strategic IT leadership. This depth of experience underscores the validity of this study's results (Boddy, 2016; K. A. Campbell et al., 2021; S. Campbell et al., 2020; Mohammadi et al., 2021), as the themes identified are grounded in the perspectives of leaders directly responsible for shaping and executing IT strategy across healthcare systems.

Table 2

Participant Years in Position and Leadership Title(s)

Participant pseudonym	Years in position	Position/title
P1	10	Chief information officer
P2	15	Vice president, chief technology officer, & associate chief information officer
P3	13	Chief information officer
P4	29	Chief information & administrative officer
P5	17	Chief information officer
P6	13	Chief information officer

Building on this foundation, the interviews' thematic analysis identified three themes with 57 strategies. These themes and underlying strategies are organized by dynamic capability and its respective underlying microfoundation, as summed in Table 3.

Table 3

Number of Strategies by Theme (Dynamic Capability) and Underlying Microfoundation

Theme (dynamic capability)	*n*	Microfoundation	*n*
Digital sensing	21	Digital scouting	9
		Digital scenario planning	6
		Digital mindset	6
Digital seizing	17	Strategic agility	6
		Rapid prototyping	6
		Balancing digital portfolios	5
Digital transformation	19	Navigating innovation ecosystems	6
		Redesigning internal structures	7
		Improving digital maturity	6

Broadly, Table 4 presents 57 strategies that emerged from the three themes based on participant interviews, organized within the DCFDT by dynamic capability and its underlying microfoundation.

Table 4

Strategies Organized by Theme (Dynamic Capability) and Microfoundation

Theme (dynamic capability)	Microfoundation	Strategies
Digital sensing	Digital scouting	Defensive scouting to anticipate requests
		Identifying patient and community needs
		Leveraging analytics to align strategy
		Leveraging leadership influence
		Leveraging vendors and advisory sources
		Monitoring competitors and market shifts
		Networking to capture market signals
		Piloting to experiment and align strategy
		Sensing grassroots adoption
	Digital scenario planning	Applying AI to scenario planning
		Applying business scenarios to guide technology selection
		Balancing strategic priorities and technology refreshes
		Combining vendor roadmaps with user input
		Framing scenario planning as strategic wagering
		Leveraging analytics and pilots to test investments
	Digital mindset crafting	Demonstrating value with exemplars
		Exposing teams to external signals
		Framing technology mindset for value
		Institutionalizing digital-first practices
		Leading through constraints
		Structuring innovation programs
Digital seizing	Strategic agility	Adopting a product mindset for agility
		Building the business case for agility
		Designing architectural flexibility
		Empowering rapid response operations
		Orchestrating change for adoption
		Timing actions to healthcare context
	Rapid prototyping	Adopting product and agile practices
		Defining and protecting real pilots
		Demonstrating value and readying scale
		Engineering infrastructure for rapid testing
		Managing the pilot portfolio for decisions
		Running fail-fast, disciplined prototypes
	Balancing digital portfolios	Aligning investments through governance and stakeholder engagement
		Enforcing strategic alignment in investment decisions
		Filtering proposals by business alignment and technical fit
		Prioritizing via roadmaps and ranked portfolios
		Selling mission-linked value for foundational investments
Digital transformation	Navigating innovation ecosystems	Building structured innovation partnerships
		Co-developing with strategic vendor partners
		Governing co-development for mutual value
		Leveraging incubators and in-house innovation groups
		Scaling innovation through networking
		Setting partnership terms and contributing to the ecosystem
	Redesigning internal structures	Aligning roles to strategy and capabilities
		Continuously realigning roles to emerging needs
		Embedding change management in structural redesign
		Enabling innovation through project frameworks
		Evolving governance to enable redesign
		Leading structural change through trust and communication
		Triage and justify structural changes
	Improving digital maturity	Building a high-velocity talent system
		Defining digital ambition and modernizing foundations
		Learning and leveraging external expertise
		Measuring maturity and directing investment
		Operating a maturity model for targeted improvement
		Prioritizing process and resilience before technology

The 57 emerging strategies were triangulated with 13 publicly available documents to strengthen each's validity. These documents, representing guidance from government agencies and industry organizations, are listed in Table 5.

Table 5

Industry and Government Documents Used for Triangulation

Document ID	Author	Title	Strategies triangulated *n*
D01	Administration for Strategic Preparedness and Response	*2019-2023 Hospital Preparedness Program (HPP) performance measures implementation guidance (Updated).*	2
D02	Agency for Healthcare Research and Quality	*Health information technology horizon scanning.*	4
D03	Centers for Disease Control and Prevention	*Data Modernization Initiative: Fiscal Year 2024 President's Budget request—Fact sheet.*	4
D04	Federal Emergency Management Agency	*National risk and capability assessment.*	2
D05	National Institute of Standards and Technology	*Artificial Intelligence Risk Management Framework (AI RMF 1.0) (NIST AI 100-1).*	4
D06	NHS England	*What good looks like: A digital framework for NHS providers and systems.*	23
D07	NHS England	*Digital Technology Assessment Criteria (DTAC).*	5
D08	Office of the National Coordinator for Health Information Technology	*Federal Health IT strategic plan 2020-2025.*	13
D09	Office of the National Coordinator for Health Information Technology	*Health IT Playbook.*	5
D10	Organisation for Economic Co-operation and Development	*The OECD digital government policy framework: Six dimensions of a digital government.*	24
D11	U.S. Food and Drug Administration	*Digital Health Center of Excellence.*	4
D12	U.S. Government Accountability Office	*Agile assessment guide: Best practices for Agile adoption and implementation (GAO-20-590G).*	10
D13	World Health Organization	*Global strategy on digital health 2020-2025.*	10

Note. The References section contains the complete reference list for these documents.

These findings extend the existing body of knowledge by demonstrating how IT leaders operationalize dynamic capabilities in practice. The identified strategies confirmed the relevance of prior research on digital transformation and provided new insights into how IT leaders apply DCDT in a dynamic healthcare sector.

Narrowly, the following subsections, organized by dynamic capabilities and their underlying microfoundations, present the empirical findings for each microfoundation. For each, I report the number of identified strategies and list them in a table; restate the

relevant interview question; analyze the themes in relation to the research literature; triangulate the evidence against publicly available documents; situate the themes within the DCFDT conceptual framework; and articulate their contribution to improving healthcare IT practice. This structure provides a clear, cumulative foundation that links the findings to theory, evidence, and application.

Theme 1: Digital Sensing

This section reviews the first dynamic capability theme, digital sensing, which examines the strategies some IT leaders use to identify external signals, interpret emerging trends, and anticipate organizationally impacting triggers to inform digital strategy. The study identified 21 strategies within the digital sensing theme, distributed across its three underlying microfoundations: nine in digital scouting, six in digital scenario planning, and six in digital mindset crafting. The findings are presented through each microfoundation to illustrate IT leaders' strategies to sense digital opportunities and challenges in a dynamic healthcare sector.

Digital Scouting

The study identified nine strategies that emerged from the digital scouting microfoundation interview question, as illustrated in Table 6: "What strategies do you use in digital scouting to identify organizationally impacting external triggers, such as competitors' strategic shifts, changing consumer behaviors, disruptive digital technologies, and unmet consumer needs?"

Table 6

The Digital Sensing Theme's Strategies for Digital Scouting

Strategies	Participant *n*	Document *n*
Defensive scouting to anticipate requests	1	2
Identifying patient and community needs	3	1
Leveraging analytics to align strategy	2	2
Leveraging leadership influence	4	1
Leveraging vendors and advisory sources	3	1
Monitoring competitors and market shifts	3	1
Networking to capture market signals	3	1
Piloting to experiment and align strategy	1	2
Sensing grassroots adoption	1	1

Emerged Strategies. The analysis revealed nine strategies illustrating how IT leaders sense external signals to transform environmental awareness into organizational action. These themes collectively describe how participants engaged in digital scouting as an outward-facing, analytics-informed capability that converts outside insights into timely, value-focused options the organization can act on. Together, they demonstrate how digital sensing enables IT leaders to position technology strategy proactively within dynamic healthcare environments.

Defensive scouting to anticipate requests emerged as a theme describing how IT leaders prepared informed responses to stakeholder and executive inquiries before they were formally requested. P2, P4, and P5 explained that anticipating executive or governance needs allowed IT to respond quickly and credibly, as P4 stated, "Scouting is often defensive—predicting requests from others and being ready with informed responses." This proactive anticipation positioned IT as a trusted partner that could respond to leadership needs with strategic foresight.

Building on the need for readiness, *networking to capture market signals* reflected how participants used professional associations, peer roundtables, and executive conversations to identify early indicators of emerging digital trends. P1, P2, and P6 noted that participation in these networks provided environmental context, as P1 described, "The local hospital association is often valuable … to understand what is going on in your community." Participants expanded their organizational awareness beyond internal boundaries through these external connections and gained early insights into sector-wide shifts.

Another outward-oriented practice was *leveraging vendors and advisory sources*, in which P2, P3, and P5 described drawing on vendors, advisory firms, and industry media to broaden awareness of technological trends. Engaging with analysts and solution providers helped participants benchmark innovations, interpret complex market signals, and identify strategic investment opportunities. This theme emphasized how vendor and advisory relationships served as a structured extension of organizational intelligence-gathering.

Complementing these external sources, *monitoring competitors and market shifts* illustrated how participants remained attentive to industry disruptions and peer activities to inform strategic positioning. P1, P3, P5, and P6 shared that observing competitor initiatives and market changes provided valuable context for evaluating organizational decisions and future priorities. Monitoring peer performance and technology adoption allowed IT leaders to align their strategies with market realities while identifying emerging threats and opportunities.

Identifying patient and community needs highlighted how external sensing was grounded in consumer expectations and community engagement. P1, P2, P3, and P6 described focusing on unmet community needs and patient preferences as signals for guiding digital innovation and equitable access initiatives. This theme reflected the translation of digital sensing from abstract market awareness into tangible service alignment that enhances patient outcomes and organizational relevance.

Internally, the focus of sensing shifted toward using data and relationships to align strategy with organizational realities. *Leveraging analytics to align strategy* captured how participants used performance analytics to identify operational pressures, align digital investments with business goals, and establish measurable progress indicators. As P1 explained, "Those metrics then cascaded throughout the organization," illustrating how analytics transformed observation into strategic execution. This theme demonstrated how internal sensing practices allowed IT leaders to translate information into coordinated, evidence-based decision-making.

Leveraging leadership influence described how P3, P4, and P6 used their leadership presence and executive relationships to advocate for digital priorities and integrate technology into broader governance agendas. By linking digital initiatives to the CFO, COO, and clinical strategies, participants increased organizational sponsorship for digital transformation efforts. This theme underscored the relational dimension of sensing, where influence and alignment enhanced IT's credibility and impact.

Piloting to experiment and align strategy represented an adaptive theme in which P5 and P6 discussed the use of pilots to validate innovations and align them with

enterprise objectives. Piloting enabled experimentation within controlled parameters, generating learning that informed broader digital investment decisions. As P5 shared, "This shift increased the number of pilots we ran—from a few per year to 20 or 30 pilots across different business areas." Through iterative experimentation, participants transformed uncertainty into organizational readiness for larger-scale transformation.

Finally, *sensing grassroots adoption* revealed how P3 and P6 monitored informal or unsanctioned technology use within the organization to detect emerging patterns of digital need. P6 explained, "We use monitoring software called Auvik, which tracks network activity and reports back to us," highlighting how monitoring tools captured real-time usage data to identify bottom-up innovations. This theme demonstrated how informal user behaviors were precursors to formal adoption, signaling where digital solutions were organically gaining traction.

These nine strategies collectively illustrate how participants integrated external awareness, internal analytics, and relational influence into a unified digital scouting capability. By connecting environmental observation with organizational learning, participants demonstrated how digital sensing is the foundation for adaptive, insight-driven digital transformation strategies in healthcare systems.

Triangulation. Triangulation shows that digital scouting is anchored by a small set of public frameworks that align cleanly with the strategies. The AHRQ Health IT Horizon Scanning report (D002) corroborates the strategies defensive scouting to anticipate requests, monitoring competitors and market shifts, sensing grassroots adoption, and piloting to experiment and align strategy by formalizing forward-looking

scans, horizon alerts, and early trials that de-risk bigger bets—"The purpose of the Health IT Horizon Scanning project was to identify the trends that inform the future of health IT research and to develop research priorities based upon those trends."

Moreover, the OECD Digital Government Policy Framework (D010) corroborates the strategies networking to capture market signals, leveraging leadership influence, leveraging vendors and advisory sources, piloting to experiment and align strategy, leveraging analytics to align strategy, and defensive scouting to anticipate requests through digital-by-design leadership, cross-sector collaboration, measurement, and iterative delivery—"A digital by design culture requires… leadership" The CDC Data Modernization Initiative (D003) corroborates the strategies leveraging analytics to align strategy and identifying patient and community needs by institutionalizing data capture, reporting, and evidence use in public health—"Automate electronic data capture and reporting." Together, these documents validate each theme in the Q1 codebook while minimizing redundancy: AHRQ grounds anticipatory and market sensing (and pilots), OECD frames stakeholder-networked, measured, iterative practice (and analytics/defensive posture), and CDC underwrites analytics-driven prioritization and community-anchored needs assessment.

Findings in Relation to Literature. Across the nine themes, digital scouting in this study operates as a disciplined sensing capability that turns diverse external cues into pilotable options and governance-ready decisions. Defensive scouting to anticipate requests extends Shaked (2021), who argued that proactive digital capabilities reduce barriers to action by institutionalizing executive pre-briefs that compress the time from

question to decision. Identifying patient and community needs confirms Binci et al. (2022), who showed that remote-monitoring and IoT reveal unmet needs and enable earlier, equity-aware response, by routing those signals into priorities for innovation. Leveraging analytics to align strategy confirms Joel et al. (2024), who demonstrated that combining analytics with customer feedback sharpens early detection and product-fit, and it extends Najem et al. (2024), who contended that competitive scouting enables anticipatory adjustment, by showing how metric cascades translate market pressure into enterprise alignment. Leveraging leadership influence aligns with Verhoef et al. (2021), who positioned digital agility as leadership-enabled sensing and seizing, by illustrating how executive framing and sponsorship elevate sensed signals to organization-level priorities. Leveraging vendors and advisory sources corresponds to Hameed et al. (2024), who emphasized continual tracking of technological trajectories for applicability, and it integrates Garcia-Perez et al. (2023), who argued that advanced cybersecurity capabilities strengthen proactive and reactive preparedness; as a boundary condition consistent with McGraw and Mandl (2021), single-channel or vendor-led scanning is insufficient without triangulation across internal analytics and community evidence. Monitoring competitors and market shifts confirms Najem et al., who argued that competitor moves and market jolts are leading indicators for anticipatory adjustments by linking rival deployments and disruptive technologies to timely strategy changes. Networking to capture market signals converges with McGraw and Mandl, who advocated a multidimensional approach to scanning, and it extends Wendt et al. (2022), who found that small to medium enterprises use digital tools to monitor markets and sustain relationships by formalizing associations,

roundtables, and peer exchanges as low-latency channels for actionable intelligence. Piloting to experiment and align strategy is supported by Shaked, who argued that pilot experiments bridge sensing to seizing by generating evidence that informs portfolio decisions. Sensing grassroots adoption aligns with Wendt et al., who noted bottom-up digital practices as meaningful market signals, by elevating unsanctioned but promising tool use into organizational consideration. The strategies and supporting literature depict scouting as a blend of analytics, leadership sponsoring, equity-aware patient signals, grassroots cues, and technology/advisory/competitor/networking engagements that consistently surface investable options.

Situated Within DCFDT. Framed by DCFDT's digital sensing, and signaled by external triggers (e.g., competitive moves, technology changes, policy signals), the strategies listed in Table 6 operationalize digital scouting by curating external signals, spotlighting quick-win exemplars, and normalizing scanning routines that channel curated inputs into time-boxed tests and portfolio intake. Albino et al. (2023) explicitly defined digital scouting as "scanning for technological trends," "screening of digital competitors," "reaching and engaging customers and online communities," and "sensing customer-journey pain points," positioning scouting as the disciplined intake for internal decision routines. In this way, digital scouting transforms external triggers into structured options that feed digital scenario planning.

For IT Practice. The synthesis shows a cadence that links sensing to execution: integrate analytics and customer feedback with leadership-sponsored scanning; triangulate vendor/advisory and cybersecurity inputs with competitor and networking

signals; incorporate patient/community evidence alongside grassroots cues; document and rate signals; and route the strongest items to governance-aligned pilots that inform investment and scale. In practical terms, this cadence preserves speed without sacrificing discipline and keeps digital choices anchored to enterprise priorities.

Digital Scenario Planning

The study identified six strategies that emerged from the digital scenario planning microfoundation interview question, as illustrated in Table 7: "What strategies do you use in digital scenario planning to systematically evaluate potential digital technology investments for an organization?"

Table 7

The Digital Sensing Theme's Strategies for Digital Scenario Planning

Strategies	Participant *n*	Document *n*
Applying AI to scenario planning	1	2
Applying business scenarios to guide technology selection	2	1
Balancing strategic priorities and technology refreshes	1	2
Combining vendor roadmaps with user input	3	1
Framing scenario planning as strategic wagering	3	1
Leveraging analytics and pilots to test investments	1	1

Emerged Strategies. Leaders in this study used scenario planning to convert uncertainty into value-tested investment choices that can be defended to governance. This overarching pattern reflects how respondents framed investment options as decision-ready scenarios grounded in organizational realities and expected outcomes, positioning scenario planning as a disciplined bridge between ambiguity and action.

Applying AI to scenario planning emerged as a targeted approach for quantifying expected value where outcomes and costs are tightly coupled. P6 described closing the

loop between impact and spend: “So our scenario planning uses AI to evaluate potential investments by showing both health outcomes and cost impact.” In this view, AI serves as an evaluative scaffold that reduces ambiguity by translating unstructured information into clinical and financial value signals. This theme, therefore, frames AI as an analytic accelerator that sharpens investment decisions under uncertainty.

Building on the need for clarity about value creation, *applying business scenarios to guide technology selection* focused attention on workflows and problem–solution fit. P5 emphasized anchoring choices in operational reality, stating, “We use something called a ConOps—a concept of operations … to pinpoint where IT can provide value in that workflow or outcome,” whereas P3 reinforced using scenario logic to surface trade-offs before committing resources. As a result, business-scenario framing channels technical possibilities into concrete, testable use cases that are legible to stakeholders.

Complementing use-case discipline, *balancing strategic priorities and technology refreshes* ensured timing and lifecycle considerations remained aligned with enterprise objectives. Participant P2 explained the demand-pull from strategy, saying, “We look at our business strategic priorities and then determine what enabling technologies can support those priorities,” while acknowledging refresh cycles and end-of-life drivers shaping this balance. This balance integrates governance priorities with lifecycle realities so that commitments are sequenced when value and timing converge.

To unify directional guidance with frontline needs, *combining vendor roadmaps with user input* fused top-down trajectories with bottom-up requirements. Participant P4 described how “that top-down vendor perspective combines with bottom-up user input

and strategy alignment." Furthermore, participants connected partner roadmaps to internal roadmaps to synchronize capabilities and adoption windows (P2, P4, and P5). This integration helps minimize mismatch risk by reconciling what vendors will deliver with what users actually need.

To make risk posture explicit, *framing scenario planning as strategic wagering* treated choices as informed bets that privilege value over short-term cost containment. Participant P3 said, "I budget above and beyond what is needed. … I'd rather have it and not need it than need it and not have it." Therefore, participants linked the wager metaphor to learning and speed, especially when innovation cycles are fast (P3, P5, and P6). This theme thus normalizes uncertainty by situating investment as a managed, evidence-seeking wager rather than a binary prediction.

Operationalizing evidence, *leveraging analytics and pilots to test investments* used baselines and small-scale trials to validate assumptions before scaling. Participant P1 emphasized a disciplined arc—"my mind goes to analytics—understanding that baseline and then understanding where you want to go"—treating pilots as hypothesis tests that refine value estimates and de-risk subsequent rollout. In effect, analytics and pilots transform scenario planning from a conceptual exercise into a measured progression of learning.

Taken together, these six themes depict a coherent scenario-planning capability in which leaders frame choices as business scenarios, synchronize partner roadmaps with user needs, time decisions with governance and refresh cycles, test with analytics and

pilots (including AI), and acknowledge investment as a managed wager that turns uncertainty into timely, value-focused action.

Triangulation. Triangulation shows that scenario planning is enacted through a small set of widely adopted public frameworks that align cleanly with the strategies. The NIST AI Risk Management Framework (AI RMF 1.0; D005) corroborates the strategy applying AI to scenario planning by formalizing evaluation and control activities across the AI lifecycle: "The AI RMF Core … four functions: GOVERN, MAP, MEASURE, and MANAGE." The GAO Agile Assessment Guide (D012) corroborates the strategy applying business scenarios to guide technology selection and leveraging analytics and pilots to test investments by emphasizing incremental, outcome-visible delivery and governance—"Agile emphasizes the delivery of working solutions in small, usable increments"—and it also informs balancing strategic priorities and technology refreshes by sequencing value in short cycles.

Moreover, the ONC Federal Health IT Strategic Plan 2020–2025 (D008) corroborates the strategy balancing strategic priorities and technology refreshes and combining vendor roadmaps with user input through explicit alignment, resource prioritization, and benchmarking—"This Plan … may be used to: Prioritize resources … Align priorities … Benchmark and assess progress." Finally, the FEMA National Risk & Capability Assessment (THIRA/SPR; D004) corroborates the strategy framing scenario planning as strategic wagering—and, together with NIST, strengthens applying ai to scenario planning—by standardizing risk-based scenarios and capability targets ("The

THIRA is a three-step risk assessment process… identify and understand their risks and what they need to do to address those risks.").

Findings in Relation to Literature. Across the six themes, digital scenario planning in this study operates as a structured foresight discipline that translates uncertainty into testable options and sequenced investment choices. Applying AI to scenario planning aligns with Binci et al. (2022), who argued that advanced predictive technologies enable earlier anticipation and proactive adjustment of care pathways, and it nuances Naamati-Schneider et al. (2024a), who cautioned that predictive capabilities provoke fairness and accountability concerns best addressed by explicit ethical leadership. Applying business scenarios to guide technology selection extends Vallatos et al. (2021), who showed that scenario-based coordination can bridge immediate needs and broader operations, and it aligns with Rawson and Stevens (2023), who positioned scenario planning as an organizational sensemaking device during disruption; it also corresponds to Nielsen et al. (2024), who demonstrated that narrative management and strategic communication help leaders mobilize scenario insights. Balancing strategic priorities and technology refreshes aligns with Lindroth et al. (2022), who highlighted reconciling present efficiency with future readiness, and it extends Shafizadeh (2024) by treating lifecycle-timed refreshes as deliberate options that build adaptive capacity over time. Combining vendor roadmaps with user input corresponds to Hameed et al. (2024), who argued that technological awareness must be embedded in evaluation or outcomes are constrained by process misalignment, and it converges with Gjellebaek et al. (2020) and Nielsen et al., who showed that middle-management and frontline participation

improve fit, feasibility, and organizational understanding. Framing scenario planning as strategic wagering extends Shafizadeh by using reversible contracts and modular designs as managed bets on the future, and it aligns with Koebe and Bohnet-Joschko (2023), who contended that scenario planning equips institutions to anticipate and adapt to forthcoming change. Leveraging analytics and pilots to test investments confirms Albino et al. (2023), who emphasized integrating internal and external data to evaluate opportunities proactively, and it extends that stance by using pilot evidence as the explicit bridge from foresight to capital decisions. The strategy and supporting literature portray scenario planning as a blend of predictive insight, business-scenario discipline, adaptive resourcing, technology-user alignment, and staged experimentation that moves leaders from uncertainty to investable choices.

Situated Within DCFDT. Framed by DCFDT's digital sensing, Table 7 strategies operationalize digital scenario planning by interpreting plausible digital futures with integrated internal–external data, framing business-scenario options, and evaluating organizational implications. Albino et al. (2023) defined this microfoundation as "interpreting future digital scenarios" and "formulating digital strategies based on internal and external data," emphasizing analytic routines that learn from scouted signals and appraise opportunities. In this way, scenario planning converts curated signals into testable choices that prime digital mindset crafting to communicate purpose and vision.

For IT Practice. Translated into action, the synthesis implies a cadence that links governance to execution: integrate internal and external data to scope futures; articulate business scenarios that anchor value and communication; schedule refreshes to balance

reliability with capability; co-filter vendor roadmaps with user and middle-management input; treat strategic moves as option-like wagers with reversible designs; and run time-boxed pilots that produce evidence for stage-gated governance. This cadence preserves speed without sacrificing discipline and aligns digital investments with enterprise priorities.

Digital Mindset Crafting

The study identified six strategies that emerged from the digital mindset crafting microfoundation interview question, as illustrated in Table 8: "What strategies do you use to foster an organizational culture with a digital mindset that encourages openness to innovation and continuous learning?"

Table 8

The Digital Sensing Theme's Strategies for Digital Mindset Crafting

Strategies	Participant *n*	Document *n*
Demonstrating value with exemplars	1	3
Exposing teams to external signals	1	1
Framing technology mindset for value	2	2
Institutionalizing digital-first practices	2	2
Leading through constraints	3	1
Structuring innovation programs	2	2

Emerged Strategies. Six strategies emerged to shape how people think about and embrace digital—using exposure, exemplars, structure, and everyday habits so that technology serves outcomes, not the other way around. These themes illustrate how participants cultivated digital mindsets by connecting tangible results, shared learning, and behavioral reinforcement that sustain transformation.

Demonstrating value with exemplars represented the first strategy and described how leaders used visible quick wins and technology exemplars to shift perceptions and increase openness to change. Participant P6 explained how pilot implementations demonstrated value: “We also implemented… Nuance DAX… piloting Abridge… Providers are excited to compare them.” Participants translated digital transformation from abstraction to evidence by showcasing immediate, outcome-driven examples. This theme underscores that visible exemplars can make digital potential credible, tangible, and desirable across the organization.

Extending this idea, *exposing teams to external signals* revealed how participants encouraged curiosity and broadened awareness through peer networks, vendor partnerships, and industry interactions. Participant P2 discussed connecting staff to external sources of inspiration by fostering relationships that “expand awareness by connecting staff to industry ideas, peers, vendors, and hands-on experimentation.” Exposure to outside perspectives allowed participants to refresh thinking, benchmark practices, and encourage learning beyond local boundaries. Through these connections, participant P2 cultivated curiosity and sustained readiness for new working methods.

Supporting these exposure efforts, *structuring innovation programs* provided formal mechanisms for experimentation and participation across the organization. P1 described that “you need structure or some sort of methodology as to how you approach it,” whereas P4 emphasized the need for organized pathways that move ideas from concept to testable pilot. This structure ensured that innovation was not accidental but

intentional, scalable, and aligned with institutional goals. Together, these practices show that structured participation converts inspiration into disciplined exploration.

Moving from structural design to behavioral influence, *framing technology mindset for value* focused on positioning technology as a means to achieve outcomes rather than an end in itself. P3 and P6 emphasized the importance of communicating value clearly and maintaining flexibility, as P3 stated, “The strategy would be accepting that change is the only constant.” Participants explained that reframing digital conversations around value helps teams focus on results rather than tools. This approach reinforces the mindset that digital transformation is less about technology adoption and more about achieving measurable improvement.

From mindset to behavior, *institutionalizing digital-first practices* described how participants embedded habits, training, automation cues, and trust-building to normalize digital-first operations. P1 and P5 discussed building routines and expectations that sustain engagement over time, reinforcing that digital-first thinking becomes natural through repeated, supported actions. These practices signaled that digital maturity depends not only on strategy but also on repetition and reinforcement that embed transformation into daily work.

Finally, *leading through constraints* illustrated how P1, P2, and P4 maintained vision and optimism despite resource limitations. Participant P4 described the discipline required to “counter scarcity and sustain curiosity during difficult periods,” whereas others framed constraints as a catalyst for creativity rather than a barrier to progress. This

theme demonstrated that effective leadership in digital transformation requires resilience and focus—keeping teams oriented toward long-term goals even amid uncertainty.

These six strategies demonstrate how participants integrated visibility, exposure, structure, value focus, behavioral normalization, and resilient leadership into a coherent mindset-crafting capability. Participants illustrated how digital mindset cultivation becomes a sustained organizational competency rather than a temporary initiative by linking exemplars to curiosity, structure to practice, and leadership to persistence.

Triangulation. Triangulation shows that mindset crafting is anchored by a small set of public frameworks that align cleanly with the strategies. The OECD Digital Government Policy Framework (D010), NHS What Good Looks Like (WGLL; D006), and the WHO Global Strategy on Digital Health 2020–2025 (D013) together corroborate the strategy demonstrating value with exemplars by calling for visible, outcome-oriented demonstrations, board-level enablement, and skills development (e.g., "A digital by design culture requires… leadership a…"; "Boards are equipped to lead digital transformation…"; "Promote and facilitate digital health competencies…"). The OECD Digital Government Policy Framework (D010) corroborates the strategy exposing teams to external signals by urging cross-sector collaboration and shared learning ("…embed 'digital' throughout service design and policy processes.").

Moreover, the WHO Global Strategy on Digital Health 2020–2025 (D013) and OECD Digital Government Policy Framework (D010) corroborate the strategy framing technology mindset for value by positioning technology as a means to outcomes and by emphasizing leadership behaviors that keep value in view. The NHS WGLL (D006) and

WHO Global Strategy on Digital Health 2020–2025 (D013) corroborate the strategy of institutionalizing digital-first practices by normalizing training, routines, and trust-building mechanisms ("Boards are equipped… data strategy, cyber security"; "Promote and facilitate digital health competencies"). The NHS WGLL (D006) corroborates the strategy leading through constraints by pairing governance and risk management with pragmatic delivery guardrails. Finally, the OECD Digital Government Policy Framework (D010) and NHS WGLL (D006) corroborate the strategy structuring innovation programs by defining leadership, forums, and operating methods that turn scattered ideas into a repeatable, organization-wide mechanism for experimentation and contribution.

Findings in Relation to Literature. Across the six themes, digital mindset crafting in this study is a leadership-enabled cultural capability that turns everyday work into sustained openness to innovation and disciplined learning. Demonstrating value with exemplars aligns with Vallatos et al. (2021), who argued that rapid, visible experimentation legitimizes change under uncertainty, and extends Shaked (2021), who contended that organizations proactively engaging in experimentation encounter fewer barriers by showing how quick wins function as explicit learning evidence. Exposing teams to external signals aligns with Nadkarni and Prugl (2020), who maintained that senior leaders must themselves adopt digital mindsets to navigate complexity and leverage emerging technologies, and extends Volpentesta et al. (2023), who argued that leadership must adopt and reinforce digital mindsets to overcome entrenched organizational logic, by operationalizing leadership diffusion through systematic benchmarking, peer exchanges, and conference engagement.

Furthermore, framing technology mindset for value corresponds to Thanislas (2024), who linked digital-first business models to evolving expectations such as virtual care, and nuances Solberg et al. (2020), who highlighted the influence of employee belief systems on engagement, by showing that outcome-oriented narratives strengthen sense-making, whereas tool-centric framing can dampen participation. Institutionalizing digital-first practices aligns with Hameed et al. (2024), who emphasized that digital technologies must be consistently aligned with broader objectives, and extends Albino et al. (2023) and Volpentesta et al. (2023), who described long-term vision, entrepreneurial posture, and innovative skill teams, by translating intention into default-to-digital policies, norms, and prioritization routines. Leading through constraints converges with Brommeyer and Liang (2022), who advocated competency-based models that empower employees to decide within digital ecosystems, and with Binci et al. (2022) and Akinwale and AboAlsamh (2023), who argued for continuous training and broad digital literacy to preserve momentum when resources are tight.

Moreover, structuring innovation programs confirms Shaked (2021) that experimentation reduces barriers and extends Vallatos et al. (2021) by formalizing dedicated teams, stage-gates, and protected budgets so experimentation becomes routine rather than episodic. The strategies and supporting literature indicate that mindset crafting synchronizes discovery, value framing, and controlled experimentation into coherent organizational progress.

Situated Within DCFDT. Framed by digital sensing, the Table 8 strategies operationalize digital mindset crafting by socializing a durable vision, enabling an

entrepreneurial orientation, and equipping teams to explore complementary innovations—so scenario-planning options can be understood and adopted. Albino et al. (2023) described this microfoundation as "establishing a long-term digital vision," "advocating a digital mindset," and "arranging a visionary/innovative skill team," clarifying the human routines that prepare organizations to recognize and pursue digitally enabled opportunities. In this way, mindset crafting builds shared intent and confidence, enabling strategic agility to act decisively under uncertainty.

For IT Practice. Translated into action, the synthesis implies a cadence that links culture to execution: deliberately expose staff to outside signals; frame proposals in outcome value that resonates with service models; showcase exemplars to lower adoption friction; codify digital-first expectations through policy and portfolio ranking; stand up innovation teams with stage-gates and protected resources; and sustain progress under constraints through competency-based development and continuous training. In practical terms, this cadence compounds capability while protecting reliability and keeps transformation aligned with organizational purpose.

Theme 2: Digital Seizing

With this study's findings for the first dynamic capability theme, digital sensing, complete, this section reviews the second dynamic capability theme, digital seizing, which examines the strategies some IT leaders use to mobilize resources, make investment decisions, and capture value by acting on identified digital opportunities. The study identified 17 strategies within the digital seizing theme, distributed across its three underlying microfoundations: six in organizational strategic agility, six in rapid

prototyping, and six in balancing digital portfolios. The findings are presented through each microfoundation to illustrate IT leaders' strategies to translate foresight into action and generate value from digital opportunities.

Strategic Agility

The study identified six strategies that emerged from the organizational strategic agility microfoundation interview question, as illustrated in Table 9: "What strategies do you use to ensure organizational strategic agility when responding to rapid technological shifts and evolving stakeholder needs?"

Table 9

The Digital Seizing Theme's Strategies for Strategic Agility

Strategies	Participant *n*	Document *n*
Adopting a product mindset for agility	2	1
Building the business case for agility	1	2
Designing architectural flexibility	2	3
Empowering rapid response operations	2	1
Orchestrating change for adoption	2	2
Timing actions to healthcare context	1	3

Emerged Strategies. Six strategies emerged as a practical ability to realign strategy and pivot operations at the pace of change without losing sight of healthcare's realities. Collectively, these themes reflect how leaders engineered adaptability—balancing rapid movement with safety, structure, and credibility—so digital transformation efforts could evolve without destabilizing care delivery.

Orchestrating change for adoption represented a central theme focused on coordinating people, processes, and partners so that new technology is implemented and meaningfully used. P1 and P5 emphasized that successful adoption requires early

engagement and shared ownership. As P1 noted, “Change impacts people’s day-to-day lives, so they need to feel they are not at risk and can contribute meaningfully… people do better with change they help shape.” This approach positions adoption as a participatory process rather than a top-down directive, ensuring that change becomes sustainable through involvement and trust.

Extending this human-centered foundation, *adopting a product mindset for agility* involves treating digital initiatives as products that evolve iteratively through feedback and continuous value delivery. P2 and P3 explained that this mindset allows organizations to move away from long, rigid project cycles toward incremental progress. Participant P2 said, “With a product mindset, you iterate quickly, deliver incremental value, and start realizing benefits sooner,” while P3 emphasized that shorter feedback loops enhance alignment and learning. This orientation makes agility an operational habit rather than a special initiative.

At the same time, participants recognized that speed must be tempered with context through *timing actions to healthcare context*. Participant P4 highlighted that agility in healthcare requires respecting its unique risk profile, regulatory obligations, and safety imperatives, emphasizing that timing pivots “to the realities of healthcare’s pace, risk profile, and regulatory constraints” is essential. Participant P4 demonstrated that responsible agility protects patient safety and organizational credibility by pacing transformation in harmony with clinical realities.

Underneath these strategic orientations, IT leaders must develop the technical and operational infrastructure enabling responsiveness. *Designing architectural flexibility*

captured how P3 and P5 created adaptable technology foundations, capacity reserves, and licensing models that allow quick pivots when conditions change. Participant P3 explained, “That means carrying some technological overhead… It allows the organization to respond quickly to urgent needs.” This theme revealed that flexibility is an engineered capability, not an accident—it depends on intentional design choices that preserve room to maneuver when uncertainty arises.

Building on this technical flexibility, *empowering rapid response operations* described how P3 and P5 restructured decision pathways, tools, and operating norms to enable faster, more localized reactions. Participant P5 emphasized reorganizing teams and reducing handoffs so decisions could occur “closer to the work” at market speed. Participants institutionalized responsiveness as a normal part of daily operations rather than an exception by shortening approval chains and embedding decision rights within teams.

Finally, *building the business case for agility* addressed how participants justified investment in adaptive capacity. Participant P6 discussed using pilots, case studies, and ROI framing to translate urgency into authorization: “Bringing in case studies and facts from other organizations…” and reframing risk so boards “reallocate resources when they understand the risks.” This theme illustrated that advocacy for agility requires converting narrative urgency into a measurable, evidence-based rationale that secures leadership support.

Together, these six strategies illustrate how participants transformed adaptability from a reactive behavior into a strategic capability. By engaging people early, iterating

through product thinking, respecting healthcare's constraints, engineering flexibility, decentralizing decisions, and quantifying value, leaders created the operational dexterity to pivot strategy responsibly and sustain momentum in complex healthcare environments.

Triangulation. Triangulation shows that organizational strategic agility is anchored by a small set of public frameworks that align cleanly with the strategies while minimizing redundancy across sources. The ASPR Hospital Preparedness Program (HPP) Guidance (D001) corroborates the strategy adopting a product mindset for agility by operationalizing rapid coordination, surge readiness, and iterative learning—"HCCs must complete the MRSE annually… data from the MRSE are used to respond to PMs 14 to 21." The NHS WGLL (D006) and the GAO Agile Assessment Guide (D012) corroborate the strategy building the business case for agility through board-level enablement and incremental, outcome-visible delivery—"Boards are equipped to lead digital transformation…" and "Agile emphasizes the delivery of working solutions in small, usable increments." The WHO Global Strategy on Digital Health 2020–2025 (D013), ASPR HPP Guidance (D001), and the NIST AI Risk Management Framework (AI RMF 1.0) (D005) corroborate the strategy designing architectural flexibility by emphasizing interoperable platforms, readiness exercises, and governed technical evaluation—"Promote and facilitate digital health competencies…," "HCCs must complete the MRSE annually…," and "The AI RMF Core… GOVERN, MAP, MEASURE, MANAGE."

Moreover, the ONC Federal Health IT Strategic Plan 2020–2025 (D008) corroborates the strategy empowering rapid response operations by aligning priorities, resourcing, and benchmarking so teams can act at market speed—"This Plan… may be

used to: Prioritize resources… Align priorities… Benchmark and assess progress." The OECD Digital Government Policy Framework (D010) and NHS WGLL (D006) corroborate the strategy orchestrating change for adoption by pairing digital-by-design leadership with transparent governance and skills development—"A digital by design culture requires… leadership…" and "Boards are equipped…" Finally, the FEMA National Risk & Capability Assessment (THIRA/SPR) (D004), CDC Public Health Emergency Preparedness/Response materials (as mapped in your file), and the ONC Federal Health IT Strategic Plan 2020–2025 (D008) corroborate the strategy, timing actions to healthcare context via scenario-based risk framing, operational constraints, and outcomes-based sequencing—"The THIRA is a three-step risk assessment process… identify and understand their risks…," paired with ONC's alignment and measurement language.

Findings in Relation to Literature. Across the six strategies, strategic agility in this study operates as an execution discipline that converts rapid sensing into paced responses, resource shifts, and controlled redirection. Adopting a product mindset for agility aligns with Albino et al. (2023), who define strategic agility as pacing responses, rapidly reallocating resources, and accepting redirection, and it is reinforced by Wendt et al. (2022) and Browder et al. (2024), who show that swift reallocation and streamlined processes sustained hospital operations under crisis; this strategy further extends Binci et al. (2022) by linking iterative releases to tangible clinical and operational gains.

Furthermore, building the business case for agility accords with Brommeyer and Liang (2022), who argue that digital policies must be embedded in core objectives, and

converges with Frick et al. (2021), who emphasize that aligning stakeholder mindsets legitimizes iteration and reallocation. Designing architectural flexibility corresponds to Afridi and Khan (2024) and Akinola and Telukdarie (2023), who position AI/IoT-enabled, modular designs as enablers of rapid care-model adaptation, while Li and Carayon (2021) argue that interoperable, interconnected systems are essential for coordinated change. Empowering rapid response operations aligns with C.-W. Huang et al. (2023), who demonstrate that enterprise process transformation and better user interaction raise efficiency, and converge with W.-L. Huang et al. (2024), who show Lean Six Sigma and robotic process automation accelerate decisions and throughput. Orchestrating change for adoption resonates with Adama and Okeke (2024) and Volpentesta et al. (2023), who maintain that overcoming structural inertia and reconfiguring routines are prerequisites for realizing benefits in practice.

Moreover, timing actions to healthcare context aligns with Prashar (2024), who identifies structural, regulatory, and resource enablers as preconditions for effective response, and confirms Unterhofer et al. (2022) that systematic agile methods and structured digital strategies improve efficiency; as a boundary condition, misaligned timing and missing enablers can stall or fragment execution. These strategies and supporting literature arguments depict strategic agility as the blend of product operating models, value-anchored justification, modular/interoperable architecture, empowered response, managed change, and calendar-aware timing that turns uncertainty into sequenced commitments.

Situated Within DCFDT. Framed by digital seizing, the Table 9 strategies operationalize strategic agility by creating the decision tempo and resourcing flexibility needed to move from options to action. Albino et al. (2023) define strategic agility routines as "pacing strategic responses," "rapidly reallocating resources," and "accepting redirection and change," which specify how organizations select among competing opportunities during seizing. In this way, strategic agility sets the cadence and capacity that enable rapid prototyping to learn at speed.

For IT Practice. Translating the synthesis into action implies a cadence that links governance to execution: operate initiatives as products with iterative backlogs; require goal-linked business cases and policy alignment to justify reallocation; design modular, interoperable, AI/IoT-ready architectures; empower frontline teams with streamlined, safeguarded response pathways; use formal change frameworks and co-design to convert trials into standard work; and time releases to clinical workflows, regulatory cycles, and readiness constraints. In practical terms, this cadence preserves speed without sacrificing reliability and keeps digital choices anchored to enterprise priorities.

Rapid Prototyping

The study identified six strategies that emerged from the rapid prototyping microfoundation interview question, as illustrated in Table 10: "What strategies do you use in rapid prototyping to iteratively and swiftly test digital initiatives before scaling implementation within an organization?"

Table 10

The Digital Seizing Theme's Strategies for Rapid Prototyping

Strategies	Participant *n*	Document *n*
Adopting product and agile practices	1	1
Defining and protecting real pilots	3	3
Demonstrating value and readying scale	3	4
Engineering infrastructure for rapid testing	1	1
Managing the pilot portfolio for decisions	1	1
Running fail-fast, disciplined prototypes	2	1

Emerged Strategies. Six strategies emerged as a hands-on capability for turning ideas into evidence rapidly—running real pilots, learning quickly, and deciding whether to scale. Collectively, these themes describe how IT leaders translated experimentation into strategic learning, treating pilots not as side projects but as engines of adaptive decision-making.

Adopting product and agile practices captured how participants shifted from traditional project execution to iterative, incremental delivery, emphasizing speed and adaptability. Participant P2 described this mindset as "thinking more like scrum than waterfall—iterative, incremental, and fast-moving," noting that agile cycles maintained momentum while building feedback into every release. This theme reflected how product thinking instilled a rhythm of experimentation and delivery that shortened the distance between ideas and outcomes.

Building on this iterative discipline, *defining and protecting real pilots* emphasized the importance of setting clear boundaries and protecting time and teams so pilots produce credible, actionable results. P1, P4, and P5 agreed that pilots require structure to retain integrity, with P4 explaining, "A real pilot should be bounded, with

criteria to judge success, and the ability to stop and reassess." By insulating pilots from competing demands and clarifying success measures, participants ensured that learning could occur without distortion from operational noise.

Translating those bounded experiments into measurable value, *demonstrating value and readying scale* described how participants showcased tangible outcomes from pilots to inform scale or stop decisions. Participant P6 explained the practice of "collecting before-and-after facts to measure ROI," while P1 and P5 linked such metrics to board and leadership readiness for scale discussions. This theme illustrated how transparent evidence transformed experimentation into credible business cases that justified next-stage investment.

Behind these visible demonstrations, the operational layer of experimentation relied on technical and organizational enablers. *Engineering infrastructure for rapid testing* represented how participants built flexible environments and automation capacity to test quickly and safely. Participant P3 articulated the process succinctly: "test, deploy, break things, update documentation, and iterate before production deployment." Creating such infrastructure gives organizations the elasticity to innovate continuously without sacrificing control.

Managing learning across multiple pilots, *managing the pilot portfolio for decisions* focused on coordinating short, concurrent, time-boxed tests to drive organizational learning and resource allocation. Participant P5 described the need to "normalize pilots as learning opportunities… expect some to fail and some to scale,"

framing experimentation as a portfolio that balances risk and discovery. Thus, focus on learning velocity and decision quality over perfection through this approach.

Finally, *running fail-fast, disciplined prototypes* reflected participants' efforts to keep experimentation brisk and purposeful. Participant P1 cautioned against drawn-out initiatives that lose momentum, noting the importance of "avoid getting stuck in continuous delays like, 'we will see results next month,'" while P5 reinforced disciplined termination of low-value tests. This mindset institutionalized learning by rewarding pace, reflection, and adaptation over prolonged uncertainty.

These six strategies show how participants turned pilots into a systematic learning capability. By applying agile practices, protecting pilot integrity, quantifying results, engineering flexible infrastructure, managing experimentation portfolios, and enforcing disciplined fail-fast norms, IT leaders created a repeatable method for turning uncertainty into knowledge and knowledge into value at organizational speed.

Triangulation. Triangulation shows that rapid, pilot-led experimentation is anchored by a compact set of public frameworks that align cleanly with the strategies, with varied document counts to avoid redundancy. The NHS Digital Technology Assessment Criteria (DTAC) (D007) corroborates the strategy adopting product and agile practices by setting acceptance criteria that keep iterative releases safe and shippable—"C1 – Clinical safety… C2 – Data protection… C3 – Technical security… D1 – Usability and accessibility." The NIST AI Risk Management Framework (AI RMF 1.0) (D005), the ONC Health IT Playbook (D009), and the GAO Agile Assessment Guide (D012) corroborate the strategy defining and protecting real pilots by combining governed

evaluation (GOVERN–MAP–MEASURE–MANAGE) with practical, user-centered rollout guidance and short, outcome-visible increments—"Agile emphasizes the delivery of working solutions in small, usable increments."

Moreover, the ONC Health IT Playbook (D009), GAO Agile Assessment Guide (D012), NHS DTAC (D007), and NIST AI RMF 1.0 (D005) corroborate the strategy demonstrating value and readying scale, pairing pilot evidence and scale/stop criteria with objective safety/security/interoperability bars and governed technology evaluation. The ONC Health IT Playbook (D009) corroborates the strategy of engineering infrastructure for rapid testing through checklists, environments, and go-live planning, enabling quick spin-up and safe iteration. The ONC Health IT Playbook (D009) corroborates the strategy of managing the pilot portfolio for decisions by emphasizing portfolio visibility, short feedback cycles, and clear governance for scale/stop calls. Finally, the ONC Health IT Playbook (D009) corroborates the strategy running fail-fast, disciplined prototypes with step-by-step guidance that keeps experiments fast, purposeful, and responsible.

Findings in Relation to Literature. Across the six themes, rapid prototyping in this study operates as an evidence-building discipline that compresses learning cycles, contains risk, and prepares innovations for scale. Adopting product and agile practices is consistent with Egan et al. (2021), who show that iteration (e.g., Lean Six Sigma) improves hospital workflows and efficiency, and it extends Shaked (2021) by embedding prototypes in enduring product roadmaps rather than one-off builds so that iterative improvements accumulate.

Furthermore, defining and protecting real pilots aligns with Chrysikou et al. (2023) and converges with Servant et al. (2024), who both emphasize rapid design adaptation with clear scope, explicit objectives, and protected time—conditions that preserve experimental integrity and yield valid, decision-grade learning. Demonstrating value and readying scale aligns with Egan et al. (2021), who link iterative improvement to measurable operational gains, and converges with Vallatos et al. (2021), who show that prototyping bridges immediate requirements and larger-scale production by making rollout pathways explicit. Engineering infrastructure for rapid testing corresponds to Ullagaddi (2024), who underscores sandboxed, compliance-ready environments, governed data access, and scalable platforms as prerequisites for safe, repeatable trials; as a boundary condition, weak compliance controls stall or invalidate otherwise promising pilots.

Moreover, managing the pilot portfolio for decisions is consistent with Servant et al. (2024) and converges with Chrysikou et al. (2023), who highlight comparative evaluation and resource reallocation toward the highest-leverage prototypes as essential to timely scale/stop calls. Running fail-fast, disciplined prototypes confirms Shaked (2021), who argues for quickly built solutions that meet immediate needs, and extends Vallatos et al. (2021) by normalizing advance/pivot/stop gates based on predefined success metrics that connect clinical realities to production-ready outcomes. The strategies and supporting literature portray rapid prototyping as a blend of product thinking, protected experimentation, impact evidence, compliant infrastructure, portfolio discipline, and fast gating that turns uncertainty into feasible, scalable choices.

Situated Within DCFDT. Framed by digital seizing, the Table 10 strategies operationalize rapid prototyping by producing small, testable artifacts that convert hypotheses into evidence. Albino et al. (2023) characterize these rapid prototyping routines as "creating minimum viable products" and using "lean start-up, design thinking," and "continuous deployment," thereby shortening the gap between strategy and execution. In this way, rapid prototyping generates decision-quality evidence that feeds into balancing digital portfolios with scale/stop choices.

For IT Practice. The synthesis implies a cadence that links governance to action: run initiatives as products with iterative backlogs; issue protected pilot charters with explicit objectives and "no-fault" learning criteria; provision sandbox and data pipelines that satisfy compliance; apply predefined go/pivot/stop thresholds and maintain impact dashboards; and operate a portfolio registry that prioritizes scale-up on demonstrated value. In practical terms, this cadence preserves speed without sacrificing reliability and keeps digital investments anchored to enterprise priorities.

Balancing Digital Portfolios

The study identified five strategies that emerged from the balancing digital portfolios microfoundation interview question, as illustrated in Table 11: "What strategies do you use to balance investments across your digital portfolio among competing initiatives aligned with organizational priorities?"

Table 11

The Digital Seizing Theme's Strategies for Balancing Digital Portfolios

Strategies	Participant *n*	Document *n*
Aligning investments through governance and stakeholder engagement	4	2
Enforcing strategic alignment in investment decisions	1	4
Filtering proposals by business alignment and technical fit	3	4
Prioritizing via roadmaps and ranked portfolios	1	3
Selling mission-linked value for foundational investments	2	3

Emerged Strategies. Five strategies emerged as a practical system for balancing the digital portfolio by mapping every request to an organizational priority, rightsizing scope through governance, and making the value case in terms that the organization accepts. Collectively, these themes illustrate how IT leaders positioned portfolio management as a living mechanism for steering resources toward mission-aligned outcomes while maintaining organizational credibility and control.

Aligning investments through governance and stakeholder engagement represented the foundational mechanism for shared accountability. P1, P2, P3, and P4 described using governance structures and inclusive engagement to drive portfolio decisions and ensure business ownership of outcomes. Participant P1 illustrated this dynamic, explaining, "My role is more like a co-pilot… the operational leaders are the pilots, and they have to be accountable for outcomes alongside IT." This approach also emphasized early feedback, as P1 added, "You have to make sure you are gathering stakeholder feedback." These perspectives underscored that governance was not merely a procedural requirement but a collaborative process that anchored digital decisions in enterprise priorities.

Extending this governance logic, *enforcing strategic alignment in investment decisions* centered on mapping each initiative to strategic pillars and filtering out requests that do not contribute directly to organizational goals. Participant P2 articulated this discipline succinctly: “If it does not map, it does not get done. Governance helps enforce that.” By treating the strategic plan as a gating mechanism, participants transformed alignment from an abstract aspiration into a practical constraint that maintained portfolio coherence and focus. This disciplined framing kept the portfolio intentional rather than opportunistic, ensuring resources were directed toward collective value.

Complementing this top-down discipline, *filtering proposals by business alignment and technical fit* addressed how participants safeguarded execution quality by evaluating business justification and technical feasibility. P2, P4, and P6 described using business alignment, peer references, and security reviews to evaluate requests. Participant P4 emphasized, “We also conduct technical and security reviews—ensuring solutions meet architectural and compliance standards before adoption,” while P6 noted that “because we could clearly demonstrate ROI, it was easier to go back to the budget committee for additional funds.” This theme illustrated that filtering proposals for fit and feasibility balanced innovation with control, ensuring the portfolio remained strategic and sustainable.

To operationalize alignment decisions, prioritizing via roadmaps and ranked portfolios helped leaders allocate capacity systematically. Participant P5 described how prioritization required balancing firm commitments with flexible slots for smaller initiatives: “Sometimes smaller items can be slotted in if resources are available, but the

top priorities drive most investment decisions." Through such ranking systems, participants maintained visibility into demand while allowing leadership to adapt within defined limits. This theme demonstrated that structured prioritization helped organizations maintain focus while remaining responsive to evolving needs.

Finally, *selling mission-linked value for foundational investments* emphasized the narrative work required to sustain support for core infrastructure and security. P3 and P6 described making the case that "keeping the lights on" is not maintenance overhead but a strategic enabler. As P3 explained, "Part of the strategy is selling the value back to the organization—showing how security and infrastructure are enablers of the mission, not distractions from it." Through this framing, participants elevated foundational investments as integral to continuity of care and organizational reliability.

These five strategies illustrate how participants balanced governance, discipline, and narrative to steer technology portfolios that advanced strategy rather than fragmented it. By aligning through governance, enforcing fit, filtering rigorously, prioritizing transparently, and communicating mission-linked value, IT leaders transformed portfolio management into a credible system for sustaining alignment between digital initiatives and the healthcare mission.

Triangulation. Triangulation shows that portfolio balancing is anchored by a compact set of public frameworks that align cleanly with the strategies, using varied sources to minimize redundancy. The OECD Digital Government Policy Framework (D010) and NHS WGLL (D006) corroborate the strategy aligning investments through governance and stakeholder engagement by pairing digital-by-design leadership with

board-level oversight and system-wide foundations—"A digital by design culture requires… leadership… embed 'digital' throughout service design and policy processes." and "Boards are equipped to lead digital transformation… reviews digital and data strategy, cyber security, services."

Furthermore, the NHS Digital Technology Assessment Criteria (DTAC) (D007), the ONC Federal Health IT Strategic Plan 2020–2025 (D008), NHS WGLL (D006), and the OECD Digital Government Policy Framework (D010) corroborate the strategy enforcing strategic alignment in investment decisions by requiring acceptance criteria before adoption and aligning requests to measurable priorities (safety, privacy, security, interoperability, benchmarking). The ONC Federal Health IT Strategic Plan 2020–2025 (D008), NHS DTAC (D007), NHS WGLL (D006), and the OECD Digital Government Policy Framework (D010) corroborate the strategy filtering proposals by business alignment and technical fit, linking asks to outcomes and enforcing technical and governance bars—"This Plan… may be used to: Prioritize resources… Align priorities… Benchmark and assess progress."

Moreover, for the strategy prioritizing via roadmaps and ranked portfolios, the ONC Federal Health IT Strategic Plan 2020–2025 (D008), NHS WGLL (D006), and the OECD Digital Government Policy Framework (D010) jointly emphasize clear roadmaps, capacity-aware sequencing, and transparent performance review. The NHS WGLL (D006), the OECD Digital Government Policy Framework (D010), and the ONC Federal Health IT Strategic Plan 2020–2025 (D008) corroborate the strategy requiring business cases from operational leaders by tying proposals to governance forums, value clarity,

and organization-wide alignment. Finally, the ONC Federal Health IT Strategic Plan 2020–2025 (D008), NHS DTAC (D007), and NHS WGLL (D006) corroborate the strategy selling mission-linked value for foundational investments by connecting reliability, security, standards, and measurement to care continuity and mission outcomes.

Findings in Relation to Literature. Across the five themes, balancing digital portfolios in this study operates as a governance-anchored seizing capability that reconciles competing demands into sequenced, high-value commitments. Aligning investments through governance and stakeholder engagement is consistent with Hameed et al. (2024), who argue that digital initiatives must be integrated with enterprise objectives through a cohesive transformation framework, and it converges with Vogel et al. (2024), who report that centralized strategies create economies of scale and coordinated cross-investment. Enforcing strategic alignment in investment decisions extends Hameed et al. (2024) by using explicit goal linkage and sponsor accountability as portfolio screens and aligns with Vogel et al. (2024), who show that common decision rules curb drift and reduce redundancy.

Furthermore, filtering proposals by business alignment and technical fit resonates with Lindroth et al. (2022) and Shaked (2021), who contend that effectiveness depends on balancing internal productivity with external situational awareness, and it aligns with Binci et al. (2022), who demonstrate that interoperability and genuine clinical need are prerequisites for feasible adoption—suggesting that when filters overlook either clinical need or technical fit, they risk allowing in options that may be technically sophisticated but deliver little practical value. Prioritizing via roadmaps and ranked portfolios aligns

with Johansson et al. (2022), who argue that reconciling competing priorities fosters digital ambidexterity, and it confirms Vogel et al. (2024), who find that centralized sequencing reduces redundancy and improves impact. Selling mission-linked value for foundational investments corresponds to Hameed et al. (2024) and Vogel et al. (2024) by reframing infrastructure and security as mission-critical capabilities that enable continuity and system-level returns. These strategies and literature arguments depict portfolio balancing as the blend of inclusive governance, disciplined alignment, dual need/fit filters, readiness-sensitive roadmaps, and mission-anchored narratives that turn tensions into coherent investment choices.

Situated Within DCFDT. Still within seizing, the Table 11 strategies operationalize balancing digital portfolios by choosing where to commit, where to pause, and how fast to proceed across a slate of initiatives. Albino et al. (2023) specify balancing digital portfolio routines as "balancing internal and external options," "scaling up innovative business models," and "setting an appropriate execution speed," linking selection logic to pacing and resource allocation. In this way, disciplined portfolio choices prioritize the highest-potential candidates that feed into the next dynamic capability of executing digital transformations.

For IT Practice. The synthesis implies a concrete cadence: convene cross-functional governance with published scoring rubrics; require explicit linkage to strategy and sponsor accountability; apply paired screens for business need and technical/interoperability fit; maintain rolling roadmaps that prioritize by strategic impact, risk, and readiness; and frame foundational spend in mission-linked terms that

make continuity, safety, and scalability visible. In practical terms, this cadence preserves speed without sacrificing discipline and keeps digital investments anchored to enterprise priorities.

Theme 3: Digital Transformation

With this study's findings for the second theme, digital seizing, complete, this section reviews the third dynamic capability theme, digital transformation, which examines the strategies some IT leaders use to sustain momentum by embedding digital initiatives into organizational structures, processes, and cultures. The study identified 19 strategies within digital transformation, distributed across its three underlying microfoundations: six in navigating innovation ecosystems, seven in redesigning internal structures, and six in improving digital maturity. The findings are presented through each microfoundation to illustrate IT leaders' strategies to institutionalize digital transformation to sustain strategic renewal and achieve desired expected outcomes.

Navigating Innovation Ecosystems

The study identified six strategies that emerged from the organizational strategic agility microfoundation interview question, as illustrated in Table 12: "What strategies do you use to effectively engage external partners within innovation ecosystems to accelerate organizational digital transformation?"

Table 12

The Digital Transformation Theme's Strategies for Navigating Innovation Ecosystems

Strategies	Participant *n*	Document *n*
Building structured innovation partnerships	4	3
Co-developing with strategic vendor partners	4	1
Governing co-development for mutual value	4	3
Leveraging incubators and in-house innovation groups	4	3
Scaling innovation through networking	1	3
Setting partnership terms and contributing to the ecosystem	1	3

Emerged Strategies. Six strategies emerged as a system for building and governing an innovation ecosystem—partners, programs, and principles—that moves promising ideas into production. Collectively, these themes illustrate how leaders designed innovation not as ad hoc experimentation but as a structured, governed ecosystem that sources, tests, and scales ideas in alignment with mission and market realities.

Building structured innovation partnerships emerged as a foundational capability for sourcing ideas, funding experiments, and expanding innovation capacity through formalized relationships. P1, P2, P4, and P6 explained how structured partnerships created pathways for collaboration and education, as P1 described: "This created education opportunities for staff who participated as judges." These partnerships enabled hospitals to connect with start-ups, universities, and technology providers in a repeatable way that encouraged discovery while maintaining governance clarity. This theme shows that formal partnership structures transform innovation from opportunistic networking into sustained collaboration pipelines.

Extending this partnership model, *co-developing with strategic vendor partners* reflected how P1, P2, P4, and P5 advanced innovation through shared development with vendors capable of bringing solutions into production. Participant P4 emphasized the operational impact of these collaborations: "…align with external partners to bring innovation into production environments." Participants highlighted that co-development shortened the time from concept to deployment by leveraging vendor expertise while keeping solutions grounded in organizational context. This theme demonstrates that effective innovation scaling depends on partnering directly with those who can operationalize ideas.

While co-development accelerated progress, participants also emphasized *governing co-development for mutual value* to ensure partnerships remained strategically aligned and beneficial to both organizations. Participant P5 described this principle as "always with governance to ensure alignment," reflecting that governance safeguards ensured mutual value and protected focus. Through this governance lens, innovation became a balanced exchange—offering hospitals new capabilities while contributing to partner roadmaps. This theme reinforced that disciplined governance protects innovation from drifting into vendor dependency or unaligned experimentation.

Beyond partnerships, *leveraging incubators and in-house innovation groups* provided a structured means of bridging early-stage ideas into enterprise-ready solutions. P1, P2, P4, and P6 explained how working with university incubators and internal innovation programs created an innovation pipeline from concept to production. Participant P2 stated, "Leverage incubators, university programs, and in-house innovation

groups," illustrating how participants combined external and internal incubation to diversify idea flow. This theme highlights that innovation maturity depends on cultivating multiple entry points that connect experimental technologies to real operational environments.

To sustain and spread innovation, *scaling innovation through networking* emphasized building multi-level networks—locally, regionally, and nationally—that accelerate learning and adoption. P1, P2, P4, and P6 described collaboration with peers and start-ups to exchange insights and speed up implementation. As P6 noted, "The strategy is collaboration—locally with peers… and directly with start-ups." Through this networked diffusion, ideas gained visibility, lessons circulated faster, and innovation spread across the ecosystem. This theme illustrated that scaling is not only technical but relational, relying on continuous knowledge exchange among connected innovators.

Finally, *setting partnership terms and contributing to the ecosystem* represented a strategic act shaping expectations and strengthening the broader healthcare IT field. Participant P3 emphasized the importance of transparency and intent, advocating for "being intentional with vendors about goals." Thus, P3 strengthened ecosystem trust by codifying partnership terms and contributing institutional expertise to the community, positioning their organizations as thought leaders. This theme shows that governance and contribution sustain an innovation ecosystem that benefits the organization and the wider industry.

These six strategies collectively demonstrate how participants built a governed innovation ecosystem that balances creativity and structure. By formalizing partnerships,

co-developing solutions, maintaining governance discipline, feeding the innovation pipeline, scaling through networks, and setting clear partnership expectations, leaders transformed innovation from isolated projects into a coordinated system that consistently converts ideas into scalable value.

Triangulation. Triangulation shows that navigating the innovation ecosystem is anchored by a compact set of public frameworks that align cleanly with the strategies, while varying the number of sources per theme to avoid redundancy. The FDA Digital Health Center of Excellence (D011), the WHO Global Strategy on Digital Health 2020–2025 (D013), and NHS WGLL (D006) corroborate the strategy building structured innovation partnerships by emphasizing networks, capacity, and board-level enablement—"Connect and build partnerships to accelerate digital health advancements."; "Promote and facilitate digital health competencies"; and "Boards are equipped to lead digital transformation… reviews digital and data strategy, cyber security, services."

Furthermore, the OECD Digital Government Policy Framework (D010) corroborates the strategy co-developing with strategic vendor partners by promoting digital-by-design collaboration and shared delivery mechanisms—"A digital by design culture requires… leadership… embed 'digital' throughout service design and policy processes." The FDA Digital Health Center of Excellence (D011), OECD Digital Government Policy Framework (D010), and NHS WGLL (D006) corroborate the strategy governing co-development for mutual value by aligning governance, roles, and

accountability across organizations and vendors—partnering to accelerate innovation while maintaining public value guardrails.

Moreover, the OECD Digital Government Policy Framework (D010), WHO Global Strategy (D013), and NHS WGLL (D006) corroborate the strategy leveraging incubators and in-house innovation groups by defining cross-sector pathways, workforce preparation, and institutional supports that move early-stage ideas toward enterprise fit. The FDA Digital Health Center of Excellence (D011), OECD Digital Government Policy Framework (D010), and NHS WGLL (D006) corroborate the strategy scaling innovation through networking by connecting local proofs to regional and national networks that diffuse practices and speed adoption. Finally, the FDA Digital Health Center of Excellence (D011), OECD Digital Government Policy Framework (D010), and NHS WGLL (D006) corroborate the strategy setting partnership terms and contributing to the ecosystem by making expectations explicit (safety, governance, outcomes) and growing the field through shared methods and reusable assets.

Findings in Relation to Literature. Across the six themes, navigating innovation ecosystems in this study operates as a partnership-centric transformation mechanism that organizes external collaboration into repeatable value creation. Building structured innovation partnerships aligns with Viswanadham (2021), who argues that dynamic, multi-stakeholder networks are required to co-develop patient-centric, value-driven models, and it is consistent with Albino et al. (2023), who define this microfoundation as joining digital ecosystems, interacting with multiple partners, and exploiting co-creation or coopetition to integrate external and internal capabilities.

Furthermore, co-developing with strategic vendor partners aligns with Verhoef et al. (2021), who emphasize digital networking and collaboration within connected ecosystems to achieve transformation goals, and it extends Stoumpos et al. (2023), who show that digital technologies enhance patient engagement through caregiver collaboration by formalizing joint design, shared risk, and iterative feedback loops that tailor solutions to local workflows. Governing co-development for mutual value reflects Volpentesta et al. (2023), who contend that strategic collaboration must be aligned with internal needs by using oversight forums, role clarity, and outcome tracking to reconcile external partnerships with capability constraints. Leveraging incubators and in-house innovation groups is consistent with Vallatos et al. (2021), who highlight open innovation with external partners as fundamental to successful transformation, and it converges with Shaked (2021), who advocates external collaboration to bolster innovation capacity by coupling start-up access with protected internal experimentation. Scaling innovation through networking aligns with Shaked (2021) and converges with Verhoef et al. (2021) by showing how professional communities and inter-system collaboration extend adoption beyond single pilots.

Moreover, setting partnership terms and contributing to the ecosystem resonates with Hameed et al. (2024), who confirm that overcoming technical and organizational barriers requires active participation in broader ecosystems, by moving beyond ad hoc deals to IP/data clauses, interoperability expectations, and consortia engagement; as a boundary condition, regulatory constraints and limited digital readiness can stall value unless terms explicitly address compliance, data governance, and capacity building.

These strategies and supporting literature indicate that ecosystem navigation blends structured partnerships, co-development discipline, governance alignment, incubator-to-lab pathways, networked spread, and contract terms that translate collaboration into sustained organizational gain.

Situated Within DCFDT. Framed by digital transformation, the Table 12 strategies operationalize navigating innovation ecosystems by orchestrating complementarities that extend capacity and route promising solutions to production. Albino et al. (2023) define this microfoundation as "joining a digital ecosystem," "interacting with multiple external partners," and "exploiting new possibilities of co-creation or coopetition," opening new perspectives for products and services. In this way, ecosystem engagement expands delivery pathways and feeds into redesigning internal structures for agility at scale.

For IT Practice. The synthesis implies a concrete cadence: conduct mission-aligned partner selection; use co-development charters with shared-risk funding and iterative feedback loops; establish joint governance that monitors value realization; stand up incubator-to-lab pipelines to de-risk early-stage technologies; leverage networks and consortia to accelerate spread; and embed IP/data/interoperability clauses and readiness supports to manage regulatory and capability gaps. This cadence preserves speed without sacrificing discipline and anchors external collaboration to enterprise priorities.

Redesigning Internal Structures

The study identified seven strategies that emerged from the redesigning internal structures microfoundation interview question, as illustrated in Table 13: "What

strategies do you use when redesigning internal structures to facilitate successful organizational digital transformation?"

Table 13

The Digital Transformation Theme's Strategies for Redesigning Internal Structures

Strategies	Participant *n*	Document *n*
Aligning roles to strategy and capabilities	4	2
Continuously realigning roles to emerging needs	2	1
Embedding change management in structural redesign	4	2
Enabling innovation through project frameworks	2	1
Evolving governance to enable redesign	3	2
Leading structural change through trust and communication	3	1
Triage and justify structural changes	2	1

Emerged Strategies. Seven strategies emerged as a practical approach to redesigning organizational structures, decision forums, and workflows so digital work can move faster and connect effectively with people. Collectively, these themes show how leaders restructured roles, governance, and processes to increase organizational responsiveness while keeping people engaged and confident through continuous change.

Aligning roles to strategy and capabilities represented the first step in enabling structural agility. P1, P2, P4, and P6 described aligning roles, skills, and teams directly to strategic priorities and digital capabilities, ensuring each function supported mission-critical outcomes. Participant P1 highlighted this integration: "I see value in a hybrid model, where staff represent both technology and strategic areas." Participants emphasized that aligning roles to strategy ensured digital work was not siloed within IT but distributed across functions where impact was most significant. This theme illustrates

that structure follows strategy, linking people's work directly to the capabilities that advance transformation.

Building on this foundation, *continuously realigning roles to emerging needs* demonstrated how P2 and P6 maintained adaptability as technology and risks evolved. Participant P6 shared, "When cybersecurity risks increased, we created new roles focused solely on compliance and firewalls," reflecting how structures were recalibrated to meet emerging threats and opportunities. Similarly, P2 emphasized using peer learning and benchmarking to adjust functions over time. This theme underscored that structural agility is sustained through ongoing evaluation and recalibration, not one-time redesigns.

Anchoring these structural adjustments, *embedding change management in structural redesign* emphasized that effective redesign is as much about people as it is about processes. P2, P3, P5, and P6 emphasized the role of clear communication and inclusion during restructuring. As P2 stated, "Change management is just as important," reinforcing that transparent messaging and role clarity turn organizational redesign into a process of empowerment rather than disruption. This theme demonstrated that structural redesigns succeed when people understand the rationale, the goals, and their role in achieving them.

Evolving from structural redesign to governance reform, *evolving governance to enable redesign* described how P1, P2, and P3 kept governance processes current with strategic realities. Participant P1 noted that "if governance looks the same 5 or 10 years in a row, that is a problem," while others emphasized the importance of involving the right stakeholders at the right time to maintain decision relevance. This theme showed that

adaptive governance supports structural change by keeping decision-making forums aligned with evolving priorities and responsive to environmental conditions.

Beyond formal structures, *enabling innovation through project frameworks* reflected how P1 and P4 embedded innovation directly into project workflows. Participant P4 described the method: "Use project frameworks to enable innovation, balancing focus with accountability." Participants emphasized that dedicated innovation time and structured accountability enabled experimentation without sacrificing delivery discipline. This theme demonstrated that embedding innovation in project frameworks operationalizes creativity by giving it rhythm, responsibility, and expected outcomes.

Sustaining this balance required leadership grounded in empathy and clarity. *Leading structural change through trust and communication* illustrated how P2, P5, and P6 built confidence and willingness to adapt by explaining intent, building trust, and coaching teams into matrixed operating models. Participant P5 highlighted that success depended on "helping people see the 'why' and try new ways of working." This leadership-centered theme emphasized that change acceptance grows through human connection—when people feel informed, supported, and respected during transitions.

Finally, *triaging and justifying structural changes* described how P2 and P3 used project management processes and root cause analysis to evaluate whether redesigns were truly needed. Participant P3 explained that the goal was "keeping the system honest about when a redesign is truly necessary," ensuring that structural adjustments addressed real problems rather than organizational trends. This theme reflected that disciplined

triage focuses on genuine needs, preserving energy for change that adds measurable value.

These seven strategies show how participants redesigned structures, governance, and work systems to create lasting alignment between people, strategy, and digital execution. By aligning roles to strategic capabilities, maintaining continuous realignment, embedding change management, evolving governance, operationalizing innovation, leading through trust, and triaging redesigns, leaders demonstrated that structural agility emerges not from reorganization alone but from an enduring commitment to learning, communication, and value creation.

Triangulation. Triangulation shows that redesigning internal structures is anchored by a compact set of public frameworks that align cleanly with the strategies, with varied sources to avoid redundancy. The ONC Federal Health IT Strategic Plan 2020–2025 (D008) and NHS WGLL (D006) corroborate the strategy aligning roles to strategy and capabilities by tying staffing and structure to outcomes, resourcing, and board-level enablement—"This Plan… may be used to: Prioritize resources… Align priorities… Benchmark and assess progress." and "Boards are equipped to lead digital transformation… reviews digital and data strategy, cyber security, services…"

Furthermore, the WHO Global Strategy on Digital Health 2020–2025 (D013) corroborates the strategy continuously realigning roles to emerging needs by emphasizing capacity building and role evolution—"Promote and facilitate digital health competencies… in the training curricula of all health professionals." The GAO Agile Assessment Guide (D012) and NHS WGLL (D006) corroborate the strategy embedding

change management in structural redesign by pairing incremental delivery and governance with leadership practices that make change safe and visible—"Agile emphasizes the delivery of working solutions in small, usable increments." The GAO Agile Assessment Guide (D012) corroborates the strategy enabling innovation through project frameworks by establishing short, outcome-visible cycles and clear decision points—"working solutions in small, usable increments."

Moreover, the GAO Agile Assessment Guide (D012) and NHS WGLL (D006) corroborate the strategy evolving governance to enable redesign through repeatable forums, accountability, and cadence that keep decision-making aligned to strategy. Finally, the GAO Agile Assessment Guide (D012) corroborates the strategies leading structural change through trust and communication and triage and justify structural changes by normalizing small, testable steps, frequent feedback, and pragmatic scoping—mechanisms that help leaders communicate purpose, address concerns, and route requests through the right level of process.

Findings in Relation to Literature. Across the seven themes, redesigning internal structures in this study is an organizational mechanism that links digital objectives to the roles, forums, and routines needed to sustain change at scale. Aligning roles to strategy and capabilities is consistent with Volpentesta et al. (2023), who argue that internal frameworks must be re-aligned to digital objectives, and with Azizan et al. (2021), who show that leadership composition and teamwork are decisive for successful digital transformation. Continuously realigning roles to emerging needs reflects Wendt et al. (2022), who contend that incremental adjustments yield sustainable outcomes by

avoiding transformation-as-obstacle effects, and extend Shaked (2021), who demonstrates that stepwise refinements in hospital operations and care protocols raise efficiency over time. Embedding change management in structural redesign accords with Azizan et al. (2021), who state that leadership and teamwork enable adoption, and with Bevere and Faccilongo (2024) and Adama and Okeke (2024), who emphasize that structured models, communication, and collaborative practices are necessary to translate redesign into durable behaviors.

Furthermore, enabling innovation through project frameworks resonates with Unterhofer et al. (2022), who advocate systematic agile/hybrid methods and structured digital strategies in hospitals, and is reinforced by W.-L. Huang et al. (2024), who report substantial performance gains from disciplined improvement programs (e.g., Lean Six Sigma, RPA). Evolving governance to enable redesign is in line with C.-W. Huang et al. (2023), who recommend comprehensive planning and alignment to steer transformation, and nuances Huaytan et al. (2024) by using decision forums to surface and resolve integration, infrastructure, and data-security constraints before scale. Moreover, leading structural change through trust and communication is supported by Servant et al. (2024) and Bevere and Faccilongo (2024), who maintain that transparent rationale, shared vision, and two-way dialogue stabilize adoption and sustain momentum. Triage and justification of structural changes aligned with Chrysikou et al. (2023), who cautioned that overly ambitious restructuring risks undermining agility, and extended Vallatos et al. (2021) by treating phased, strategy-led sequencing as a guardrail. The boundary condition was that when the scope of change exceeded organizational readiness, the resulting

complexity diminished responsiveness. These strategies and supporting literature depict structural redesign as the blend of role–capability alignment, governance reconfiguration, agile project scaffolds, disciplined change management, sequenced restructuring, and trust-building communication that embeds digital transformation in everyday operations.

Situated Within DCFDT. Within digital transformation, the Table 13 strategies operationalize redesigning internal structures by aligning roles, governance, and operating models with scaled digital delivery. Albino et al. (2023) highlight actions such as “defining digital transformation leadership,” “creating” a “digital business unit,” “digitalisation of business models,” and “designing team-based structures,” which reconfigure organization and process to match digital strategy. In this way, internal redesign anchors scaled innovation in day-to-day operations and feeds into improving digital maturity through talent and capability growth.

For IT Practice. The synthesis implies a concrete cadence that links governance to execution: map roles to digital capabilities and assign accountable owners; run governance with digital-impact gates that surface integration and security risks early; embed agile/hybrid project frameworks with pilot and adoption checkpoints; apply formal change models with targeted communication and capability building; triage and justify restructuring with phased scope and clear business cases; and lead with trust and two-way dialogue to stabilize adoption. In practical terms, this cadence preserves reliability while maintaining momentum and aligns structural change with enterprise priorities.

Improving Digital Maturity

The study identified six strategies that emerged from the redesigning internal structures microfoundation interview question, as illustrated in Table 14: "What strategies do you use to enhance organizational digital maturity for sustained digital transformation?"

Table 14

The Digital Transformation Theme's Strategies for Improving Digital Maturity

Strategies	Participant *n*	Document *n*
Building a high-velocity talent system	1	3
Defining digital ambition and modernizing foundations	3	4
Learning and leveraging external expertise	1	3
Measuring maturity and directing investment	2	1
Operating a maturity model for targeted improvement	4	1
Prioritizing process and resilience before technology	3	3

Emerged Strategies. Six strategies emerged as a practical path to building digital maturity by clarifying ambition, strengthening foundations, and sequencing improvements through evidence-based decisions. Collectively, these themes show how leaders developed structured approaches for advancing digital maturity in planned, measurable ways that sustain momentum and yield meaningful organizational outcomes.

Defining digital ambition and modernizing foundations represented the starting point for building digital maturity. P2, P3, and P5 described clarifying the organization's digital ambition while modernizing its core capabilities—people, processes, and technology—to enable execution. Participant P2 emphasized that "recruitment processes must reflect modern digital practices… if your process is too slow, you lose good candidates," while P3 and P5 discussed upgrading infrastructure and workflows to align

with this ambition. This theme revealed that digital transformation begins with a clear strategic destination paired with foundational capabilities modernization that ensures readiness for change.

Extending this foundation, *operating a maturity model for targeted improvement* illustrated how P1, P3, P4, and P5 used structured frameworks to define "maturity," expose capability gaps, and prioritize improvements. Participant P1 explained, "Once you define that, you can measure gaps, like whether you have population health reports available," highlighting how maturity models provided an objective basis for sequencing progress across people, process, and technology. This theme showed that a maturity framework converted digital advancement from aspiration into an actionable, evidence-based roadmap.

Complementing the maturity model, *measuring maturity and directing investment* described how P3 and P5 tied measurement outcomes to capital and operational decisions, ensuring investment flowed toward areas of greatest need. Participant P5 noted that success depended on keeping "investments aimed at adoption and outcomes," while others emphasized using data from maturity assessments to prioritize initiatives. This theme demonstrated that maturity measurement was not merely diagnostic but instrumental—linking data-driven insights to tangible resource allocation and value realization.

Beyond structural measures, participants emphasized the human and cultural dimensions of digital maturity. *Building a high-velocity talent system* emerged as a vital strategy for attracting, developing, and retaining technical talent within an environment

that rewards learning and innovation. Participant P4 described "creating an environment where technical talent thrives," including initiatives such as hosting tech days and providing continuous learning opportunities. This theme illustrated that human capital is the propulsion system of digital maturity—accelerating transformation through motivation, recognition, and shared growth.

To ensure stability while advancing technology, *prioritizing process and resilience before technology* highlighted how P2, P3, and P5 focused on defining clear, resilient workflows before introducing new systems. Participant P3 cautioned, "You must define processes clearly before applying technology," emphasizing that sustainable digital maturity depends on process stability and operational discipline. Participants agreed that well-designed processes create the resilience required for technology to enable, rather than outpace, the organization. This theme reinforced that resilience-by-design prevents transformation from fragmenting under its own speed.

Finally, *learning and leveraging external expertise* reflected how participants such as P6 enhanced digital capability by bringing specialized knowledge from beyond healthcare. Participant P6 explained, "We… contract with a managed service provider whose SMEs keep us current on frameworks like NIST and CIS," illustrating how partnerships with external experts broadened situational awareness and maintained compliance with industry standards. This theme demonstrated that digital maturity is sustained through continuous learning and strategic collaboration with trusted partners who provide new perspectives and technical depth.

These six strategies reveal how participants developed disciplined, evidence-based pathways to advance digital maturity. By defining ambition, modernizing foundations, operating maturity models, directing investment, developing talent, sequencing processes before technology, and leveraging external expertise, IT leaders demonstrated how digital maturity can progress in deliberate, measurable steps that strengthen organizational capability and confidence.

Triangulation. Triangulation shows that advancing digital maturity is anchored by a compact set of public frameworks that align cleanly with the strategies, with varied sources per theme to minimize redundancy. The CDC Data Modernization Initiative (DMI) (D003), NHS WGLL (D006), and the WHO Global Strategy on Digital Health 2020–2025 (D013) corroborate the strategy building a high-velocity talent system by pairing modern data practices with board-enabled foundations and workforce capacity—"Automate electronic data capture and reporting…," "Boards are equipped to lead digital transformation… reviews digital and data strategy, cyber security, services…," and "Promote and facilitate digital health competencies… in the training curricula…"

Furthermore, the OECD Digital Government Policy Framework (D010), ONC Federal Health IT Strategic Plan 2020–2025 (D008), NHS WGLL (D006), and the WHO Global Strategy (D013) corroborate the strategy defining digital ambition and modernizing foundations through digital-by-design leadership, outcomes-based prioritization, governance, and skills—"This Plan… may be used to: Prioritize resources… Align priorities… Benchmark and assess progress."

Moreover, the WHO Global Strategy (D013), OECD Digital Government Policy Framework (D010), and ONC Plan (D008) corroborate the strategy learning and leveraging external expertise by connecting cross-industry learning and expert partners to standards and best practices. The ONC Federal Health IT Strategic Plan 2020–2025 (D008) corroborates the strategy measuring maturity and directing investment with explicit benchmarking and resource-alignment guidance ("This Plan… may be used to: Prioritize resources… Benchmark and assess progress.").

Moreover, the CDC DMI (D003) corroborates the strategy of operating a maturity model for targeted improvement by formalizing data capabilities and gap-driven sequencing. Finally, the OECD Digital Government Policy Framework (D010), NHS WGLL (D006), and WHO Global Strategy (D013) corroborate the strategy prioritizing process and resilience before technology by emphasizing process clarity, governance, and resilience-by-design so technology layers onto stable workflows.

Findings in Relation to Literature. Across the six themes, improving digital maturity in this study operates as a structured pathway that sets ambition, hardens foundations, measures progress, and builds durable capability. Building a high-velocity talent system aligns with Albino et al. (2023), who define maturity work as identifying workforce capability, recruiting external digital talent, and leveraging internal digital knowledge, and converges with Binci et al. (2022) and Akinwale and AboAlsamh (2023), who argue that strengthening clinical proficiency and broad digital literacy closes adoption gaps and accelerates capability.

Furthermore, defining digital ambition and modernizing foundations is consistent with Browder et al. (2024), who describe systematic integration of advanced technologies into daily operations, and with Vogel et al. (2024), who find that centralized IT strategies, standardized infrastructure, and cross-financed investments are associated with higher maturity across hospitals. Learning and leveraging external expertise follows Binci et al. (2022) and Akinwale and AboAlsamh (2023), who contend that external benchmarking and ongoing literacy building expand organizational awareness and practical know-how, while measuring maturity and directing investment aligns with Hameed et al. (2024), Vogel et al. (2024), and Vallatos et al. (2021), who link maturity levels to effective use of advanced technologies and notable efficiency gains; as a boundary condition, Verhoef et al. (2021) caution that the long-run performance pathways of digital transformation remain incompletely understood and warrant disciplined evaluation.

Moreover, operating a maturity model for targeted improvement resonates with Volpentesta et al. (2023), who emphasize coordinating people, processes, and technologies via formal diagnostics that focus resources where they matter most, and prioritizing process and resilience before technology echoes Mosch et al. (2022), Shaked (2021), and Ullagaddi (2024) by asserting that user-centered design, scalable architectures, and compliance readiness are necessary antecedents to sustainable technology gains. These strategies and supporting literature portray maturity-building as a blend of talent development, vision and foundation upgrades, process-first improvement, formal diagnostics, gap-driven investment, and external learning that compounds capability over time.

Situated Within DCFDT. Completing digital transformation, the Table 14 strategies operationalize improving digital maturity by elevating workforce and knowledge assets to sustain new strategies. Albino et al. (2023) illustrate routines such as "identifying digital workforce maturity," "external recruiting of digital talent," and "leveraging digital knowledge inside the firm," focusing development where it improves readiness to change. In this way, improving digital maturity culminates the conceptual frameworks' chain—digital scouting to digital scenario planning to digital mindset fracting to strategic agility to rapid prototyping to balancing digital portfolios to navigating innovation ecosystems to redesigning internal structures to improving digital maturity—so the organization consistently delivers DCFDT's outputs of ongoing strategic renewal and measurable desired outcomes.

For IT Practice. The synthesis implies an execution cadence that links governance to action: set and communicate digital ambition; standardize platforms and infrastructure to enterprise benchmarks; improve processes and resilience before introducing new tools; operate a maturity model and tie funding gates to diagnosed gaps and outcomes; cultivate external learning networks and benchmarking partnerships; and build a high-velocity talent system that recruits scarce skills and continuously upskills the workforce. In practical terms, this cadence preserves reliability while compounding capability and keeps digital evolution aligned with long-term enterprise priorities.

Outliers and Discrepancies Across Themes

Although broad convergence existed on the strategies used to leverage dynamic capabilities across the three themes, two bounded variations emerged. First, Participant 5

(P5) framed pilots less as small, iterative risk-reducers and more as accelerants to enterprise rollout once feasibility was shown—an approach that aligns with rapid prototyping under urgent conditions (Shaked, 2021; Vallatos et al., 2021) and is consistent with ambidexterity logic in which exploration transitions quickly to exploitation when architectural and compliance readiness are in place (Egan et al., 2021; Ullagaddi, 2024). Second, Participant 2 (P2) emphasized that informal executive consensus sometimes superseded formal forums in time-sensitive allocations, echoing work on adaptive governance and process realignment (C.-W. Huang et al., 2023) and the need to realign internal frameworks while permitting top-management discretion when integration/security constraints or system priorities demand it (Hameed et al., 2024; Volpentesta et al., 2023). These cases fit the contingency view of digital agility (Verhoef et al., 2021) and pragmatics observed in smaller or resource-constrained systems (Wendt et al., 2022). They do not contradict the themes and DCFDT; instead, they highlight path dependence—how sensing outputs are seized differently given risk tolerance, resource slack, and regulatory timing—while leaving the core themes intact.

Information Technology Contributions and Recommendations for Professional Practice

For professional practice, the findings of this study illustrate how IT leaders can leverage DCDT to anticipate change, act decisively, and embed innovation for ongoing strategic renewal and achieve desired expected outcomes. Across the three dynamic capability themes, the strategies identified herein provide IT leaders with a practical guide for digital transformation in their healthcare systems.

The strategies identified in this study within the digital sensing theme's underlying microfoundations theme highlight how IT leaders can strengthen their organizations' ability to anticipate change. Practitioners can apply these strategies by establishing consistent environmental scanning practices, embedding scenario-based evaluation into governance processes, and fostering a culture that values curiosity and adaptability. Nadkarni and Prugl (2020) emphasized that digital transformation requires leaders to adopt digital mindsets to navigate complexity and align technology with organizational goals, reinforcing the importance of cultivating adaptive cultures. Together, these actions may better position healthcare organizations to anticipate disruption and align proactively with emerging opportunities.

The strategies within the digital seizing theme's underlying microfoundations theme show how IT leaders move from awareness to decisive action. Practitioners can apply these strategies by developing flexible governance models, supporting pilot initiatives with clear evaluation criteria, and creating transparent portfolio processes that guide resource allocation. Laksono and Darmawan (2021) highlighted the critical role of adaptive leadership strategies in navigating digital disruptions, supporting the view that seizing opportunities requires leaders to act decisively under dynamic conditions. These actions may enable IT leaders to capture value by converting identified opportunities into desired expected outcomes for their organizations.

The strategies within the digital transformation theme's underlying microfoundations demonstrate how IT leaders sustain momentum by embedding innovation into organizational structures, processes, and talent systems. Practitioners can

apply these strategies by building structured partnerships, aligning organizational roles with digital priorities, and investing in digital skills and maturity assessments. Wang and Shao (2024) noted that organizations increasingly prioritize digital maturity and CIO leadership investment to advance technological capabilities, underscoring the need for IT leaders to drive structural and workforce alignment with digital priorities. These actions may enable healthcare organizations to institutionalize digital transformation better and realize ongoing strategic renewal.

Therefore, the results of this study recommend that IT leaders familiarize themselves with the DCFDT and apply this study's practical strategy findings to improve professional practice within their healthcare systems.

Implications for Social Change

The findings of this study have several implications for positive social change by illustrating how healthcare IT leadership strategies in digital transformation can extend beyond organizational benefits to create broader societal impact. First, strategies within the digital sensing theme support more equitable healthcare delivery by enabling leaders to detect unmet community needs, anticipate shifts in patient expectations, and foster cultures that embrace innovation. For example, digital scouting and scenario planning can surface gaps in access to care, while cultivating a digital mindset across the workforce promotes adaptability to serve diverse populations. Popov et al. (2022) found that contemporary digital technologies such as telehealth and remote patient monitoring expand caregivers' reach and improve healthcare accessibility for rural or underserved communities. These strategies demonstrate how digital sensing can translate

organizational innovation into tangible improvements in healthcare equity and accessibility.

Second, strategies within the digital seizing theme contribute to social change by translating foresight into solutions that improve patient care, safety, and access. Organizational strategic agility allows leaders to pivot resources quickly to respond to public health crises or emerging community needs. Rapid prototyping creates opportunities to test digital tools that expand care access, such as telehealth platforms or patient engagement applications, while balancing digital portfolios ensures that investments are directed toward initiatives with the most significant potential to benefit patients and communities. Binci et al. (2022) demonstrated that adopting advanced technological and data analytics capabilities improves disease detection and monitoring, enhancing care quality across the continuum. Similarly, Braithwaite et al. (2022) showed that digital transformation creates operational efficiencies, reduces healthcare delivery costs, and improves affordability, reinforcing the broader societal benefits of these strategies. Laksono and Darmawan (2021) also highlighted the importance of adaptive leadership strategies in sustaining organizational performance through digital disruptions, which connects to the societal value of leaders using agility to respond rapidly to evolving community health needs. These strategies illustrate how digital seizing extends organizational agility into meaningful advances in patient outcomes and community well-being.

Third, strategies within the digital transformation theme foster social change by embedding digital innovation into the structures and cultures of healthcare organizations.

Navigating innovation ecosystems promotes collaboration with startups, research institutions, and public health organizations, creating innovative solutions that can be shared beyond a single hospital or system, thereby contributing to the broader society. Redesigning internal structures ensures that digital transformation becomes sustainable and capable of adapting to future healthcare challenges. Improving digital maturity develops the technical foundations and workforce skills necessary to advance equitable, efficient, patient-centered care. Koebe and Bohnet-Joschko (2023) found that digital transformation empowers patients by enhancing access to medical knowledge and enabling more informed health decisions. Nadkarni and Prugl (2020) emphasized that leaders must adopt digital mindsets to navigate complexity and leverage emerging technologies, reinforcing the societal importance of leadership practices that embed digital-first cultures. Participants further emphasized that strengthening collaboration through in-person engagement builds trust across communities (P1, P2, P4, and P6), while sustaining transformation requires persistent, mission-aligned teams committed to long-term societal benefit (P3 and P6). These strategies show how digital transformation embeds innovation into healthcare organizations in ways that generate lasting benefits for patients and society.

Collectively, the strategies across all three dynamic capability themes show that digital transformation led by IT leaders can positively impact societal objectives for cost-effective access to quality care. By anticipating disruption, capturing opportunities, and embracing transformation, IT leaders advance organizational objectives and contribute to healthier communities and more sustainable healthcare systems. Fragao-Marques and

Ozben (2023), Guandalini (2022), and Varzaru (2022) each emphasized that targeted regulatory frameworks, funding mechanisms, and incentives are essential for enabling cost-effective, high-quality care delivery, underscoring the systemic significance of digital transformation for societal well-being. These findings highlight the societal value of IT leaders using dynamic capabilities to align digital transformation with the broader goal of equitable, sustainable healthcare.

Therefore, the results of this study recommend that IT leaders familiarize themselves with the DCFDT and apply this study's practical strategy findings to improve professional practice within their healthcare systems. Beyond IT leaders, these findings are relevant for healthcare executives, governing boards, and policymakers who influence digital transformation priorities. The results may be disseminated through professional associations and societies, industry conferences, peer-reviewed publications, and executive leadership development programs to maximize impact. Sharing the study's findings across these venues ensures that strategies for leveraging DCDT are communicated to those positioned to implement and sustain meaningful improvements in healthcare IT practice.

Recommendations for Further Research

This study's findings answered the research question: *What strategies do some IT leaders in healthcare systems use to leverage DCDT?* The results show that some IT leaders advance digital transformation through interconnected strategies across the dynamic capabilities. Showing that some IT leaders who employed strategies across digital sensing, digital seizing, and digital transforming dynamic capabilities and their

underlying microfoundations enabled healthcare organizations to sustain ongoing strategic renewal and achieve desired expected outcomes. These findings reinforce the central role of IT leadership in aligning technology with business strategy.

However, in their final reflections, study participants identified several areas that suggest opportunities for further research. One area is directing analytics to drive action, which is aligned with the digital scouting microfoundation. P1 and P6 emphasized investigating how advanced analytics and AI can be operationalized to shape real-time decisions; aligning with the Centers for Disease Control and Prevention's (2023) Data Modernization Initiative Fact Sheet, which emphasizes modernizing public health data systems so data can flow seamlessly and support faster, evidence-based decisions. Mosch et al. (2022) similarly highlighted the need for frameworks to better integrate analytics and digital technologies into traditional healthcare processes, reinforcing the importance of this recommendation. These perspectives point to the need for continued research on strategies that leverage analytics and AI for improved decision-making to strengthen real-time, evidence-based action.

Another area is leading with ethics in digital decisions, which connects to the digital scenario planning microfoundation. P4 and P6 noted the importance of studying the ethical implications of digital transformation, including patient privacy, algorithmic bias, and equity. The National Institute of Standards and Technology's (2023) Artificial Intelligence Risk Management Framework highlights these concerns by establishing guidance to address bias, privacy, and transparency across the AI lifecycle. Supporting this position, Naamati-Schneider et al. (2024a) emphasized gaps in patient-centric design

and ethical leadership needed to ensure digital technologies enhance accessibility and safeguard patient trust. These insights underscore the need for research on strategies that embed ethical principles into digital scenario planning to guide trustworthy and equitable transformation.

Finally, the strategy of steering technology choices by aligning them with organizational strategy reflects the balancing of digital portfolios and navigating innovation ecosystems' microfoundations. Several participants (P1, P2, P3, P4, P5, and P6) stressed the importance of examining how healthcare leaders evaluate and prioritize new technologies based on their contribution to enterprise goals amidst competing demands. NHS England's Digital Technology Assessment Criteria (NHS England, n.d.) provides a national framework for evaluating clinical effectiveness, safety, privacy, and interoperability of digital health technologies, demonstrating how structured assessment can strategically guide procurement and investment decisions—aligning with Verhoef et al. (2021), who underscored the need for more research into the organizational structures and metrics essential for effective digital transformation, and with Hameed et al. (2024), who recommended investigating how leaders overcome technical and organizational barriers when engaging innovation ecosystems. Highlight the importance of further research on strategies that enable leaders to align technology adoption with organizational priorities while navigating complex innovation ecosystems.

Furthermore, this study's review of the literature identified future research. For instance, Gjellebaek et al. (2020) recommended examining middle management's contributions to scenario planning, which connects to the Digital Scenario Planning

microfoundation by highlighting the need for broader organizational participation in shaping foresight and sensemaking. Greenhalgh et al. (2020) emphasized the need to study video consultations' clinical and policy implications, which aligns with the rapid prototyping microfoundation, as it addresses how iterative testing and scaling of digital health solutions can influence healthcare systems during rapid adoption. Finally, Laksono and Darmawan (2021) called for further exploration of systems thinking and contextual intelligence as leadership strategies for digital disruptions, which links to the Organizational Strategic Agility microfoundation by underscoring leadership approaches needed to sustain adaptability and performance in dynamic environments. These recommendations underscore a research gap in understanding strategies that enable healthcare leaders to advance digital transformation across organizational, clinical, and policy contexts.

Conclusions

This study's conclusions respond to the challenges identified in the background, where healthcare organizations faced intensifying financial pressures, widespread digital disruptions, and hesitancy to invest in transformation without demonstrable returns. The findings demonstrated that IT leaders addressed these challenges not through singular actions but by orchestrating layered strategies across the dynamic capabilities of digital sensing, digital seizing, and digital transformation. In practice, this meant anticipating external change, translating foresight into action, and embedding innovation into organizational structures to sustain strategic renewal and achieve desired expected outcomes.

The general IT problem was that healthcare systems require digital transformation strategies to remain financially sustainable in a dynamic healthcare sector. The specific IT problem was that some IT leaders in healthcare systems lack strategies to leverage DCDT. This study directly addressed the specific IT problem by identifying strategies from nine microfoundations that IT leaders used to operationalize dynamic capabilities in practice. These findings demonstrated that microfoundation capability-based strategies enable IT leaders to strengthen sustainability and maintain competitiveness, thereby addressing the broader industry problem of financial pressures and digital disruption while fulfilling this study's purpose.

By capturing the lived experiences of IT leaders and grounding them in the DCFDT, this study provided evidence-based strategies that extend theoretical understanding and offer actionable guidance for professional practice. The results validated the practical relevance of the DCFDT, demonstrating how its constructs translated from conceptual model to lived leadership practice. These insights underscore the enduring role of IT leadership in embedding dynamic capabilities as an integral part of healthcare delivery.

The conclusions also align with recent scholarship. Levinson et al. (2024) emphasized that financial pressures persist despite digital advancements, underscoring the need for strategies that leverage dynamic capabilities. Other scholars highlighted how digital technologies expand access to care (Binci et al., 2022; Fabiano et al., 2021) while requiring strategic frameworks to maintain competitiveness (Braithwaite et al., 2022; Levasluoto et al., 2021; Popov et al., 2022). Together, these findings reinforce the

imperative for IT leaders to advance strategic renewal and achieve desired expected outcomes that fulfill healthcare's mission of improving quality, accessibility, and financial sustainability of patient care.

References

Adama, H. E., & Okeke, C. D. (2024). Digital transformation as a catalyst for business model innovation: A critical review of impact and implementation strategies. *Magna Scientia Advanced Research and Reviews, 10*(2), 256-264. https://doi.org/10.30574/msarr.2024.10.2.0066

Adeghe, E. P., Okolo, C. A., & Ojeyinka, O. T. (2024). A review of emerging trends in telemedicine: Healthcare delivery transformations. *International Journal of Life Science Research Archive, 6*(1), 137–147. https://doi.org/10.53771/ijlsra.2024.6.1.0040

Adiazmil, S. A., Hidayat, M., & Basuil, D. A. (2024). Strategic human resource planning in the era of digital transformation. *Management Studies and Business Journal (PRODUCTIVITY), 1*(1), 130–137. https://doi.org/10.62207/q7158p72

Administration for Strategic Preparedness and Response. (2023, July 6). *2019-2023 Hospital Preparedness Program (HPP) performance measures implementation guidance (Updated)*. U.S. Department of Health & Human Services. https://aspr.hhs.gov/HealthCareReadiness/guidance/Documents/Updated-2019-2023-HPP-PMI-Guidance-6Jul2023-508.pdf

Afridi, A., & Khan, S. N. (2024). Digital transformation in healthcare rehabilitation: A narrative review. *Journal of Process Management and New Technologies, 12*(1–2). https://doi.org/10.5937/jpmnt12-48336

Agency for Healthcare Research and Quality. (n.d.). *Health information technology horizon scanning*. U.S. Department of Health & Human Services. Retrieved

September 20, 2025, from https://digital.ahrq.gov/ahrq-funded-projects/health-information-technology-horizon-scanning

Akinola, S., & Telukdarie, A. (2023). Sustainable digital transformation in healthcare: Advancing a digital vascular health innovation solution. *Sustainability, 15*(13), Article 10417. https://doi.org/10.3390/su151310417

Akinwale, Y. O., & AboAlsamh, H. M. (2023). Technology innovation and healthcare performance among healthcare organizations in Saudi Arabia: A structural equation model analysis. *Sustainability, 15*(5), Article 3962. https://doi.org/10.3390/su15053962

Alaeddini, F., Tavolinejad, H., & Esmailzadeh, H. (2022). Redefining the health system: A proposed updated framework of a systems approach to health. *Frontiers in Public Health, 10*, Article 956487. https://doi.org/10.3389/fpubh.2022.956487

Albannai, N. A., Raziq, M. M., Malik, M., Scott-Kennel, J., & Igoe, J. (2024). Unraveling the role of digital leadership in developing digital dynamic capabilities for the digital transformation of firms. *Benchmarking: An International Journal*. Advance online publication. https://doi.org/10.1108/BIJ-10-2023-0756

Albino, R. D., Mira da Silva, M., & de Souza, C. A. (2023). Leading the digital transformation: A dynamic capability framework proposal. *International Journal of Business Information Systems*, *43*(2), 216–257. https://doi.org/10.1504/IJBIS.2020.10039182

Alonge, E. O., Dudu, O. F., & Alao, O. B. (2024). The impact of digital transformation on financial reporting and accountability in emerging markets. *International Journal of Science and Technology Research Archive, 7*(2), 025-049. https://doi.org/10.53771/ijstra.2024.7.2.0061

Al Rahahleh, N., Altawili, M., & Al Bassam, T. (2023). Silo effects and financial performance: Evidence from an emerging market. *Global Business Review*. Advance online publication. https://doi.org/10.1177/09721509231166192

Arias Valencia, M. M. (2022). Principles, scope, and limitations of the methodological triangulation. *Investigacion y Educacion en Enfermeria, 40*(2), Article e03. https://doi.org/10.17533/udea.iee.v40n2e03

Atieh Ali, A. A., Sharabati, A. A. A., Allahham, M., & Nasereddin, A. Y. (2024). The relationship between supply chain resilience and digital supply chain and the impact on sustainability: Supply chain dynamism as a moderator. *Sustainability, 16*(7), Article 3082. https://doi.org/10.3390/su16073082

Awad, A., Trenfield, S. J., Pollard, T. D., Ong, J. J., Elbadawi, M., McCoubrey, L. E., Goyanes, A., Gaisford, S., & Basit, A. W. (2021). Connected healthcare: Improving patient care using digital health technologies. *Advanced Drug Delivery Reviews*, *178*, Article 113958. https://doi.org/10.1016/j.addr.2021.113958

Azizan, S., Mat Zain, N. H., Ismail, R., & Baharum, A. (2021). Exploring the factors that influence the success of digitalization in an organization's IT department. *6th IEEE International Conference on Recent Advances and Innovations in*

Engineering (ICRAIE), *2021*, 1–8. https://doi.org/10.1109/ICRAIE52900.2021.9704018

Babar, M., Qureshi, B., & Koubaa, A. (2024). Review on federated learning for digital transformation in healthcare through big data analytics. *Future Generation Computer Systems, 160*, 14-28. https://doi.org/10.1016/j.future.2024.05.046

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120. https://doi.org/10.1177/014920639101700108

Batten, J., & Brackett, A. (2022). Ensuring rigor in systematic reviews: Part 6, reporting guidelines. *Heart & Lung, 52*, 22-25. https://doi.org/10.1016/j.hrtlng.2021.11.002

Bautista, J. R., Zhang, Y., & Gwizdka, J. (2021). Healthcare professionals' acts of correcting health misinformation on social media. *International Journal of Medical Informatics, 148*, Article 104375. https://doi.org/10.1016/j.ijmedinf.2021.104375

Beauvais, B., Kruse, C. S., Fulton, L., Brooks, M., Mileski, M., Lee, K., Ramamonjiarivelo, Z., & Shanmugam, R. (2021). Testing Kissick's Iron Triangle—Structural equation modeling analysis of a practical theory. *Healthcare, 9*(12), Article 1753. https://doi.org/10.3390/healthcare9121753

Bevere, D., & Faccilongo, N. (2024). Shaping the future of healthcare: Integrating ecology and digital innovation. *Sustainability, 16*(9), Article 3835. https://doi.org/10.3390/su16093835

Binci, D., Palozzi, G., & Scafarto, F. (2022). Toward digital transformation in healthcare: A framework for remote monitoring adoption. *The TQM Journal, 34*(6), 1772–1799. https://doi.org/10.1108/TQM-04-2021-0109

Boddy, C. R. (2016). Sample size for qualitative research. *Qualitative Market Research, 19*(4), 426–432. https://doi.org/10.1108/QMR-06-2016-0053

Braithwaite, J., Zurynski, Y., Holt, J., McPherson, E., Lamprell, G., Herkes-Deane, J., Dammery, G., Meulenbroeks, I., & Halim, N. (2022). How can the healthcare system deliver sustainable performance? A scoping review. *BMJ Open, 12*(5), Article e059207. https://doi.org/10.1136/bmjopen-2021-059207

Braun, V., & Clarke, V. (2024a). A critical review of the reporting of reflexive thematic analysis in Health Promotion International. *Health Promotion International, 39*(3), Article daae049. https://doi.org/10.1093/heapro/daae049

Braun, V., & Clarke, V. (2024b). Supporting best practice in reflexive thematic analysis reporting in Palliative Medicine: A review of published research and introduction to the Reflexive Thematic Analysis Reporting Guidelines (RTARG). *Palliative Medicine, 38*(6), 608−616. https://doi.org/10.1177/02692163241234800

Bresciani, S., Ciampi, F., Meli, F., & Ferraris, A. (2021). Using big data for co-innovation processes: Mapping the field of data-driven innovation, proposing theoretical developments and providing a research agenda. *International Journal of Information Management, 60*, Article 102347. https://doi.org/10.1016/j.ijinfomgt.2021.102347

Brommeyer, M., & Liang, Z. (2022). A systematic approach in developing management workforce readiness for digital health transformation in healthcare. *International Journal of Environmental Research and Public Health, 19*(21), Article 13843. https://doi.org/10.3390/ijerph192113843

Browder, R. E., Dwyer, S. M., & Koch, H. (2024). Upgrading adaptation: How digital transformation promotes organizational resilience. *Strategic Entrepreneurship Journal, 18*(1), 128–164. https://doi.org/10.1002/sej.1483

Busetto, L., Wick, W., & Gumbinger, C. (2020). How to use and assess qualitative research methods. *Neurological Research and Practice, 2*(1), Article 14. https://doi.org/10.1186/s42466-020-00059-z

Buys, T., Casteleijn, D., Heyns, T., & Untiedt, H. (2022). A reflexive lens on preparing and conducting semi-structured interviews with academic colleagues. *Qualitative Health Research, 32*(13), 2030-2039. https://doi.org/10.1177/10497323221130832

Campagna, J. M., & Bhada, S. V. (2024). Strategic adoption of digital innovations leading to digital transformation: A literature review and discussion. *Systems, 12*(4), Article 118. https://doi.org/10.3390/systems12040118

Campbell, K. A., Orr, E., Durepos, P., Nguyen, L., Li, L., Whitmore, C., Gehrke, P., Graham, L., & Jack, S. M. (2021). Reflexive thematic analysis for applied qualitative health research. *The Qualitative Report*, *26*(6), 2011–2028. https://doi.org/10.46743/2160-3715/2021.5010

Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., Bywaters, D., & Walker, K. (2020). Purposive sampling: Complex or simple? Research case examples. *Journal of Research in Nursing*, *25*(8), 652–661. https://doi.org/10.1177/1744987120927206

Cannavacciuolo, L., Capaldo, G., & Ponsiglione, C. (2023). Digital innovation and organizational changes in the healthcare sector: Multiple case studies of telemedicine project implementation. *Technovation, 120*, Article 102550. https://doi.org/10.1016/j.technovation.2022.102550

Carcary, M. (2020). The research audit trail: Methodological guidance for application in practice. Electronic *Journal of Business Research Methods, 18(2)*, 166–177. https://doi.org/10.34190/JBRM.18.2.008

Casale, P. N., Vyavahare, M., Coyne, S., Kronish, I., Greenwald, P., Ye, S., Deland, E., & Fleischut, P. M. (2021). The promise of remote patient monitoring: Lessons learned during the COVID-19 surge in New York City. *American Journal of Medical Quality, 36*(3), 139–144. https://doi.org/10.1097/01.JMQ.0000741968.61211.2b

Centers for Disease Control and Prevention. (2023, April 11). *Data Modernization Initiative: Fiscal Year 2024 President's Budget request—Fact sheet*. U.S. Department of Health & Human Services. https://www.cdc.gov/budget/documents/fy2024/Data-Modernization-Initiative-Fact-Sheet.pdf

Chen, Y., Liu, L., Li, W., Xie, Z., & Wei, C. (2023). Microfoundations of dynamic capabilities: a systematic review and a multilevel framework. *Management Decision, 61*(6), 1717-1753. https://doi.org/10.1108/MD-05-2022-0615

Chrysikou, E., Papadonikolaki, E., Savvopoulou, E., Tsiantou, E., & Klinke, C. A. (2023). Digital technologies and healthcare architects' wellbeing in the National Health Service Estate of England during the pandemic. *Frontiers in Medical Technology, 5*, 1212734. https://doi.org/10.3389/fmedt.2023.1212734

Cresswell, K., Sheikh, A., & Williams, R. (2022). 'Managed convergence' in health system digitalisation. *Journal of the Royal Society of Medicine. 115*(8), 284-285. https://doi.org/10.1177/01410768221098274

Dahal, N., Neupane, B. P., Pant, B. P., Dhakal, R. K., Giri, D. R., Ghimire, P. R., & Bhandari, L. P. (2024). Participant selection procedures in qualitative research: experiences and some points for consideration. *Frontiers in Research Metrics and Analytics, 9*, Article 1512747. https://doi.org/10.3389/frma.2024.1512747

de Castilho Junior, L. R. M., Rocha Loures, E. D. F., Portela Santos, E. A., & Deschamps, F. (2023). Digital transformation from planning to execution—A strategic framework based on ambidexterity and enterprise architecture and interoperability. *Journal of Industrial Integration & Management, 8*(4). https://doi.org/10.1142/S2424862223500264

Dedeke, A. (2024). Business value recapture strategy: Why innovative companies succeed at digital business model transformation. *IEEE Engineering Management Review, 52*(3), 125–130. https://doi.org/10.1109/EMR.2024.3376390

Dooley, M. (2021). Reducing medication-related harm through the adoption of technology. *Journal of Pharmacy Practice and Research, 51*(2), 85-89. https://doi.org/10.1002/jppr.1726

Dullabh, P., Sandberg, S. F., Heaney-Huls, K., Hovey, L. S., Lobach, D. F., Boxwala, A., Desai, P. J., Berliner, E., Dymek, C., Harrison, M. I., Swiger, J., & Sittig, D. F. (2022). Challenges and opportunities for advancing patient-centered clinical decision support: Findings from a horizon scan. *Journal of the American Medical Informatics Association, 29*(7), 1233–1243. https://doi.org/10.1093/jamia/ocac059

Egan, P., Pierce, A., Flynn, A., Teeling, S. P., Ward, M., & McNamara, M. (2021). Releasing operating room nursing time to care through the reduction of surgical case preparation time: A Lean Six Sigma pilot study. *International Journal of Environmental Research and Public Health, 18*(22), Article 12098. https://doi.org/10.3390/ijerph182212098

Fabiano, A. S., Richter, K. R., Haglin, J. M., & Poole, K. G. (2021). An overview of EHI legislation and its economic impact. *Physician Leadership Journal, 8*(5), 47-54.

Federal Emergency Management Agency. (2022). *National risk and capability assessment*. U.S. Department of Homeland Security. https://www.fema.gov/emergency-managers/risk-management/risk-capability-assessment

Fragao-Marques, M., & Ozben, T. (2023). Digital transformation and sustainability in healthcare and clinical laboratories. *Clinical Chemistry and Laboratory Medicine, 61(*4), 627-633. https://doi.org/10.1515/cclm-2022-1092

Frick, N. R. J., Mollmann, H. L., Mirbabaie, M., & Stieglitz, S. (2021). Driving digital transformation during a pandemic: Case study of virtual collaboration in a German hospital. *JMIR Medical Informatics, 9*(2). https://doi.org/10.2196/25183

Garcia-Perez, A., Cegarra-Navarro, J. G., Sallos, M. P., Martinez-Caro, E., & Chinnaswamy, A. (2023). Resilience in healthcare systems: Cyber security and digital transformation. *Technovation, 121*, Article 102583. https://doi.org/10.1016/j.technovation.2022.102583

Ghonim, M. A., Goda, A. E. A., Khashaba, N. M., Elsotouhy, M. M., & Khashan, M. A. (2024). Impact of organizational energy on digital transformation in healthcare services: The movement of human resources from inertia to flexibility. *EuroMed Journal of Business*. https://doi.org/10.1108/EMJB-10-2023-0272

Gimpel, H., Hosseini, S., Huber, R., Probst, L., & Wendt, J. (2021). Structuring digital transformation: A framework of action fields and its application at ZEISS. *Journal of Information Technology, 33*(2), 114-132. https://aisel.aisnet.org/jitta/vol19/iss1/3

Gjellebaek, C., Svensson, A., Bjorkquist, C., Fladeby, N., & Grunden, K. (2020). Management challenges for future digitalization of healthcare services. *Futures, 124*, Article 102636. https://doi.org/10.1016/j.futures.2020.102636

Gong, C., & Ribiere, V. (2021). Developing a unified definition of digital transformation. *Technovation, 102*, Article 102217. https://doi.org/10.1016/j.technovation.2020.102217

Greenhalgh, T., Wherton, J., Shaw, S., & Morrison, C. (2020). Video consultations for COVID-19. *BMJ, 368*, Article m998. https://doi.org/10.1136/bmj.m998

Guandalini, I. (2022). Sustainability through digital transformation: A systematic literature review for research guidance. *Journal of Business Research, 148*, 456–471. https://doi.org/10.1016/j.jbusres.2022.05.003

Guha, C., Viecelli, A. K., Wong, G., Manera, K., & Tong, A. (2021). Qualitative research methods and its application in nephrology. *Nephrology, 26*(10), 755-762. https://doi.org/10.1111/nep.13888

Gupta, V., Choudhary, H., & Mehta, A. (2024). Pioneering digital transformation in a future-ready world. *International Journal of Advanced Research in Science, Communication and Technology, 4*(6), 563–571. https://doi.org/10.48175/ijarsct-17674

Hameed, K., Naha, R., & Hameed, F. (2024). Digital transformation for sustainable health and well-being: A review and future research directions. *Discover Sustainability, 5*, Article 104. https://doi.org/10.1007/s43621-024-00273-8

Hanelt, A., Bohnsack, R., Marz, D., & Antunes Marante, C. (2021). A systematic review of the literature on digital transformation: Insights and implications for strategy and organizational change. *Journal of Management Studies, 58*(5), 1159-1197. https://doi.org/10.1111/joms.12639

Hassan, M., Awan, F. M., Naz, A., deAndres-Galiana, E. J., Alvarez, O., Cernea, A., Fernández-Brillet, L., Fernández-Martínez, J. L., & Kloczkowski, A. (2022). Innovations in genomics and big data analytics for personalized medicine and

health care: A review. *International Journal of Molecular Sciences, 23*(9), Article 4645. https://doi.org/10.3390/ijms23094645

Hayat, A. A., Keshavarzi, M. H., Zare, S., Bazrafcan, L., Rezaee, R., Faghihi, S. A., Amini, M., & Kojuri, J. (2021). Challenges and opportunities from the COVID-19 pandemic in medical education: a qualitative study. *BMC Medical Education, 21*(1), Article 247. https://doi.org/10.1186/s12909-021-02682-z

Hennink, M., Kaiser, B. N., & Weber, M. B. (2019). What influences saturation? Estimating sample sizes in focus group research. *Qualitative Health Research, 29*(10), 1483-1496. https://doi.org/10.1177/1049732318821692

Huang, C.-W., Lai, Y.-C., Chiu, C.-Y., Jan, P.-T., & Chen, Y.-H. (2023). *Key strategies for digital transformation: A non-medical center hospital in Taiwan as an example. Journal of Internet Technology*, *24*(2), 389–400. https://doi.org/10.53106/160792642023032402017

Huang, W.-L., Liao, S.-L., Huang, H.-L., Su, Y.-X., Jerng, J.-S., Lu, C.-Y., Ho, W.-S., & Xu, J.-R. (2024). A case study of lean digital transformation through robotic process automation in healthcare. *Scientific Reports*, *14*, Article 14626. https://doi.org/10.1038/s41598-024-65715-9

Huaytan, J. V. P., Rojas, G. G. R., Ruiz-Balvin, M. C., Roldan, F. A. G., Leiva, N. A. D., Gordillo-Flores, R. E., & Tapia-Silguera, R. D. (2024). Digital Transformation in Public Hospital Management: Improving the Patient Experience . *Revista de Gestao Social e Ambiental, 18*(4), Article e04571. https://doi.org/10.24857/rgsa.v18n4-046

Iivari, N. (2018). Using member checking in interpretive research practice: A hermeneutic analysis of informants' interpretation of their organizational realities. *Information Technology & People, 31*(1), 111-133. https://doi.org/10.1108/ITP-07-2016-0168

Islam, M. A., & Aldaihani, F. M. F. (2022). Justification for adopting qualitative research method, research approaches, sampling strategy, sample size, interview method, saturation, and data analysis. *Journal of International Business and Management, 5*(1), 01–11. https://doi.org/10.37227/JIBM-2021-09-1494

Iyanna, S., Kaur, P., Ractham, P., Talwar, S., & Islam, A. K. M. N. (2022). Digital transformation of the healthcare sector: What is impeding adoption and continued usage of technology-driven innovations by end-users? *Journal of Business Research, 153*, 150–161. https://doi.org/10.1016/j.jbusres.2022.08.007

Janis, I. (2022). Strategies for establishing dependability between two qualitative intrinsic case studies: A reflexive thematic analysis. *Field Methods, 34*(3), 240–255. https://doi.org/10.1177/1525822X211069636

Jiancheng, L. (2024). The evolutionary features and internal logic of the one-vote veto system: A Nvivo analysis based on the policy texts of the three provinces in the east, middle, and west. *PLoS ONE, 19*(7), Article e0306535. https://doi.org/10.1371/journal.pone.0306535

Jimenez, T. R., & Orozco, M. (2021). Prompts, not questions: Four techniques for crafting better interview protocols. *Qualitative Sociology, 44*(4), 507–528. https://doi.org/10.1007/s11133-021-09483-2

Joel, O. S., Oyewole, A. T., Odunaiya, O. G., & Soyombo, O. T. (2024). Navigating the digital transformation journey: Strategies for startup growth and innovation in the digital era. *International Journal of Management & Entrepreneurship Research, 6*(3), 697–706. https://doi.org/10.51594/ijmer.v6i3.881

Johansson, P. E., Stefan, I., Axelsson, K., Söderberg, T., & Forsberg, K. (2022). Creating balancing spaces for digital ambidexterity: Identifying divergence and competing demands in healthcare transformation initiatives. *International Journal of Innovation Management, 26*(9), Article 2240023. https://doi.org/10.1142/S1363919622400230

Johnson, J. L., Adkins, D., & Chauvin, S. (2020). A review of the quality indicators of rigor in qualitative research. *American Journal of Pharmaceutical Education, 84*(1), Article 7120. https://doi.org/10.5688/ajpe7120

Kalpokas, N., & Radivojevic, I. (2021). Adapting practices from qualitative research to tell a compelling story: A practical framework for conducting a literature review. *The Qualitative Report, 26*(5), 1546-1566. https://doi.org/10.46743/2160-3715/2021.4749

Katz-Buonincontro, J. (2022). Qualitative research essentials. In J. Katz-Buonincontro, *How to interview and conduct focus groups* (pp. 7–21). American Psychological Association. https://doi.org/10.1037/0000299-002

Koebe, P., & Bohnet-Joschko, S. (2023). What's next in hospital digitization? A Delphi-based scenario study. *European Journal of Futures Research, 11*, 10. https://doi.org/10.1186/s40309-023-00222-0

Kraus, S., Schiavone, F., Pluzhnikova, A., & Invernizzi, A. C. (2021). Digital transformation in healthcare: Analyzing the current state of research. *Journal of Business Research, 123*, 557-567. https://doi.org/10.1016/j.jbusres.2020.10.030

Kuhl, S. (2024). Strategy is structure. A systems theory-based definition of strategy. *Journal of Organizational Sociology, 1*(3), 251-286. https://doi.org/10.1515/joso-2023-0014

Laksono, S., & Darmawan, E. S. (2021). The new leadership paradigm in digital health and its relations to hospital services. *Jurnal Ilmu Kesehatan Masyarakat, 12*(2), 89–103. https://doi.org/10.26553/jikm.2021.12.2.89-103

Lavee, E., & Itzchakov, G. (2023). Good listening: A key element in establishing quality in qualitative research. *Qualitative Research, 23*(3), 614–631. https://doi.org/10.1177/14687941211039402

Leone, D., Schiavone, F., Appio, F. P., & Chiao, B. (2021). How does artificial intelligence enable and enhance value co-creation in industrial markets? An exploratory case study in the healthcare ecosystem. *Journal of Business Research, 129*, 849–859. https://doi.org/10.1016/j.jbusres.2020.11.008

Levasluoto, J., Kohl, J., Sigfrids, A., Pihlajamaki, J., & Martikainen, J. (2021). Digitalization as an engine for change? Building a vision pathway towards a sustainable health care system by using the MLP and health economic decision modelling. *Sustainability, 13*(23), Article 13007. https://doi.org/10.3390/su132313007

Levinson, Z., Godwin, J., & Neuman, T. (2024, December 18). *Hospital margins rebounded in 2023, but rural hospitals and those with high Medicaid shares were struggling more than others*. KFF. https://www.kff.org/health-costs/issue-brief/hospital-margins-rebounded-in-2023-but-rural-hospitals-and-those-with-high-medicaid-shares-were-struggling-more-than-others/

Li, J., & Carayon, P. (2021). Health Care 4.0: A vision for smart and connected health care. *IISE Transactions on Healthcare Systems Engineering, 11*(3), 171-180. https://doi.org/10.1080/24725579.2021.1884627

Liang, H.-F., Wu, K.-M., & Wang, Y.-H. (2020). Nursing students' first-time experiences in pediatric clinical practice in Taiwan: A qualitative study. *Nurse Education Today, 91*, Article 104469. https://doi.org/10.1016/j.nedt.2020.104469

Lim, W. M. (2024). What is qualitative research? An overview and guidelines. *Australasian Marketing Journal*. https://doi.org/10.1177/14413582241264619

Lindroth, T., Magnusson, J., Norling, K., & Torell, J. (2022). Balancing the digital portfolio: Empirical evidence of an ambidextrous bias in digital government. *Proceedings of the 23rd Annual International Conference on Digital Government Research*, 307–314. https://doi.org/10.1145/3543434.3543641

Loureiro, R., Ferreira, J. J., & Simoes, J. (2021). Understanding healthcare sector organizations from a dynamic capabilities perspective. *European Journal of Innovation Management, 26*(2), 622–642. https://doi.org/10.1108/ejim-02-2021-0085

Lysfjord, E. M., Gjevjon, E. R., & Skarstein, S. (2024). Challenges and strategies in nursing leadership: A qualitative study on leaders in mental health care. *Nursing Reports, 14*(4), 3943-3954. https://doi.org/10.3390/nursrep14040288

Mamdiwar, S. D., R, A., Shakruwala, Z., Chadha, U., Srinivasan, K., & Chang, C.-Y. (2021). Recent advances on IoT-assisted wearable sensor systems for healthcare monitoring. *Biosensors, 11*(10), Article 372. https://doi.org/10.3390/bios11100372

Marques, I. P., & Ferreira, J. M. (2019). Digital transformation in the area of health: Systematic review of 45 years of evolution. *Health and Technology Journal, 10*, 575–586. https://doi.org/10.1007/s12553-019-00402-8

Marzouk, Y. Y., & Jin, J. (2023). Renew or die amidst COVID-19: Investigating the effect of organizational learning culture on strategic renewal through strategic reconfiguration and digital transformation. *Journal of Organizational Change Management, 36*(5), 777-811. https://doi.org/10.1108/JOCM-02-2023-0041

McDermott, R. (2023). On the scientific study of small samples: Challenges confronting quantitative and qualitative methodologies. *The Leadership Quarterly, 34*(3), Article 101675. https://doi.org/10.1016/j.leaqua.2023.101675

McGraw, D., & Mandl, K. D. (2021). Privacy protections to encourage use of health-relevant digital data in a learning health system. *npj Digital Medicine, 4*, 2. https://doi.org/10.1038/s41746-020-00362-8

McKim, C. (2023). Meaningful member-checking: A structured approach to member-checking. *American Journal of Qualitative Research, 7*(2), 41–52. https://doi.org/10.29333/ajqr/12973

Megheirkouni, M., & Moir, J. (2023). Simple but effective criteria: Rethinking excellent qualitative research. *The Qualitative Report, 28*(3), 848-864. https://doi.org/10.46743/2160-3715/2023.5845

Melis, G., Sala, E., & Zaccaria, D. (2022). Remote recruiting and video-interviewing older people: a research note on a qualitative case study carried out in the first Covid-19 Red Zone in Europe. *International Journal of Social Research Methodology, 25*(4), 477-482. https://doi.org/10.1080/13645579.2021.1913921

Metcalfe, M. (2008). Pragmatic inquiry. *Journal of the Operational Research Society, 59*(8), 1091-1099. https://doi.org/10.1057/palgrave.jors.2602443

Mishra, S., & Dey, A. K. (2022). Understanding and identifying ‘themes’ in qualitative case study research. *South Asian Journal of Business and Management Cases, 11*(3), 187–192. https://doi.org/10.1177/22779779221134659

Mohammadi, F., Farjam, M., Gholampour, Y., Sohrabpour, M., Oshvandi, K., & Bijani, M. (2021). Caregivers’ perception of the caring challenges in coronavirus crisis (COVID-19): a qualitative study. *BMC Nursing, 20*(1). https://doi.org/10.1186/s12912-021-00607-1

Morelli, S., D’Avenio, G., Daniele, C., Grigioni, M., & Giansanti, D. (2024). Under the Tech Umbrella: Assessing the Landscape of Telemedicine Innovations

(Telemechron Study). *Healthcare, 12*(6), Article 615. https://doi.org/10.3390/healthcare12060615

Mosch, L. K., Poncette, A. S., Spies, C., Weber-Carstens, S., Schieler, M., Krampe, H., & Balzer, F. (2022). Creation of an evidence-based implementation framework for digital health technology in the intensive care unit: Qualitative study. *JMIR Formative Research, 6*(4). https://doi.org/10.2196/22866

Motulsky, S. L. (2021). Is member checking the gold standard of quality in qualitative research? *Qualitative Psychology, 8*(3), 389–406. https://doi.org/10.1037/qup0000215

Mulisa, F. (2021). When does a researcher choose a quantitative, qualitative, or mixed research approach? *Interchange, 53*(1), 113–131. https://doi.org/10.1007/s10780-021-09447-z

Mwita, K. M. (2022). Factors to consider when choosing data collection methods. *International Journal of Research in Business and Social Science, 11*(5), 532–538. https://doi.org/10.20525/ijrbs.v11i5.1842

Naamati-Schneider, L., Arazi-Fadlon, M., & Daphna-Tekoah, S. (2024a). Navigating moral and ethical dilemmas in digital transformation processes within healthcare organizations. *Digital Health, 10*, 1–12. https://doi.org/10.1177/20552076241260416

Naamati-Schneider, L., Arazi-Fadlon, M., & Daphna-Tekoah, S. (2024b). Strategic technological processes in hospitals: Conflicts and personal experiences of

healthcare teams. *Nursing Ethics, 0*(0), 1–17. https://doi.org/10.1177/09697330241252876

Nadkarni, S., & Prugl, R. (2020). Digital transformation: A review, synthesis and opportunities for future research. *Management Review Quarterly, 71*(2), 233–341. https://doi.org/10.1007/s11301-020-00185-7

Naeem, M., Ozuem, W., Howell, K., & Ranfagni, S. (2023). A step-by-step process of thematic analysis to develop a conceptual model in qualitative research. *International Journal of Qualitative Methods, 22*. https://doi.org/10.1177/16094069231205789

Nagai, H., Nakazawa, E., & Akabayashi, A. (2022). The creation of the Belmont Report and its effect on ethical principles: a historical study. *Monash Bioeth Review, 40*, 157–170. https://doi.org/10.1007/s40592-022-00165-5

Najem, N. R., Salman, M. K., Mohammed, M., & Madhi, Z. J. (2024). Navigating digital transformation strategies for sustaining competitive advantage in the AI era. *Journal of Ecohumanism, 3*(5), 927–948. https://doi.org/10.62754/joe.v3i5.3947

National Institute of Standards and Technology. (2023). *Artificial Intelligence Risk Management Framework (AI RMF 1.0) (NIST AI 100-1)*. U.S. Department of Commerce. https://nvlpubs.nist.gov/nistpubs/ai/nist.ai.100-1.pdf

Negrin, K. A., Slaughter, S. E., Dahlke, S., & Olson, J. (2022). Successful recruitment to qualitative research: A critical reflection. *International Journal of Qualitative Methods, 21*, Article 16094069221119576. https://doi.org/10.1177/16094069221119576

Neumann, M., Fehring, L., Kinscher, K., Truebel, H., Dahlhausen, F., Ehlers, J. P., Mondritzki, T., & Boehme, P. (2021). Perspective of German medical faculties on digitization in the healthcare sector and its influence on the curriculum. *GMS Journal for Medical Education, 38*(7), Doc124. https://doi.org/10.3205/zma001520

NHS England. (2021). *What good looks like: A digital framework for NHS providers and systems*. https://transform.england.nhs.uk/digitise-connect-transform/what-good-looks-like/what-good-looks-like-publication/

NHS England. (n.d.). *Digital Technology Assessment Criteria (DTAC)*. https://transform.england.nhs.uk/key-tools-and-info/digital-technology-assessment-criteria-dtac/

Nielsen, J. A., Elmholdt, K. T., & Noesgaard, M. S. (2024). Leading digital transformation: A narrative perspective. *Public Administration Review, 84*(4), 589-603. https://doi.org/10.1111/puar.13721

Ntsobi, M. P., Costa, A. P., Kasperiuniene, J., Brandao, C., & Ribeiro, J. (2024). Digital tools and techniques in qualitative research: Digital skills and research optimisation. In J. Ribeiro, C. Brandao, M. Ntsobi, J. Kasperiuniene, & A. P. Costa (Eds.), *Computer supported qualitative research. WCQR 2024. Lecture notes in networks and systems* (Vol. 1061). Springer, Cham. https://doi.org/10.1007/978-3-031-65735-1_1

Office of the National Coordinator for Health Information Technology. (2020). *Federal Health IT strategic plan 2020-2025. U.S.* Department of Health & Human

Services. https://www.healthit.gov/sites/default/files/facas/2020-01-15_2020-2025_Federal_HealthIT_Strategic_Plan.pdf

Office of the National Coordinator for Health Information Technology. (n.d.). *Health IT Playbook*. U.S. Department of Health & Human Services. Retrieved September 20, 2025, from https://www.healthit.gov/playbook/

Organisation for Economic Co-operation and Development. (2020). *The OECD digital government policy framework: Six dimensions of a digital government*. OECD Publishing. https://doi.org/10.1787/f64fed2a-en

Ortlipp, M. (2008). Keeping and using reflective journals in the qualitative research process. *The Qualitative Report, 13*(4), 695–705. https://doi.org/10.46743/2160-3715/2008.1579

Paul, J., Khatri, P., & Kaur Duggal, H. (2024). Frameworks for developing impactful systematic literature reviews and theory building: What, Why and How?. *Journal of Decision Systems, 33*(4), 537-550. https://doi.org/10.1080/12460125.2023.2197700

Persson, J., & Rydenfalt, C. (2021). Why are digital health care systems still poorly designed, and why is health care practice not asking for more? Three paths toward a sustainable digital work environment. *Journal of Medical Internet Research, 23*(6), Article e26694. https://doi.org/10.2196/26694

Philip, J. (2021). Viewing digital transformation through the lens of transformational leadership. *Journal of Organizational Computing and Electronic Commerce, 31*(2), 114-129. https://doi.org/10.1080/10919392.2021.1911573

Popov, V. V., Kudryavtseva, E. V., Kumar Katiyar, N., Shishkin, A., Stepanov, S. I., & Goel, S. (2022). Industry 4.0 and digitalisation in healthcare. *Materials (Basel), 15*(6), Article 2140. https://doi.org/10.3390/ma15062140

Prashar, A. (2024). Modeling enablers of agility of healthcare organizations. *International Journal of Quality & Reliability Management*, 41(1), 173-194. https://doi.org/10.1108/IJQRM-11-2022-0322

Pundziene, A., Gutmann, T., Schlichtner, M., & Teece, D. J. (2022). Value Impedance and Dynamic Capabilities: The Case of MedTech Incumbent-Born Digital Healthcare Platforms. *California Management Review, 64*(4), 108-134. https://doi.org/10.1177/00081256221099326

Raimo, N., De Turi, I., Albergo, F., & Vitolla, F. (2022). The drivers of the digital transformation in the healthcare industry: An empirical analysis in Italian hospitals. *Technovation, 121*, Article 102558. https://doi.org/10.1016/j.technovation.2022.102558

Rawson, J. V., & Stevens, J. P. (2023). Scenario planning approach to adapting in the COVID era. *Academic Radiology, 30*(4), 572–578. https://doi.org/10.1016/j.acra.2022.11.032

Romero-Sanchez, A., Perdomo-Charry, G., & Burbano-Vallejo, E. L. (2024). Academic Spin-offs through the Lens of Pragmatism and Mixed Methods. *Evolutionary Studies in Imaginative Culture, 8*, 30-67. https://doi.org/10.70082/esiculture.vi.951

Rowlands, J. (2021). Interviewee transcript review as a tool to improve data quality and participant confidence in sensitive research. *International Journal of Qualitative Methods, 20,* https://doi.org/10.1177/16094069211066170

Sahakyan, T. (2023). Member-Checking through Diagrammatic Elicitation: Constructing Meaning with Participants. *TESOL Quarterly, 57*(2), 686-701. https://doi.org/10.1002/tesq.3210

Santarsiero, F., Schiuma, G., Carlucci, D., & Helander, N. (2023). Digital transformation in healthcare organisations: The role of innovation labs. *Technovation, 122*, Article 102640. https://doi.org/10.1016/j.technovation.2022.102640

Saqib, N. (2023). Typologies and taxonomies of positioning strategies: A systematic literature review. *Journal of Management History, 29*(4), 481–501. https://doi.org/10.1108/JMH-10-2022-0055

Sarradon-Eck, A., Bouchez, T., Auroy, L., Schuers, M., & Darmon, D. (2021). Attitudes of general practitioners toward prescription of mobile health apps: Qualitative study. *JMIR mHealth and uHealth, 9*(3). https://doi.org/10.2196/21795

Servant, P. D. A., Martin-Martin, D., & Romero, I. (2024). Digital transformation of oral health care: Measuring the digitalization of dental clinics. *Social Indicators Research*, 1-3. https://doi.org/10.1007/s11205-024-03366-z

Shafizadeh, H. (2024). Decision-Making Under Uncertainty: How Organizations Adapt to Environmental Changes? *Journal of Resource Management and Decision Engineering, 3*(1), 4-10. https://doi.org/10.61838/kman.jrmde.3.1.2

Shaked, A. (2021). Modeling for Rapid Systems Prototyping: Hospital Situational Awareness System Design. *Systems, 9*(1), Article 12. https://doi.org/10.3390/systems9010012

Shiferaw, R. M., & Amentie Kero, C. (2024). Dynamic capabilities view practices of business firms: a systematic literature review. *Cogent Business & Management, 11*(1). https://doi.org/10.1080/23311975.2024.2336309

Shrank, W. H., Rogstad, T. L., & Parekh, N. (2019). Waste in the US health care system: estimated costs and potential for savings. *Jama, 322*(15), 1501-1509. https://doi.org/10.1001/jama.2019.13978

Siedlecki, S. L. (2022). Conducting interviews for qualitative research studies. *Clinical Nurse Specialist, 36*(2), 78-80. https://doi.org/10.1097/NUR.0000000000000653

Simsek, Z., Fox, B., & Heavey, C. (2023). Systematicity in organizational research literature reviews: A framework and assessment. *Organizational Research Methods, 26*(2), 292-321. https://doi.org/10.1177/10944281211008652

Snowdon, A., Hussein, A., Danforth, M., Wright, A., & Oakes, R. (2024). Digital maturity as a predictor of quality and safety outcomes in US hospitals: Cross-sectional observational study. *Journal of Medical Internet Research, 26*, Article e56316. https://doi.org/10.2196/56316

Solberg, E., Traavik, L. E. M., & Wong, S. I. (2020). Digital mindsets: Recognizing and leveraging individual beliefs for digital transformation. *California Management Review, 62*(4), 105–124. https://doi.org/10.1177/0008125620931839

Sridharan, V. G. (2021). Methodological Insights Theory development in qualitative management control: revisiting the roles of triangulation and generalization. *Accounting, Auditing & Accountability Journal, 34*(2), 451-479. https://doi.org/10.1108/AAAJ-09-2019-4177

Stalmeijer, R. E., Brown, M. E. L., & O'Brien, B. C. (2024). How to discuss transferability of qualitative research in health professions education. *The Clinical Teacher, 21*(6), Article e13762. https://doi.org/10.1111/TCT.13762

Stoumpos, A. I., Kitsios, F., & Talias, M. A. (2023). Digital Transformation in Healthcare: Technology Acceptance and Its Applications. *International Journal of Environmental Research and Public Health, 20*(3407). https://doi.org/10.3390/ijerph20043407

Subedi, K. R. (2025). Safeguarding Participants: Using Pseudonyms for Ensuring Confidentiality and Anonymity in Qualitative Research. *KMC Journal, 7*(1), 1-20. https://doi.org/10.3126/kmcj.v7i1.75109

Taherdoost, H. (2022). What are different research approaches? Comprehensive review of qualitative, quantitative, and mixed method research, their applications, types, and limitations. *Journal of Management Science & Engineering Research, 5*(1), 53–63. https://doi.org/10.30564/jmser.v5i1.4538

Talwar, S., Talwar, M., Kaur, P., Singh, G., & Dhir, A. (2021). Why have consumers opposed, postponed, and rejected innovations during a pandemic? A study of mobile payment innovations. *Australasian Journal of Information Systems, 25*, Article 3201. https://doi.org/10.3127/ajis.v25i0.3201

Teece, D. J. (2020). Fundamental issues in strategy: Time to reassess? *Strategic Management Review, 1*(1), 103–144. https://doi.org/10.1561/111.00000005

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal, 18*(7), 509–533. https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z

Thanislas, S. (2024). Navigating the future of healthcare: Adapting to transformative changes in care delivery. *International Journal of Creative Research Thoughts, 12*(1), 463–475. https://www.ijcrt.org/papers/IJCRT2401764.pdf

Toyon, M. A. S. (2023). *Introduction to research: Mastering the basics. Scholars Journal of Research in Social Science*, *3*(1), 1–24. https://doi.org/10.5281/zenodo.7724719

Trenerry, B., Chng, S., Wang, Y., Suhaila, Z. S., Lim, S. S., Lu, H. Y., & Oh, P. H. (2021). Preparing workplaces for digital transformation: An integrative review and framework of multi-level factors. *Frontiers in Psychology, 12*, Article 620766. https://doi.org/10.3389/fpsyg.2021.620766

Ullagaddi, P. (2024). Digital transformation strategies to strengthen quality and data integrity in pharma. *International Journal of Business and Management, 19*(5), 16-26. https://doi.org/10.5539/ijbm.v19n5p16

Unterhofer, M., Rauch, E., & Matt, D. T. (2022). Hospital 4.0 roadmap: An agile implementation guideline for hospital managers. *International Journal of Agile*

Systems and Management, 14(4), 635–656. https://doi.org/10.1504/IJASM.2021.120230

U.S. Food and Drug Administration. (2025, January 6). *Digital Health Center of Excellence*. https://www.fda.gov/medical-devices/digital-health-center-excellence

U.S. Government Accountability Office. (2020). *Agile assessment guide: Best practices for Agile adoption and implementation (GAO-20-590G)*. https://www.gao.gov/products/gao-20-590g

Vallatos, A., Maguire, J. M., Pilavakis, N., Cerniauskas, G., Sturtivant, A., Speakman, A. J., Gourlay, S., Inglis, S., McCall, G., Davie, A., Boyd, M., Tavares, A. A. S., Doherty, C., Roberts, S., Aitken, P., Mason, M., Cummings, S., Mullen, A., Paterson, G., ... Dunn, K. E. (2021). Adaptive manufacturing for healthcare during the COVID-19 emergency and beyond. *Frontiers in Medical Technology, 3*, Article 702526. https://doi.org/10.3389/fmedt.2021.702526

Varzaru, A. A. (2022). Assessing digital transformation of cost accounting tools in healthcare. *International Journal of Environmental Research and Public Health, 19(23),* Article 15572. https://doi.org/10.3390/ijerph192315572

Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Qi Dong, J., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research, 122*, 889-901. https://doi.org/10.1016/j.jbusres.2019.09.022

Vial, G. (2019). Understanding Digital Transformation: A Review and a Research Agenda. *The Journal of Strategic Information Systems, 28*(2), 118-144. https://doi.org/10.1016/j.jsis.2019.01.003

Viswanadham, N. (2021). Ecosystem model for healthcare platform. *Sadhana, 46*(4). https://doi.org/10.1007/s12046-021-01708-y

Vogel, J., Hollenbach, J., Haering, A., Augurzky, B., & Geissler, A. (2024). The association of hospital profitability and digital maturity: An explorative study using data from the German DigitalRadar project. *Health Policy, 142*, Article 105012. https://doi.org/10.1016/j.healthpol.2024.105012

Volpentesta, T., Spahiu, E., & De Giovanni, P. (2023). A survey on incumbent digital transformation: A paradoxical perspective and research agenda. *European Journal of Innovation Management, 26*(7), 1657–1682. https://doi.org/10.1108/EJIM-01-2023-0081

Wang, Q., & Shao, Z. (2024). Linking transformational leadership and digital creativity from the lens of social cognitive theory. *Industrial Management & Data Systems, 124*(6), 2312–2332. https://doi.org/10.1108/IMDS-07-2023-0444

Warner, K. S. R., & Wager, M. (2019). Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal. *Long Range Planning, 52*(3), 326–349. https://doi.org/10.1016/j.lrp.2018.12.001

Webster, J., & Watson, R. T. (2020). Analyzing the past to prepare for the future: Writing a literature review—a roadmap for release 2.0. *Journal of Decision Systems, 29*(3), 129–147. https://doi.org/10.1080/12460125.2020.1798591

Wendt, C., Adam, M., Benlian, A., & Kraus, S. (2022). Let's connect to keep the distance: How SMEs leverage information and communication technologies to address the COVID-19 crisis. *Information Systems Frontiers, 24*, 1061–1079. https://doi.org/10.1007/s10796-021-10182-0

World Health Organization. (2021). *Global strategy on digital health 2020-2025*. World Health Organization. https://www.who.int/publications/i/item/9789240020924

Xiao, Y., Chen, Y., Tan, J., & Cifuentes-Faura, J. (2023). The impact of dissonant tie on innovation performance of digital transformation: Innovation from difficult working individuals. *Journal of Global Information Management (JGIM), 31*(1), 1-21. https://doi.org/10.4018/JGIM.333613

Appendix A: Interview Protocol and Questions

Interview Protocol

This interview protocol outlines the procedures that will guide the data collection process through semistructured interviews with some IT leaders in healthcare systems. The purpose of these interviews is to explore the strategies some IT leaders in healthcare systems use to leverage dynamic capabilities for digital transformation. Each interview will be conducted by secure online video conferencing (Microsoft Teams), and expected to last approximately 30 minutes.

1. Introduction and Rapport Building: I will begin the interview by introducing myself as a doctoral student at Walden University and expressing my appreciation for the participant's time and willingness to contribute to this research study. I will confirm the voluntary nature of their participation and remind them of their right to withdraw at any point.
2. Consent Review and Recording Acknowledgment: I will review the informed consent form with the participant and answer any questions they may have. Once verbal consent is reaffirmed, I will inform them that the session will be audio recorded for the sole purpose of collecting the transcription and performing a qualitative analysis on it, and remind the participant the conversation and all data collected shall be treated strictly confidential, protected, and destroyed after five years.
3. Recording Start: The videoconference recording shall start.

4. Interview Process: The interview will follow a semistructured format guided by nine open-ended questions. I will ask each question sequentially and use probing follow-up questions as needed to encourage elaboration and clarification.
5. Closing the Interview: Before concluding the session, I will ask participants if they would like to share any additional insights related to the topic that may not have been covered during the interview. I will thank them again for their participation and remind them of the follow-up member-checking process.
6. Member Checking and Follow-Up: After the interview has been transcribed and preliminary analysis is conducted, I will send each participant a summary of my interpretation of their responses. Participants will be requested to review the summary and provide feedback to ensure the accuracy and authenticity of their contributions. A brief follow-up interview may be scheduled, if necessary, to clarify any discrepancies or collect additional insights.
7. Data Security and Retention: All recordings, transcripts, and associated data will be stored securely (password protected and encrypted) with a backup copy stored offsite. In accordance with Walden University policy, data will be retained for five years following the study's completion, after which it will be permanently destroyed.

This interview protocol is designed to support the consistency, rigor, and ethical integrity of the study, ensuring participant perspectives are accurately captured and securely managed.

Interview Questions

1. What strategies do you use in digital scouting to identify organizationally impacting external triggers, such as competitors' strategic shifts, changing consumer behaviors, disruptive digital technologies, and unmet consumer needs?
2. What strategies do you use in digital scenario planning to systematically evaluate potential digital technology investments for an organization?
3. What strategies do you use to foster an organizational culture with a digital mindset that encourages openness to innovation and continuous learning?
4. What strategies do you use to ensure organizational strategic agility when responding to rapid technological shifts and evolving stakeholder needs?
5. What strategies do you use in rapid prototyping to iteratively and swiftly test digital initiatives before scaling implementation within an organization?
6. What strategies do you use to balance investments across your digital portfolio among competing initiatives aligned with organizational priorities?
7. What strategies do you use to effectively engage external partners within innovation ecosystems to accelerate organizational digital transformation?
8. What strategies do you use when redesigning internal structures to facilitate successful organizational digital transformation?

9. What strategies do you use to enhance organizational digital maturity for sustained digital transformation?

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