



# A Systematic Literature Review of Success Factors for Digital Transformation in Ontario's Healthcare System

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**Abstract:** This research investigates the essential elements that drive digital transformation in Ontario's healthcare system through a systematic analysis of ten peer-reviewed articles from 2018 to 2025. The qualitative study employs the Technology-Organization-Environment (TOE) framework to analyze diverse healthcare settings including community-based clinics, primary care and hospital systems. The researcher conducted targeted searches on Google Scholar and PubMed to select articles that focused on digital health implementation efforts in Ontario or offered transferable relevance. The research identifies recurring patterns in three main areas which include technological aspects like EMR usability, interoperability and organizational aspects including leadership involvement, staff education and environmental factors such as policy consistency and intersectoral teamwork. The review unifies evidence from various real-world settings to help healthcare planners; digital health leaders and policymakers create equitable and scalable digital strategies. The study establishes a thematic framework which will direct upcoming digital health initiatives throughout Ontario's changing healthcare environment.

**Keywords:** Digital Health Transformation, Ontario Healthcare System, Technology-Organization-Environment (TOE) Framework, Health Care Digital Transformation Success Factors.

## I. INTRODUCTION

The digital transformation of Ontario healthcare started in early 2000s to address outdated systems, improve service delivery and meet growing patient needs. The province started by funding Electronic Medical Records (EMRs) through the Ontario MD EMR Adoption Program which assisted primary care providers in switching from paper-based systems.

The agency eHealth Ontario took charge in 2010 to lead the development of digital health solutions that included electronic health records (EHRs), telemedicine infrastructure and secure communication systems. The early initiatives received negative feedback because of their delayed progress, non-integrated systems and excessive costs which led to enhanced oversight and strategic realignment [1].

The 2019 establishment of Ontario Health as a super-agency which merged eHealth Ontario with Local Health Integration Networks and other healthcare organizations represented a significant change. The organization established a centralized approach to unify digital initiatives through strategic coordination. The province launched Ontario Health Teams (OHTs) during this period to promote provider collaboration through digital tools.

Virtual care adoption in healthcare accelerated dramatically during the COVID-19 pandemic which spanned from 2020 to 2022. The pandemic led to fast deployment of remote consultation platforms, digital triage systems and patient portal systems.

The rapid implementation revealed multiple ongoing problems which included system interoperability issues together with digital literacy deficits among staff and patients and unequal digital adoption rates between different healthcare sectors. The Ontario healthcare system advances digital transformation through strategic integration and equity during the post-pandemic period from 2023 to 2024 by focusing on usability, leadership, policy alignment and system-level collaboration [2].

**A. Research Problem**

Despite receiving funding and government backing to modernize its healthcare system, Ontario has faced challenges in fully embracing digital transformation efforts uniformly across the board. Some organizations are still in the initial phases of digital development and are encountering difficulties due to disjointed implementation and varying levels of acceptance towards digital tools. Several obstacles including leadership involvement, inadequate technological infrastructure, employee reluctance to adapt and ongoing issues, with system compatibility are hindering the widespread adoption of digital advancements [3] [4].

**B. Study Objective**

This study aims to highlight the key elements of success that support fair digital evolution, within Ontario's healthcare realm according to TOE framework. The research offers advice for healthcare decision makers and administrators in hospitals and digital health companies by pinpointing the key elements contributing to successful digital transformation across various healthcare environments.

**C. Research Questions**

This systematic literature review is guided by the following research question:

What organizational, technological, and environmental factors contribute to successful digital transformation in Ontario's healthcare organizations?

**II. METHODOLOGY**

This research used a systematic literature review method based on qualitative research principles. The Technology-Organization-Environment (TOE) theoretical framework provides the study's direction by dividing factors that affect technology adoption into technological, organizational and environmental context. The TOE framework has proven useful in healthcare research [5]. This method allows the investigator to combine findings from multiple literature sources to discover repeated success elements in Ontario's healthcare system.

The review examines secondary sources which consist of peer-reviewed articles and institutional reports from English publications between 2018 and 2024. The selected studies for inclusion examined digital health transformation in Ontario's healthcare system either directly or through broader Canadian research that provided Ontario-specific data. The main search engines used for this research are Google Scholar and PubMed.

The search included Boolean keyword combinations which included digital transformation, Ontario and healthcare, EMRs and virtual care, and electronic health success factors. The initial search produced 68 articles which were narrowed down to 25 full-text reviews and 10 articles were selected for final evaluation according to the inclusion criteria. The review process included the following procedures to maintain both rigor and transparency:

1. Initial identification of sources through keyword search
2. Screening titles and abstracts for relevance
3. Applying inclusion criteria (Ontario-focused, English, published 2018–2025)
4. Reading full texts of selected studies
5. Extracting themes related to digital transformation success factors

The research data underwent thematic analysis which involved coding extracted findings to identify patterns that fit within the Technology-Organization-Environment (TOE) framework. The analysis revealed repeated success factors which appeared throughout the studies.

**III. LITERATURE REVIEW**

Research in the field of health transformation emphasizes the intricate and diverse aspects involved in implementing changes within healthcare systems. Themes such as preparedness, leadership capabilities, technology planning and environmental congruence encompassing policies and cooperative frameworks are frequently observed across various regions. However, the literature lacks syntheses specific, to Ontario. Table I, illustrates some of the most relevant literature on digital transformation in healthcare.



Table I: SUMMARY OF KEY LITERATURE ON DIGITAL TRANSFORMATION

Study	Focus Area	Key Contributions	Limitations / Gaps
<b>Kitsios &amp; Kapetaneas (2022)</b>	Business intelligence systems in healthcare 4.0	Identifies technological and organizational enablers of digital transformation	European-focused; lacks insight on Ontario's healthcare context
<b>Rahal et al. (2021)</b>	EMR usage and physician adoption	Highlights importance of usability and EMR maturity	Focuses only on EMRs and primary care physicians
<b>Bhyat et al. (2021)</b>	Ontario case studies on change initiatives	Emphasizes investment, leadership, and peer-driven change	Does not integrate findings across care settings
<b>Patterson et al. (2022)</b>	Policy shifts during COVID-19 in Canada	Policy flexibility supported rapid virtual care deployment	Lacks post-pandemic strategic outlook
<b>Ploeg et al. (2019)</b>	Community-based healthcare innovations	Contextual factors like leadership and inter-professional trust are essential	Lacks tech-specific digital transformation strategies
<b>Everall et al. (2023)</b>	Integrated care in Ontario	Demonstrates need for organizational alignment in care teams	Limited technological insights; focuses mainly on collaboration processes
<b>Bhatti et al. (2022)</b>	Virtual care in Ontario community health centres	Explores real-world telehealth uptake in marginalized populations	Doesn't explore underlying infrastructure and leadership influences
<b>Alotaibi et al. (2025)</b>	Interventions to build digital readiness in healthcare	Identifies facilitators and barriers to digital capability	Broader scope; not specific to Ontario but highly relevant thematically
<b>Wilson et al. (2024)</b>	Digital health equity across populations	Synthesizes qualitative evidence to promote inclusive tech adoption	Focuses on equity, not system-level implementation dynamics
<b>Sriharan et al. (2024)</b>	Leadership in AI transformation in healthcare	Highlights leadership competencies critical for AI and tech initiatives	AI-specific focus; broader leadership themes applicable to digital health

The number of research on healthcare transformation is growing steadily but there is still a lack of focused analysis specific to Ontario's situation. Some researchers like Kitsios and Kapetaneas [6] and Rahal et al. [7] stress the importance of strategies that are tailored to the context rather than relying solely on studies, from Europe or limited EMR investigations.

The studies by Everall et al. [8] and Bhatti et al. [9] highlight scattered initiatives in community health and integrated care environments. However, they do not delve into the connection between organizational and technological influences. Sriharan et al. [10] and Wilson et al. [11] studies emphasize the increasing importance of leadership and equity. Further efforts are required to put these concepts into practice across the varied health landscapes of Ontario.

Rahal et al. [7] found that usability limitations and lack of tailored training hindered EMR effectiveness in primary care. This supports the hypothesis that organizational readiness and staff capacity-building are vital. Bhatti et al. [9] emphasized the value of shared goals and inter-organizational relationships within Ontario Health Teams, highlighting that collaborative structures and governance enhance integration outcomes.

It was demonstrated by Bhyat et al. [3] that peer-driven leadership and strategic investment were key to digital adoption, aligning with the view that strong organizational leadership drives transformation success. Patterson et al. [4] illustrated how policy flexibility during the COVID-19 pandemic enabled rapid adoption of virtual care. This reinforces the hypothesis that regulatory support and policy agility are environmental enablers.

In research that was done by Kitsios and Kapetaneas [6] it was identified that strategic alignment and technological compatibility are prerequisites for BI system success in healthcare, supporting the technological aspect of the TOE model. Ploeg et al. [12] observed that community context and implementation environment shaped primary care innovation outcomes, emphasizing the role of environmental and contextual factors. Also, Alotaibi et al. [13] reviewed interventions aimed at enhancing digital capability, confirming that targeted strategies can mitigate readiness gaps, particularly in under-resourced settings.



Research that had been done by Wilson et al. [11] provided evidence that equity and inclusion considerations are often overlooked in digital health planning, supporting the hypothesis that environmental equity must be integrated into transformation strategies. Sriharan et al. [10] Found that successful AI transformation required leadership clarity, cross-disciplinary coordination, and digital vision, reinforcing the importance of organizational vision and capability. Bhatti et al. [8] study focused on community health centres in Ontario, revealed that virtual care models had uneven adoption, highlighting the need for consistent technological infrastructure and staff engagement across care settings.

These studies collectively validate this idea that digital transformation success is driven by interconnected factors technological usability, organizational leadership and capacity, and supportive environmental policy.

#### IV. RESULTS AND DISCUSSION

The research findings were organized through the Technology-Organization-Environment (TOE) framework. The structured method enabled the researcher to detect essential patterns and themes and barriers which appeared across different digital health settings in Ontario.

Table II: THEMATIC CODING BASED ON TOE FRAMEWORK

TOE Category	Codes	Theme
<b>Technology</b>	EMR usability, interface design	User-Centered Design
	Interoperability, system silos	Technical Integration
	AI infrastructure, digital tool deployment	Tech Capacity for Innovation
<b>Organization</b>	Leadership, governance vision	Strategic Leadership & Change Readiness
	Staff training, role clarity	Capacity Building
	Data literacy, provider confidence	Workforce Readiness
<b>Environment</b>	Pandemic-era policy agility	Regulatory Flexibility
	Inter-agency collaboration, shared objectives	Stakeholder Integration
	Digital inclusion, equity planning	Equity & Access

Research results from the thematic analysis demonstrated that the success of digital transformation in Ontario's healthcare sector depends on three integrated domains which correspond to the Technology-Organization-Environment (TOE) framework consisting of technological readiness, organizational capacity, and environmental alignment.

##### A. Technological Readiness

Research findings show that technological success of digital transformation in Ontario's healthcare requires both systems which are easy to use and systems which enable seamless data exchange.

##### B. Organizational Capacity

Organizations need strong leadership together with proper workforce training and readiness to achieve digital transformation in Ontario's healthcare.

##### C. Environmental Alignment

Environmental context plays a crucial role in success by comprising policy frameworks, regulations and collaborations to achieve digital transformation in Ontario's healthcare.

#### V. LIMITATIONS OF THE STUDY

The study conducted a thorough literature search across Google Scholar and PubMed but several restrictions still exist. The search process using two major databases might have missed important studies published in subscription-based repositories including Scopus, SpringerLink and IEEE Xplore which could have expanded the available evidence. Also, this study restricted its analysis to English-language sources which potentially excluded important research conducted in other languages. In addition, the selection of articles was restricted by specific inclusion criteria which focused on Ontario-based or Canada-related studies.



#### IV. CONCLUSION

The research examined peer-reviewed articles to determine which elements led to successful digital transformation within Ontario's healthcare system. The Technology-Organization-Environment (TOE) framework guided the analysis to show that successful implementation depends on three connected domains which include user-centered technological design and interoperability, organizational leadership and capacity-building and supportive policy environments. The research demonstrates that digital innovation success in Ontario's healthcare settings depends on coordinated leadership together with targeted staff training and adaptive government policies across hospitals, primary care and community-based services. Future research needs to shift from literature review to empirical field research.

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