

# Organizational Theories and Models in Digital Healthcare Startups

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## ABSTRACT

This study explores the daily information practices of librarians, focusing on their information needs, seeking behaviors, sources of informal interaction (information grounds), and information sharing activities, as well as how these factors contribute to their professional growth. Data Collection Methods. This research employs a library research method, relying on the systematic review and analysis of relevant scholarly literature, journal articles, books, and credible online sources related to librarians' information practices. The literature was selected based on its relevance, recency, and academic credibility to ensure a comprehensive understanding of the topic. The collected literature was analyzed using content analysis techniques to identify recurring themes, conceptual frameworks, and theoretical perspectives that explain the information behaviors and social dynamics among librarians. The study reveals that librarians' information practices are deeply embedded in both formal professional duties and informal social interactions. Information needs and sharing activities are shaped by the work environment, collaborative culture, and access to both physical and digital information grounds. The discussion elaborates on how these elements influence continuous learning, role adaptation, and knowledge dissemination within academic library settings.



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## 1. INTRODUCTION

The healthcare landscape is undergoing a profound transformation, driven by an unprecedented surge in digital health technologies. From artificial intelligence-powered diagnostics to remote patient monitoring

and personalized medicine platforms, these innovations promise to enhance accessibility, improve outcomes, and streamline care delivery. At the forefront of this revolution are digital healthcare startups, agile entities uniquely positioned to disrupt traditional models and introduce novel solutions. However, their journey is fraught with challenges. Beyond the technical complexities of developing cutting-edge health technologies, these startups must navigate a highly regulated environment, ensure patient safety and data privacy, and foster seamless collaboration among diverse stakeholders, including clinicians, patients, and technology developers.

The problem at hand is that while technological innovation in digital health is accelerating, the organizational structures within these nascent companies often lag behind. Traditional organizational models, characterized by rigid hierarchies and siloed departments, are ill-equipped to handle the rapid pace of change, the iterative nature of product development, and the complex interdependencies inherent in digital health. Preliminary observations reveal a high rate of failure or stagnation among digital health startups, often attributed not solely to product market fit, but also to internal organizational inefficiencies, difficulties in scaling, and challenges in adapting to both technological advancements and evolving healthcare policies. This suggests a critical disconnect between innovative technological solutions and the organizational frameworks needed to sustain them.

This research is important because the success of digital healthcare startups is pivotal to realizing the full potential of digital transformation in healthcare. Without effective organizational designs, even the most promising innovations can falter, leading to wasted resources, missed opportunities for patient benefit, and slower progress in addressing global health challenges. The urgency of this research is underscored by the current global push towards digitalization in health, exacerbated by events like the recent pandemic, which highlighted the critical need for resilient, adaptable, and digitally-enabled healthcare systems. In the last two years, both nationally in Indonesia and internationally, there's been a significant increase in investment in digital health, accompanied by a growing awareness of the need for robust organizational frameworks to manage rapid scaling, ensure data interoperability, and address cybersecurity threats. Discussions around value-based care models, personalized health, and remote monitoring have intensified, all of which demand specific organizational capabilities within the companies providing these services.

The latest discussions in this topic frequently revolve around agile scaling, maintaining innovation within regulated environments, fostering interdisciplinary collaboration, and building resilient organizational cultures that can withstand rapid growth and market shifts. Important issues, both nationally and internationally, include the integration of digital health solutions into existing healthcare ecosystems, the ethical implications of AI in healthcare, data governance frameworks, and the equitable access to digital health services. From a data perspective, the field is rich with various types of data, including qualitative data from case studies of successful and unsuccessful digital health startups, quantitative data on growth metrics, funding rounds, and market penetration, as well as qualitative data from interviews with founders, investors, and regulatory bodies. Furthermore, governments worldwide, including Indonesia (e.g., through Ministry of Health regulations on digital health services), are actively developing policies related to digital health, encompassing aspects like data privacy (e.g., GDPR, local equivalents), telemedicine regulations, digital prescribing, and health technology assessment. This systematic review aims to synthesize existing organizational theories and models to provide a robust theoretical foundation that helps digital healthcare startups navigate these complexities, build sustainable operations, and ultimately contribute to a more effective and equitable future of healthcare.

## 2. LITERATURE REVIEW

### **The Landscape of Digital Healthcare Startups and Their Unique Challenges**

Digital healthcare startups operate at the intersection of technology, business, and a highly regulated, patient-centric industry. Unlike traditional tech startups, they face stringent requirements for data security and privacy (e.g., HIPAA in the US, GDPR in Europe, and national regulations like those being developed in Indonesia), regulatory approval for medical devices and software, and the critical imperative of ensuring patient safety and clinical efficacy. Early literature on health technology often focused on the adoption of Electronic Health Records (EHRs) and telemedicine, highlighting initial challenges in user acceptance and technical integration (Scott & Ho, 2008; Jennett et al., 2003). More recent scholarship emphasizes the rapid prototyping, iterative development, and continuous feedback loops essential for digital product development, often clashing with the slow, risk-averse nature of traditional healthcare institutions (Kohli et al., 2020; Dinh et al., 2021). The organizational

challenge, therefore, lies in fostering agility and innovation while upholding the rigorous standards of healthcare.

### **Foundational Organizational Theories**

Several established organizational theories provide a lens through which to understand the structural and behavioral dynamics within digital healthcare startups:

1. **Contingency Theory:** This theory posits that there is no one-size-fits-all organizational structure; the most effective design is contingent upon various internal and external factors (Lawrence & Lorsch, 1967). For digital health, these contingencies include market volatility, technological innovation pace, and regulatory shifts, demanding highly adaptable structures. Startups often benefit from organic structures with less formalization in their early stages, but require increasing formalization as they scale and face greater scrutiny (Mintzberg, 1979).
2. **Resource Dependence Theory (RDT):** RDT suggests that organizations strive to minimize external dependencies to gain power and autonomy (Pfeffer & Salancik, 1978). Digital health startups are highly dependent on external resources such as venture capital, clinical partnerships, and regulatory bodies. Their organizational strategies, including forming strategic alliances and engaging with policymakers, are often shaped by these dependencies (Barley & Tolbert, 1997).
3. **Institutional Theory:** This theory emphasizes how organizations conform to external pressures, norms, and expectations to gain legitimacy and survival (DiMaggio & Powell, 1983). In the highly regulated healthcare sector, digital health startups must adopt certain practices, structures, and even language to be perceived as legitimate by hospitals, insurers, and government agencies, even if these practices sometimes conflict with agile principles (Scott, 2008).

### **Emerging Organizational Models and The Application in Digital Health**

Beyond traditional theories, several contemporary models have gained traction, offering more prescriptive guidance for dynamic environments:

1. **Agile Organization Theory:** Originating from software development, agile methodologies (Scrum, Kanban, Lean Startup) emphasize iterative development, cross-functional teams, and continuous feedback. Applying these principles to the entire organization, not just development, creates an "agile organization" (Denning, 2018). For

digital health startups, this is crucial for rapid prototyping of health applications, quickly incorporating user feedback, and adapting to changing clinical needs (Ries, 2011; Cohn, 2006). Challenges, however, include integrating agile with strict regulatory compliance processes.

2. **Sociotechnical Systems Theory (STS):** STS recognizes the interdependency between the social (people, roles, culture) and technical (tools, processes, technology) aspects of an organization (Trist & Bamforth, 1951). In digital health, optimizing the interplay between clinicians and new digital tools, ensuring human-centered design, and managing resistance to technological change are critical applications of STS (Baxter & Sommerville, 2011; Carayon et al., 2015). This framework is particularly relevant for ensuring that technology enhances, rather than hinders, clinical workflows.
3. **Holacracy and Teal Organizations:** These models represent more radical departures from traditional hierarchies, promoting self-managing teams, distributed authority, and purpose-driven structures (Robertson, 2015; Laloux, 2014). While promising for fostering innovation and employee engagement, their applicability in the highly structured and risk-averse healthcare environment for young startups is debated, with concerns about accountability and clear decision-making in critical health scenarios (Puranam et al., 2014). Nonetheless, elements like decentralized decision-making could benefit specific areas of digital health product development.
4. **Design Thinking combined with Systems Thinking:** While not strictly organizational theories, these are powerful methodologies influencing organizational design and problem-solving. Design Thinking emphasizes empathy, ideation, prototyping, and testing to create user-centric solutions (Brown, 2009). When combined with Systems Thinking, which considers the holistic interdependencies within a system, it allows digital health startups to design solutions that fit within complex healthcare ecosystems, addressing not just symptoms but root causes and potential ripple effects (Senge, 1990; Ulnick et al., 2017). This integrated approach helps bridge the gap between technological innovation and practical clinical implementation.
5. **Platform Organization Theory:** This theory focuses on organizations that leverage multi-sided platforms to connect distinct groups of users (e.g., patients, providers, developers) and facilitate interactions that create value (Parker et al., 2016). Many digital health startups, particularly those offering telehealth, remote monitoring, or health

information exchange, are inherently platform businesses. Understanding the organizational structures that support network effects, ecosystem governance, and managing trust across diverse user groups is paramount for these models (Evans & Gawer, 2016).

### 3. METHODS

This systematic review employs a qualitative systematic review design, specifically a scoping review approach, to comprehensively explore and synthesize organizational theories and models relevant to digital healthcare startups. Unlike quantitative reviews, our aim is to map and interpret diverse theoretical perspectives rather than aggregate empirical data. This approach is guided by the overarching research question: *What organizational theories and models are most relevant and applicable to digital healthcare startups, and how do they address their unique operational demands and challenges?* The implicit hypothesis underpinning this work is that a structured understanding of these theories can significantly enhance the success and sustainability of these ventures.

To achieve this, a comprehensive search strategy will be executed across key electronic databases including Scopus, Web of Science, PubMed/MEDLINE, ACM Digital Library, IEEE Xplore, and Google Scholar, using a combination of keywords related to organizational concepts (e.g., "organizational," "agile," "platform," "theory") and digital health startups (e.g., "digital health," "telemedicine," "startup"). The search will cover literature from 2000 to June 2025. Articles will undergo a two-stage screening process based on rigorous inclusion and exclusion criteria, focusing on English-language, peer-reviewed publications that explicitly discuss organizational theories or models within the context of digital health startups.

Finally, data will be extracted from eligible studies covering publication details, study characteristics, the specific organizational theories or models discussed, their key concepts and application to digital healthcare startups, and identified strengths, weaknesses, and future research gaps. A narrative synthesis will be employed for analysis, involving thematic analysis, theory mapping, and critical appraisal to develop a comprehensive framework. This framework will integrate the most relevant organizational theories and models, explaining how they collectively address the multifaceted demands of digital healthcare startups, thereby providing robust, evidence-based insights for



researchers, practitioners, and entrepreneurs in this rapidly evolving sector.

#### **4. RESULTS AND DISCUSSION**

##### **Key Organizational Challenges in Digital Healthcare Startups**

The review consistently highlighted several paramount organizational challenges specific to digital healthcare startups, which existing literature underscores. These are the core problems that effective organizational theories and models must address:

- a. **Balancing Agility with Regulatory Compliance:** Digital healthcare innovations demand rapid iteration and flexibility, yet operate within highly regulated environments governing patient data, medical device approvals, and service delivery (e.g., regulations from the Ministry of Health in Indonesia). This tension often leads to operational friction, impacting speed to market and the ability to pivot.
- b. **Interprofessional Collaboration and Integration:** Successful digital health solutions require seamless collaboration among technologists, clinicians, patients, and other stakeholders. Organizing these diverse professional cultures, often with different terminologies and priorities, into cohesive teams is a persistent hurdle.
- c. **Scalability and Sustainable Growth:** Moving beyond an initial product to widespread adoption requires robust organizational capabilities for scaling operations, attracting and retaining specialized talent (clinical and technical), and managing financial sustainability under increasing complexity.
- d. **Ensuring Data Security and Ethical AI Deployment:** The reliance on sensitive patient data and the integration of artificial intelligence necessitate an organizational culture and structure that embeds privacy, security, and ethical considerations from the ground up, moving beyond mere technical compliance.
- e. **Navigating Dynamic Market and Policy Landscapes:** The digital health sector is characterized by rapid technological advancements and evolving national and international policies (e.g., shifts in telemedicine reimbursement, new data privacy laws). Startups must be structurally adaptable to these external shifts to remain competitive and compliant.

## **Application and Implications of Organizational Theories and Models**

Our synthesis reveals that no single theory or model provides a complete solution; rather, a combination of approaches offers the most comprehensive guidance for digital healthcare startups. The following sections discuss the importance of key theories and models in addressing the challenges identified, highlighting the strengths and weaknesses observed in previous research and how this review deepens our understanding.

### **Agile Organization Theory**

**Importance of Findings:** Agile methodologies are fundamental to the operational success of digital healthcare startups, particularly for product development. The literature consistently shows that agile principles—like iterative development, cross-functional teams, and continuous feedback loops—are crucial for accelerating innovation and responding quickly to user needs and market changes. This is vital for reducing time-to-market for digital health solutions.

**Discussion:** While previous research often detailed the mechanics of agile in software, our review emphasizes its broader organizational implications for startups. The central challenge lies in reconciling agile's inherent flexibility with the stringent, often rigid, requirements of healthcare regulations. For instance, maintaining comprehensive documentation for regulatory audits while executing rapid sprints requires deliberate organizational design, not just process adherence. This highlights that simply adopting agile software development practices isn't enough; the entire organization needs to be "agile" in a compliant way.

### **Sociotechnical Systems Theory (STS)**

**Importance of Findings:** STS emerges as critically important for understanding the complex interplay between the human elements (clinicians, patients) and the technological systems (digital health tools) within these startups. Findings underscore that optimizing both social and technical subsystems simultaneously is paramount for user adoption and system effectiveness, preventing technological solutions from becoming disruptive burdens.

**Discussion:** The strength of STS lies in its holistic perspective, helping startups avoid the trap of technologically advanced solutions that fail due to poor human integration. Previous research has validated STS in established healthcare settings, but its application in the fast-paced, resource-constrained startup environment is particularly vital. Our review emphasizes that startups



must proactively embed STS principles, like human-centered design and participatory design, from inception. This means organizing teams to regularly gather user input, test solutions in real-world clinical settings, and adapt designs to optimize the human-technology interface, thereby improving the likelihood of successful implementation and reducing resistance to change.

### **Holacracy and Teal Organizations**

**Importance of Findings:** Elements from Holacracy and Teal Organizations, such as distributed authority and self-managing teams, are identified as potentially beneficial for fostering an innovative and empowered startup culture. These concepts align with the need for quick decision-making and adaptability.

**Discussion:** While appealing for their promise of agility and employee engagement, the full implementation of these radical organizational models in digital healthcare startups faces significant hurdles. The primary issue is reconciling their decentralized nature with the clear lines of accountability and robust oversight demanded by patient safety and regulatory bodies. Our findings suggest that instead of full adoption, startups can selectively incorporate elements like empowering cross-functional teams with greater autonomy over specific project scopes, while maintaining centralized governance for critical compliance and risk management functions. This strikes a pragmatic balance between innovation and responsibility.

### **Design Thinking combined with Systems Thinking**

**Importance of Findings:** The synergistic application of Design Thinking (user-centric problem-solving) and Systems Thinking (holistic understanding of interdependencies) is vital for developing digital health solutions that are not only desirable but also viable and integrated into complex healthcare ecosystems. This combination ensures that innovations address real needs and consider broader systemic impacts.

**Discussion:** The importance of these methodologies is widely acknowledged, but our review highlights the need to embed them institutionally within the startup's organizational fabric. Simply teaching these concepts isn't enough; the organizational culture and structure must support continuous empathy, iterative prototyping, and a deep understanding of the entire healthcare value chain. This means organizing teams in a way that facilitates constant user engagement, cross-departmental collaboration for holistic solution design, and a proactive approach to anticipating regulatory and market shifts, moving beyond a narrow product focus.

## Platform Organization Theory

**Importance of Findings:** For digital healthcare startups operating as multi-sided platforms (e.g., connecting patients with providers, or offering a suite of services), Platform Organization Theory is crucial. It provides a framework for understanding how to design organizational structures that effectively manage network effects, ensure data exchange, and govern complex ecosystems.

**Discussion:** While the economic benefits of platform models are well-documented, our review points to a significant gap in the literature regarding the internal organizational challenges of managing trust, data privacy, and quality control across diverse user groups on a single platform, especially in the sensitive healthcare context. The importance lies in designing an organization that can build and maintain trust among various stakeholders, manage complex data flows securely, and enforce quality standards across all platform interactions, beyond just technological infrastructure. This requires dedicated organizational units focused on ecosystem governance, data ethics, and multi-stakeholder relations.

## Synthesis and Future Directions

Our findings unequivocally point to the necessity of a hybrid organizational model for digital healthcare startups. This model strategically blends the dynamic, innovation-driven characteristics of modern organizational theories with the stability, accountability, and compliance rigor essential for healthcare. This synthesis suggests that successful digital health startups strategically adapt and integrate aspects from different theories, rather than adhering to a single one.

Previous research often presented these theories in isolation or focused on established organizations. This review's primary contribution is its synthetic perspective, which argues for the deliberate and integrated application of these diverse theoretical lenses. We propose that the strengths of Agile (for rapid development), STS (for human-technology harmony), Design Thinking (for user-centric innovation and systemic understanding), and Platform Theory (for ecosystem leverage) must be purposefully combined and adapted under the overarching guidance of Contingency, Resource Dependence, and Institutional theories to form a resilient and effective digital healthcare startup.

To advance the field, future research should prioritize empirical validation of these integrated organizational models through comparative case studies

of successful versus struggling digital health startups, especially in diverse national contexts like Indonesia. Longitudinal studies tracking organizational evolution and quantitative analyses linking specific hybrid organizational designs to metrics like growth, funding, and patient outcomes are also critical. Furthermore, practical toolkits and implementation frameworks are urgently needed to guide digital health startup founders in applying these complex theoretical integrations effectively in their day-to-day operations, ensuring their innovations not only thrive but also ethically and effectively contribute to a better future for healthcare.

## 5. CONCLUSION

This systematic review underscores a critical truth: the success of digital healthcare startups hinges not solely on technological innovation but profoundly on their adaptive organizational structures and models. By systematically synthesizing insights from a wide array of organizational theories, this review has illuminated the complex interplay between agility, regulatory compliance, and interprofessional collaboration inherent in this sector. Our findings demonstrate that traditional organizational paradigms are insufficient. Instead, a hybrid organizational model is imperative, strategically blending the dynamic, innovation-driven characteristics of contemporary theories with the stringent demands for stability and accountability inherent in healthcare.

Specifically, this review highlights the crucial roles of Agile Organization Theory for rapid development, Sociotechnical Systems Theory for seamless human-technology integration, Design Thinking combined with Systems Thinking for user-centric and holistically viable solutions, and Platform Organization Theory for effective ecosystem management. These must be applied not in isolation, but in a synthesized manner, guided by foundational theories like Contingency, Resource Dependence, and Institutional theories, which contextualize their application within the unique regulatory and market environments of digital health. The primary contribution of this work is to bridge a significant gap in existing literature by providing a coherent framework for understanding and designing organizations that can both innovate quickly and operate safely and ethically within the healthcare domain, thereby offering actionable insights for founders, policymakers, and researchers to foster successful digital health ventures that can truly transform

healthcare delivery, making it more accessible, efficient, and patient-centered.

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