



From Tradition to Transformation: Unlocking Efficiency in Egypt's Tourism Sector through Digital and Organizational Innovation"

Sara Ahmed Abdelfattah

Lecturer, Tourism Studies Department

Faculty of Tourism and Hotels, Alexandria University, Egypt

ABSTRACT

This study investigates how digital transformation (DT) catalyzes organizational innovation (OI) within Egypt's governmental tourism organizations. Using 40 semi-structured interviews (30 managers; 10 academics) and reflexive thematic analysis, seven themes were identified across technology adoption, organizational culture change, workforce adaptation, leadership, infrastructure, customer engagement, and ecosystem collaboration. DT was found to enhance operational efficiency, service quality, and value creation through technologies such as AI, big data, and cloud computing, while barriers included skills gaps, legacy infrastructure, fragmented strategies, and change resistance. The analysis integrates Dynamic Capabilities Theory (DCT), Organizational Innovation, Technology Acceptance Model (TAM), and Diffusion of Innovation (DOI) to explain micro-to-meso adoption patterns and capability reconfiguration in the public sector. Practical guidance is offered for leadership development, workforce upskilling, infrastructure investment, and ecosystem partnerships. The study advances theory by contextualizing DT–OI linkages in an emerging economy public-sector domain and provides policy-relevant insights for accelerating digital maturity and sustainable competitiveness.

Printed ISSN:

2537-0952

Online ISSN:

3062-5262

DOI:

10.21608/MFTH.20

25.465356

KEYWORDS

Digital transformation; Organizational innovation; Public sector; Tourism governance; Egypt; Dynamic capabilities; Technology acceptance

من التقليد إلى التحول: فتح آفاق الكفاءة في قطاع السياحة المصري من خلال الابتكار الرقمي والتنظيمي

سارة احمد عبد الفتاح

مدرس بقسم الدراسات السياحية - كلية السياحة والفنادق - جامعة الاسكندرية

الملخص

تبحث هذه الدراسة في كيفية تحفيز التحول الرقمي للابتكار التنظيمي داخل المؤسسات السياحية الحكومية في مصر. باستخدام 40 مقابلة شبه منظمة (30 مديراً؛ 10 أكاديميين) وتحليل موضوعي انعكاسي، تم تحديد سبعة محاور رئيسية تشمل تبني التكنولوجيا، وتغيير الثقافة التنظيمية، وتكيف القوى العاملة، والقيادة، والبنية التحتية، وإشراك العملاء، والتعاون في النظام البيئي. وقد وُجد أن التحول الرقمي يعزز الكفاءة التشغيلية، وجودة الخدمة، وخلق القيمة من خلال تقنيات مثل الذكاء الاصطناعي، والبيانات الضخمة، والحوسبة السحابية، بينما شملت العوائق فجوات المهارات، والبنية التحتية القديمة، والاستراتيجيات المجزأة، ومقاومة التغيير. يدمج التحليل نظرية القدرات الديناميكية (DCT)، والابتكار التنظيمي، ونموذج قبول التكنولوجيا (TAM)، وانتشار الابتكار (DOI) لشرح أنماط تبني التكنولوجيا من المستوى الجزئي إلى المتوسط، وإعادة هيكلة القدرات في القطاع العام. ويقدم إرشادات عملية لتطوير القيادة، ورفع مهارات القوى العاملة، والاستثمار في البنية التحتية، وشرائط النظام البيئي. تعمل الدراسة على تطوير النظرية من خلال وضع الروابط بين التحول الرقمي والاستثمار الرقمي في سياقها الصحيح في مجال القطاع العام في الاقتصادات الناشئة، كما تقدم رؤى ذات صلة بالسياسات لتسريع النضج الرقمي والقدرة التنافسية المستدامة.

الترقيم الدولي الموحد
للطباعة:

2537-0952

الترقيم الدولي الموحد
الإلكتروني:

3062-5262

DOI:
10.21608/MFTH.2025.
465356

الكلمات الدالة

التحول الرقمي ، الابتكار التنظيمي ، حوكمة السياحة

1. Introduction

Rapid technological advancements are profoundly reshaping the global tourism industry (Chon and Hao, 2025; Buhalis et al., 2024), compelling organizations to adopt digital transformation (DT) as a strategic imperative to meet rising demands for personalized, seamless, and technology-enhanced experiences (Ochieng, 2024). Abdelwahab (2024) revealed that Egypt, with its unparalleled cultural and historical heritage, faces a critical need to modernize its governmental tourism organizations to sustain competitiveness and respond to evolving customer expectations amid global challenges.

Sugathapala (2024) stated that DT in the tourism industry signifies the amalgamation of cutting-edge digital technologies into the whole realm of tourism services and experiences, thereby changing the industry's mode of operation and its customer value delivery. This transformation is powered by innovations like mobile applications, artificial intelligence, big data analytics, virtual reality, and the Internet of Things, which allow for the creation of personalized, efficient, and uninterrupted travel experiences (Rane et al., 2023; Astanakulov et al., 2025). As an illustration, tourists can nowadays perform online bookings for flights, lodging, and excursions with just a few mouse clicks, keep track of immediate updates, and get virtual sights of the places they are going to visit beforehand (Haktanır et al., 2022).

On the business side, the utilization of digital tools has been a great help to businesses in the aspects of operation, customer service, and reaching a wider audience through digital marketing (Karjaluoto, 2015; Pandey et al., 2020). The COVID-19 pandemic acted as a catalyst to this transformation, as it compelled the tourism sector to resort to contactless technologies and digital communication, at least, for safety and the continuity of the businesses (Li et al., 2022; Bondarenko et al., 2025). Besides, digital transformation is also a way to support sustainable tourism by giving data-driven insights that can be used to reduce the environmental impact and, at the same time, encourage responsible travel choices (Troisi et al., 2022). Despite the complications such as the digital divide and the security of computers and networks, the whole tourism industry has to go through the digital transformation to be the winner, the pioneer, and the one most ready for changing traveler's expectations in the current world that is so well connected (Cuomo et al., 2021; Alahmari et al., 2023). Consequently, the whole tourism experience has undergone a change that is more lively, more engaging, and more accessible and that is now determined by the future of global travel.

In this context, DT represents more than technology adoption; it necessitates comprehensive organizational innovation (OI) involving the reconfiguration of structures, processes, capabilities, and culture to unlock value, improve efficiency, and build resilience (Zhang et al., 2024). While much research has explored DT benefits within the private tourism and hospitality sectors, public tourism governance in emerging economies like Egypt remains under-examined.

This study addresses this gap by qualitatively investigating how DT processes stimulate OI within Egyptian governmental tourism organizations. It contributes empirically by identifying mechanisms linking DT and OI in a public-sector emerging-market setting, integrating Digital Capability Theory (DCT) with the Technology Acceptance Model (TAM) and Diffusion of Innovation (DOI) theory to

explain adoption and capability-building from individual to organizational levels, and providing actionable insights for policymakers and practitioners to advance innovative, sustainable tourism governance in the digital era. By elucidating the organizational, cultural, and infrastructural challenges and enablers of DT, this research offers a nuanced understanding essential for revitalizing Egypt's tourism sector through strategic digital evolution.

2. Theoretical Framework

This research is anchored in the dynamic capabilities theory (DCT), which provides a robust lens to understand how organizations adapt, integrate, and reconfigure internal and external competencies to address rapidly changing environments (Chavarnakul,T.et al 2025). Digital transformation demands more than static resource accumulation; it necessitates continuous innovation and agility that dynamic capabilities encapsulate (Qi et al., 2024). Through sensing technological opportunities, seizing new markets, and transforming organizational processes, tourism organizations develop evolutionary capabilities crucial for sustainable competitiveness.

Complementing DCT, the organizational innovation theory informs the exploration of how digital transformation acts as a catalyst for inventive changes in organizational structures, practices, and cultures (Motamedimoghadam, M., et al 2025). This theory elucidates the mechanisms underlying the adoption of novel ideas and the diffusion of technological innovations within organizations, emphasizing leadership, culture, and collaboration as key drivers. Together, these theories underscore a dual focus: the technological and strategic repositioning essential for digital transformation success and the fostering of an innovative organizational milieu that sustains and scales digital initiatives (Yu, 2025). Applying this combined theoretical lens, the study investigates the complex, reciprocal relationship between digital transformation and organizational innovation in Egypt's governmental tourism context, contributing to the broader discourse on digital maturity in public sector organizations within emerging economies.

2.1 The Rise of Digital Transformation in Tourism

DT has become a critical driver of change across global industries, and the tourism sector is no exception. It refers broadly to the integration of digital technologies into all areas of business processes to generate new value, enhance operational efficiency, and foster innovation. In tourism, DT changes how destinations manage services, engage customers, and organize operations, transitioning from traditional models to more connected, data-driven, personalized experiences (Bondarenko et al., 2025). The evolution of tourism digitalization encompasses increasingly sophisticated applications, ranging from basic online service delivery to immersive virtual reality experiences and the concept of Tourism 5.0, which emphasizes personalization, sustainability, and human-centric services through technological interfaces (Fatema, 2024; Leveau, 2025).

Paul and Rena (2024) revealed that the tourism industry globally faces the dual pressures of fast-changing consumer expectations and technological disruptions. DT enables destinations and organizations to adopt innovative business models, streamline operations, and enhance visitor experiences through automation and digital

platforms (Lim, 2023). Within this context, Egypt represents a transformative case study. As one of the world's prominent cultural and historical tourism destinations, Egypt has increasingly embraced digital technologies to modernize its tourism services and improve competitiveness (Elrawy, 2025; Abdelwahab, 2024).

2.2 Digital Transformation in Egypt's Tourism Sector

Egypt's digital transformation agenda is aligned with the national 2030 Vision for Sustainable Development, which prioritizes a knowledge-based economy and digitization of government services (Elsayed, 2023). Recent studies highlight significant government-led initiatives to digitize tourism services, optimize destination management, and improve stakeholder coordination. Abdelgaber and Ghanam (2022) observe that Egyptian tourism organizations increasingly use mobile applications, e-ticketing, and digital marketing tools to enhance customer engagement. Moreover, the integration of ICT platforms facilitates tourism data analytics, destination branding, and visitor management, crucial for responding dynamically to market trends.

However, despite progress, Egypt's tourism sector encounters considerable challenges in the digital transformation journey. Research identifies digital skill deficits among employees and managers, infrastructure gaps, especially outside major urban centers, and a fragmented digital strategy across organizations as key constraints (El-Sharif, 2020). Moreover, readiness varies considerably among tourism sub-sectors—from hotels and museums to travel agencies—reflecting uneven digital maturity levels. As Elmetwaly (2023) discusses through an empirical study on Egyptian hotels, organizational culture plays a critical role in either facilitating or resisting digital change. Hotels with a culture open to innovation and learning, supported by proactive leadership, are more successful in leveraging digital technologies to improve service quality and operational effectiveness (Jasim, 2024; Hussein et al., 2024).

2.3 Organizational Innovation as a Core Complement to Digital Transformation

DT is not solely a technological upgrade; it fundamentally impacts organizational structures, strategies, cultures, and human resources. The literature emphasizes OI as the critical complementary dimension enabling DT's success (Bi et al., 2025). OI refers to the implementation of novel ideas, processes, products, or organizational forms that improve efficiency, customer satisfaction, or competitive positioning (Somroo et al., 2021). The dynamic interplay between DT and OI generates new organizational capabilities, flexible operational routines, and innovative service offerings tailored to today's traveler needs (Ku and Chen, 2025).

Studies underline that leadership commitment and the cultivation of an innovation-oriented culture are pivotal in sustaining DT efforts. Santarsiero et al. (2024) underscored that successful DT initiatives require visionary leadership that promotes continuous learning, experimentation, and employee empowerment. This leadership fosters an environment where innovation is normalized, risks are tolerated, and failures are seen as learning opportunities. According to Chen et al. (2013), collaborative networks both within and beyond organizations—especially public-private partnerships—act as innovation enablers by facilitating knowledge exchange and resource sharing in tourism ecosystems.

In Egypt's tourism context, Mahmoud (2024) highlights the necessity of workforce innovation alongside technological adoption. Empowering employees through digital skills training and fostering cross-functional teamwork enhances organizational agility

and responsiveness, which are vital in dynamic tourism markets. Workplace innovation practices thus include flexible work arrangements, knowledge-sharing platforms, and incentive systems aligned with innovation goals.

2.4 Technological Advances Driving Tourism Innovation

Digital transformation in tourism leverages a suite of advanced technologies, each contributing uniquely to innovation:

- Artificial Intelligence (AI): AI-driven applications enable personalized marketing, chatbots for customer service, automated pricing models, and advanced analytics for demand forecasting (Tuo et al., 2025).
- Internet of Things (IoT): IoT facilitates smart destination management through sensor networks monitoring environmental conditions, visitor flows, and asset maintenance (Farid et al., 2023).
- Cloud Computing: Cloud platforms offer scalable, flexible infrastructure for data storage, collaboration, and service delivery, enabling real-time responsiveness (Soni and Dave 2024).
- Big Data Analytics: Big data tools analyze vast volumes of structured and unstructured data to derive insights on consumer behaviors, preferences, and sentiment, guiding strategic decision-making (O'Donovan et al., 2015).
- Robotics and Automation: Industrial and service robots aid operational efficiency in hospitality through autonomous service delivery, scheduling, and customer interaction tasks (Pereira, 2022).

Research on digital technology applications in Egypt specifically points to mobile apps and social media as the most widely used DT tools in tourism, while IoT and big data adoption remain at an emergent stage, hampered by infrastructure and skill gaps (Magdy & Abouelazm, 2024). Addressing these gaps through targeted training, infrastructure investment, and supportive government policies is essential to enhancing innovation capabilities.

2.5 Challenges and Barriers to Digital Transformation in Tourism

The tourism sector globally wrestles with multiple challenges in implementing DT. Conceptual constraints such as resistance to change, lack of understanding of digital opportunities, and conservative cultural attitudes slow adoption (Meyer, 2023). Technical barriers include insufficient digital infrastructure, fragmented efforts lacking strategic alignment, and cybersecurity concerns (Idemudia et al., 2023). Egypt mirrors these global trends, with additional barriers in terms of regional disparities—urban centers show more progress compared to rural or less developed areas (Ghosn, 2025).

Financial constraints, such as high costs and uncertain Return On Investment ROI, add to hesitancy in technology investments, particularly among Small and Medium Enterprises SMEs (Martinez-Cillero et al., 2023). The complexity and lengthy nature of DT processes, coupled with a lack of specialized digital talent, further complicate sustained digital innovation (Ciarli et al., 2021; Shen et al., 2022). Moreover, legal and regulatory frameworks for digital activities in tourism remain underdeveloped, limiting the scalability of new business models (Zeqiri et al., 2025).

3. Methodology

3.1 Qualitative Research Rationale

3.1.1 Qualitative Methodologies in Digital Transformation Research

Exploring digital transformation in tourism demands methodologies capable of capturing multifaceted phenomena that intertwine technology, organizational behavior, and market dynamics. Qualitative research, particularly using thematic analysis of interviews, is widely acknowledged as effective for uncovering deep insights into stakeholder perceptions, experiences, and contextual challenges (Trankle et al., 2020; ASJP, 2025).

Semi-structured interviews are particularly suitable due to their balance between structured guidance and conversational flexibility, enabling researchers to probe emerging themes while maintaining focus (Buys et al., 2022). This approach allows capturing the complexity of digital transformation processes, including organizational culture shifts, strategizing, leadership roles, and collaboration dynamics. Several recent studies on DT in tourism, including Egyptian contexts, have successfully used semi-structured interviews with managers to reveal barriers, enablers, and innovation outcomes (Magdy & Abouelazm, 2024).

Thematic analysis, as applied in this research design, enables systematic coding and theme development from qualitative data. It aids in identifying patterns across interviews, providing a structured framework to articulate the relationship between digital transformation and organizational innovation, and their impacts on institutional values, beliefs, and performance (Imran et al., 2021; Hanelt et al., 2021).

3.1.2 Synthesis and Research Gaps

While digital transformation and organizational innovation have been broadly studied globally, context-specific empirical research in Egyptian governmental tourism remains scarce. Most existing studies tend to focus on private sector entities like hotels, leaving a gap in understanding public sector challenges and opportunities in digitization and innovation (Elmetwaly, 2023). Moreover, limited research comprehensively integrates technological, cultural, and strategic dimensions of digital transformation within a holistic innovation framework tailored to Egypt's tourism governance.

This study addresses three gaps that persist: (1) limited focus on governmental tourism bodies rather than private operators; (2) insufficient integration of micro-level acceptance (TAM) and meso-level diffusion (DOI) with capability-building (DCT); and (3) scarce actionable frameworks tailored to public governance realities. This study directly addresses these gaps. These gaps are addressed by employing a qualitative thematic analysis of interviews with tourism managers in governmental organizations to explore how digital transformation catalyzes organizational innovation. The findings are expected to contribute actionable insights for policymakers and practitioners in Egypt and comparable emerging economies seeking to build digital maturity, promote sustainable tourism, and enhance competitive advantages through innovation.

3.2 Research Design

This study employs a qualitative research design to deeply explore the impact of digital transformation on organizational innovation within governmental tourism organizations in Egypt. Qualitative methods are appropriate for understanding

complex social phenomena where perceptions, experiences, and cultural factors are central (Emon, 2025). The study aims to uncover rich, contextual insights from experts and practitioners involved in tourism management and academia to capture context-rich mechanisms linking DT to OI.

3.3 Participants

Data were collected through semi-structured interviews with 40 participants: 30 tourism managers working in various governmental tourism organizations across Egypt, are typically affiliated with entities such as the Ministry of Tourism and Antiquities, the Tourism Development Authority, the Egyptian Tourism Authority, local tourist chambers and departments within different governorates or tourism regions, and 10 academic experts specializing in tourism and related fields. Purposive sampling was used to ensure diverse representation across organizational roles, geographic regions, and sub-sector specializations. The inclusion of academics alongside managers enriches perspectives across theory and practice.

3.4 Data Collection

Semi-structured interviews were conducted between February to July 2025, combining face-to-face and online sessions based on participants' availability. Interview protocol was professionally translated into Arabic. All interviews have been done in Arabic scenario to avoid any potential bias regarding research main goal. Then in recorded into English in consistency with research format. Each interview lasted approximately 45 to 60 minutes and was audio-recorded with informed consent. The interview protocol (Appendix A) included open-ended questions on understanding and experiences of digital transformation, implementation challenges, leadership roles, organizational innovation, and collaboration.

3.5 Data Analysis

Two analysts independently coded an overlapping subset (30%) of the interview data to calibrate code application and resolve discrepancies, achieving a substantial inter-coder agreement (Cohen's $\kappa \approx 0.76$) before a primary coder completed the remaining coding. The analysis followed Braun and Clarke's (2006) six-step thematic analysis process—data familiarization, coding, theme development, review, definition, and report writing—supported by Atlas.ti software for efficient qualitative data management. An audit trail meticulously documented all coding decisions, theme mergers and splits, as well as discarded candidates. Through iterative team discussions, seven key themes were refined, capturing patterns related to technology adoption, cultural change, workforce adaptation, and innovation outcomes, with regular peer debriefs enhancing analysis rigor.

3.6 Trustworthiness and Ethics

Methodological rigor was ensured through multiple strategies, including member checking with 10 participants to validate interpretations and refine theme labels, triangulation of insights from both tourism managers and academic experts to reduce single-informant bias, and reflexive journaling by researchers to document assumptions and mitigations. Dependability was maintained by using a detailed codebook and decision log, while confirmability was supported through reflexive memos. Transferability was addressed by providing thick descriptions of the study context and participant roles. Ethical approval was granted by the affiliated review

committee, with strict protocols to guarantee participant confidentiality, anonymity, voluntary participation, and secure data storage throughout the study.

4. Research findings and themes identification

4.1 Findings from Thematic Analysis

Table 1 reflects the sample characteristics of the study, including gender, occupational level, zoning, and educational level.

Table 1: Sample characteristics

		N	%
Gender	Male	28	70
	Female	12	30
Occupational Level			
Tourism Managers	Tourism Directors	19	47.5
	Marketing managers	11	27.5
Tourism Academics	Professor / Emeritus of Tourism	6	15
	Associate Professor of Tourism	4	10
	Alexandria and the North Coast	14	35
Zoning	Cairo zone	18	45
	Red Sea Zone	8	20
	University Graduate B.Sc.	24	60
Educational level	Masters Holder	2	5
	PhD Holder	14	35

Thematic analysis of interviews with 30 tourism managers and 10 academic experts revealed several interrelated themes that illuminate the complex landscape of digital transformation and organizational innovation in Egypt's governmental tourism sector. The sample was selected based on the geographical distribution of the main tourist cities where the government tourism organizations are concentrated. These themes capture the opportunities and challenges as well as the organizational dynamics influencing digital transformation initiatives.

Theme 1: Digital Transformation as a Catalyst for Operational Efficiency

Participants widely recognized digital transformation as a critical driver for improving operational efficiency within tourism organizations. The adoption of digital tools such as automated booking systems, digital payment platforms, and customer relationship management software has streamlined many processes traditionally burdened by bureaucracy and manual handling. Managers highlighted that these technologies reduce processing times, minimize human errors, and enable 24/7 service delivery.

One manager noted: *"We no longer rely solely on manual registrations and paperwork. Our digital systems have allowed faster communication and better tracking of tourist flows, improving responsiveness."* This theme underscores digital transformation's role in enhancing the effectiveness of internal operations, which lays the groundwork for more innovative practices.

Theme 2: Organizational Innovation as an Adaptive Response

Digital transformation was seen not only as an introduction of technology but as an impetus for deeper organizational innovation. Participants described shifts in organizational culture, leadership styles, and collaboration patterns as necessary adaptations. Innovation emerged through new practices such as cross-departmental

digital teams, flexible work methodologies, and the use of analytics for decision-making.

Academic experts emphasized the importance of fostering an innovation-oriented mindset:

"Technology alone does not transform organizations. It requires open leadership, investment in capacity building, and a culture that embraces change and experimentation." This highlights the dynamic capabilities needed to sense, seize, and transform digital opportunities into sustainable innovation.

Theme 3: Workforce Digital Literacy and Capacity Building

A significant barrier discussed was the gap in digital skills among employees, hindering the effective utilization of new technologies. Both managers and academics stressed the urgency of ongoing training and development programs to raise digital literacy. Resistance to change stemming from limited familiarity with digital tools was frequently mentioned.

Six managers reflected: *"We have the technology infrastructure, but some employees struggle to adapt. Training and continuous support are crucial for successful transformation."* Capacity building was linked with empowerment and enhancing employees' roles in driving innovation.

Theme 4: Leadership Commitment and Strategic Vision

Leadership's commitment emerged as a pivotal factor influencing the success of digital transformation initiatives. Participants identified visionary leaders as those who champion digital agendas, allocate resources, and motivate teams to innovate. Conversely, a lack of a clear digital strategy or fragmented leadership led to stalled or ineffective projects.

Academic expert explained: *"Strategic alignment and strong leadership create an environment where digital transformation is integrated into organizational goals, ensuring coherence and sustainability."* Leadership was also tied to fostering collaboration internally and with external stakeholders.

Theme 5: Technological Infrastructure and Resource Constraints

Despite progress, infrastructural challenges remain a significant obstacle. Some organizations, especially those in less developed regions, face unreliable internet connectivity, outdated hardware, or insufficient budget allocations. Such deficiencies curtail the capacity to fully leverage emerging technologies like IoT or AI.

Participants frequently called for increased governmental support and investment to bridge these gaps:

"To compete globally, we need state-backed investments in digital infrastructure tailored to tourism's needs." This theme highlights the structural prerequisites for effective digital transformation.

Theme 6: Enhanced Customer Engagement through Digital Platforms

Digital technologies have enabled new forms of customer engagement, including social media marketing, virtual tours, and personalized travel recommendations. Participants reported improved customer satisfaction and wider reach, particularly among younger, tech-savvy tourists.

A tourism manager shared: *"Using social media and mobile apps, we can engage tourists before, during, and after their visits, making experiences richer and brands*

stronger." Innovative digital marketing and feedback mechanisms contributed to organizational adaptability.

Theme 7: Institutional Collaboration and Ecosystem Development

The final theme centers on the role of multi-stakeholder collaborations in fostering innovation. Interviewees emphasized partnerships between governmental bodies, private sector firms, educational institutions, and local communities as vital to creating a holistic digital tourism ecosystem.

An academic noted, *"Innovation thrives in ecosystems. Collaborative networks amplify resource sharing, knowledge exchange, and spur sustainable digital innovation."* This theme reflects growing recognition of tourism's systemic and networked nature in the digital era.

4.2 Summary of Findings

Overall, the thematic analysis reveals that digital transformation in Egypt's governmental tourism organizations is a multifaceted process intertwining technology adoption with organizational innovation. While digital tools present clear benefits in operational efficiency and customer engagement, successful transformation depends critically on leadership vision, workforce development, infrastructural resources, and collaborative ecosystems. The interplay of these dimensions shapes the digital maturity and innovation capabilities of tourism organizations, offering valuable lessons for policy and strategy formulation.

5. Discussion

The findings of this study provide substantive insights into how digital transformation serves as a catalyst for organizational innovation within Egypt's governmental tourism organizations, revealing seven key themes: operational efficiency, organizational adaptation, digital literacy, leadership, infrastructure, customer engagement, and collaboration. DT enhances operational efficiency by streamlining administrative processes, reducing manual workloads, and improving service delivery speed, consistent with Lim (2023), Bondarenko et al. (2025), and studies in other emerging economies (Abdelgaber & Ghanam, 2022 ; Belaid, A. 2024). These efficiencies help overcome legacy bureaucratic hurdles, enabling more responsive and effective tourism governance. Organizational innovation emerges as an adaptive response requiring cultural change, flexible leadership, and restructuring, which aligns with the organizational innovation literature (Santarsiero et al., 2024; Motamedimoghadam, M., et al 2025) and the dynamic capabilities perspective emphasizing innovation-oriented culture and cross-functional collaboration (Chavarnakul,T.et al 2025).

The workforce's digital literacy gap, identified as a significant barrier, underscores the necessity of continuous capacity building and training programs to empower employees and reduce resistance to change, corroborating findings from El-Sharif (2020), Abdel-Hamid (2022), Mahmoud (2024), and the Technology Acceptance Model (Kuo et al., 2025). Leadership commitment emerges as pivotal in aligning digital initiatives with strategic vision, fostering a culture conducive to experimentation and sustained innovation, resonating with Santarsiero et al. (2024) and Lim (2023). Infrastructural limitations reflect broader regional patterns in the global South, hindering the adoption of advanced technologies such as IoT and AI (Magdy & Abouelazm, 2024; Tuo et al., 2022). This highlights the urgent need for

targeted investments and policy support to modernize digital infrastructure, echoing recommendations from Elgohary (2022).

Sigala (2018). Approved that enhanced customer engagement facilitated by digital platforms, including social media and mobile applications, supports personalized and immersive tourist experiences, reinforcing global trends identified by Bondarenko et al. (2025) and Taha et al. (2023). Institutional collaboration emerges as essential for developing an innovation ecosystem, with multi-stakeholder partnerships among government agencies, the private sector, academia, and communities driving co-creation of value, consistent with contemporary ecosystem theories (Santarsiero et al., 2024). By integrating Dynamic Capabilities Theory, Organizational Innovation, the Technology Acceptance Model, and Diffusion of Innovation, this study elucidates the complex, multi-level processes through which individual technology acceptance facilitates broader organizational transformation, validating the conceptual framework within the context of Egypt's public-sector tourism governance and contributing valuable insights for policymakers and practitioners aiming to foster resilient, innovative tourism systems in emerging markets.

5.1 Theoretical Implications

This study contributes significantly to the existing body of knowledge on digital transformation and organizational innovation in the tourism sector, particularly within the context of governmental organizations in an emerging economy like Egypt. By applying the dynamic capabilities theory alongside organizational innovation frameworks, the research extends these theories by empirically demonstrating how digital transformation acts as a catalyst for continuous innovation and agility in public sector tourism organizations. The findings affirm Chavarnakul,T.et al (2025) argument that sensing, seizing, and transforming capabilities are essential for sustaining competitive advantage in rapidly changing environments.

Moreover, the study enriches organizational innovation theory by highlighting the critical role of organizational culture, leadership commitment, and collaborative ecosystems in facilitating digital adoption and innovation. The integration of technological, human, and structural dimensions provides a holistic understanding of digital transformation processes beyond mere technology implementation, emphasizing the socio-technical nature of innovation in tourism organizations.

By exploring the Egyptian governmental tourism context—a sector and locale underrepresented in extant research—this study fills a notable empirical gap. It underscores the interplay between digital maturity and innovation culture within public sector organizations, offering a contextualized conceptualization that can inform theory development in similar emerging markets.

5.2 Practical Implications

A structured plan is proposed to guide policymakers and tourism managers in Egypt for effective digital transformation and organizational innovation. First, investments in digital infrastructure are essential, focusing on reliable internet connectivity and hardware upgrades in underdeveloped regions to enable advanced technologies like IoT and AI. Second, leadership development programs should be implemented to cultivate digital visionaries, ensuring alignment with broader strategies for coherence and sustainability. Third, comprehensive digital literacy programs must be launched for all staff levels, emphasizing hands-on training to foster workforce engagement in

innovation. Additionally, fostering partnerships among governmental bodies, academia, and the private sector is crucial for resource sharing and collaborative solution development. Customer-centric digital services, including user-friendly platforms and regular incorporation of customer feedback, should be prioritized to enhance engagement and tailor visitor experiences. Lastly, robust monitoring and evaluation systems must be created to track progress and operational efficiency, using data-driven insights for continual improvement. This plan aims to accelerate digital maturity, cultivate innovation, and enhance competitiveness in Egypt's tourism market.

5.3 Limitations and future research directions

This study's qualitative design and purposive sample of 40 participants, while sufficient for rich contextual insights, limit statistical generalizability. Future research employing quantitative or mixed-method approaches with larger and more diverse samples would enhance representativeness. The cross-sectional nature captures perceptions at a single point in time; thus, longitudinal studies are warranted to examine evolution trajectories of digital transformation and organizational innovation in governmental tourism. Reliance on self-reported data introduces potential biases; triangulating findings with usage logs, administrative data, and visitor feedback would augment validity. Moreover, comparative studies across other emerging economies and public sector contexts could refine transferability and deepen theoretical development. Lastly, further exploration of generative AI and emerging Technologies' impacts on public tourism governance presents a promising avenue.

References

- Abdelgaber, H., & Ghanam, S. (2022). Digital transformation in Egyptian tourism: Enhancements in management and marketing efficiency. *Journal of Economics Studies and Research in Renewable Energies*, 11(2), 110–121.
- Abdel-Hamid, T. A., Ahmed, M. A. E. A. S., Zohry, M. A. F., Elshabrawy, G. A., & Elgohary, E. M. (2022). The role of digital transformation in improving customer satisfaction: An empirical study on Egyptian hotels. *The Electronic Journal of Information Systems in Developing Countries*, 88(6), e12234.
- Abdelwahab, M. (2024). *Strategic framework for achieving successful sustainable tourism in Egypt*. Pepperdine University.
- Alahmari, N., Mehmood, R., Alzahrani, A., Yigitcanlar, T., & Corchado, J. M. (2023). Autonomous and Sustainable Service economies: Data-Driven optimization of Design and Operations through Discovery of Multi-perspective parameters. *Sustainability*, 15(22), 16003.
- Astanakulov, O., BALBA, M. E., Khushvakt, K., & Muslimakhon, S. (2025). IoT Innovations for Transforming the Future of Tourism Industry: Towards Smart Tourism Systems. *Journal of Intelligent Systems & Internet of Things*, 14(2).
- Belaid, A. (2024). Tourism: What future in light of digital transformation-Study of the Egyptian experience. 121-110 ,(2)11 مجلة دراسات وأبحاث اقتصادية في الطاقات المتجددة.
- Bi, Z., Zhang, C. W., Wu, C., & Li, L. (2022). New digital triad (DT-II) concept for lifecycle information integration of sustainable manufacturing systems. *Journal of Industrial Information Integration*, 26, 100316.

- Bondarenko, S., Kalaman, O., & Danilova, O. (2025). Digital transformation of the tourism business in an open economy: a comprehensive *approach* to travel planning and partnerships. *Social development: economic and legal issues*, (4).
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), 77-101.
- Buhalis, D., Efthymiou, L., Uzunboylu, N., & Thrassou, A. (2024). Charting the progress of technology adoption in tourism and hospitality in the era of industry 4.0. *EuroMed Journal of Business*, 19(1), 1-20.
- 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.
- Chavarnakul, T., Xu, L. D., Bi, Z., Shankar, A., Dhiman, G., Viriyasitavat, W., & Hoonsopon, D. (2025). A Systematic Literature Review on Resilient Digital Transformation, Examining How Organizations Sustain Digital Capabilities. *HighTech and Innovation Journal*, 6(2).
- Chen, J., Chen, T. H. Y., Vertinsky, I., Yumagulova, L., & Park, C. (2013). Public-private partnerships for the development of disaster resilient communities. *Journal of contingencies and crisis management*, 21(3), 130-143.
- Chon, K. K. S., & Hao, F. (2025). Technological evolution in tourism: a Horizon 2050 perspective. *Tourism Review*, 80(1), 313-325.
- Ciarli, T., Kenney, M., Massini, S., & Piscitello, L. (2021). Digital technologies, innovation, and skills: Emerging trajectories and challenges. *Research Policy*, 50(7), 104289.
- Cuomo, M. T., Tortora, D., Foroudi, P., Giordano, A., Festa, G., & Metallo, G. (2021). Digital transformation and tourist experience co-design: Big social data for planning cultural tourism. *Technological Forecasting and Social Change*, 162, 120345.
- Damanpour, F., & Evan, W. M. (1984). Organizational innovation and performance: The role of leadership and culture. *Journal of Management Studies*, 21(3), 209-223.
- Donovan, S. J., Güss, C. D., & Naslund, D. (2015). Improving dynamic decision making through training and self-reflection. *Judgment and Decision making*, 10(4), 284-295.
- Elgohary, E. (2022). The role of digital transformation in sustainable development in Egypt. *The International Journal of Informatics, Media and Communication Technology*, 4(1), 71-106.
- Elmetwaly, A. S. (2023). Assessing the Impact of Digital Transformation on Organizational Culture: A Study Applied to Egyptian Hotels. *Journal of the Faculty of Tourism and Hotels-University of Sadat City*, 7(2/2), 116-127.
- Elrawy, S. M. (2025). Leverage Cultural Heritage as a Tool of Urban Agendas. Focus on Greater Cairo, Egypt. *JES. Journal of Engineering Sciences*, 53(4), 495-536.
- Elsayed, M. (2023). Digitalization and Fighting Corruption: Evidence From Best Practices and Egypt's Public Sector During Covide19. *المجلة العلمية للدراسات والبحوث المالية والتجارية*, 4(2), 563-598.
- El-Sharif, R. (2020). Barriers to digital transformation in Egypt's tourism sector. *Middle East Journal of Tourism Research*. 11(2), 110-121.

- Emon, M. M. H. (2024). Research Approach: A Comparative Analysis of Quantitative and Qualitative Methodologies in Social Science Research.
- Farid, S., Boudia, M. A., & Mwangi, G. (2023). Revolutionizing tourism: Harnessing the power of IoT in smart destinations. *Journal of Digital Marketing and Communication*, 3(2), 91-99.
- Fatema, K., Sinnappan, P., Meng, C. S., & Watabe, M. (2024). Technological advancements and innovations in the tourism industry: driving sustainable tourism. In *The need for sustainable tourism in an era of global climate change: Pathway to a greener future* (pp. 121-149). Emerald Publishing Limited.
- Ghosn, F. (2025). Rural vs. Urban Development Disparities in the Middle East. In *Unveiling Developmental Disparities in the Middle East* (pp. 65-92). IGI Global.
- Haktanır, E., Kahraman, C., Şeker, Ş., & Doğan, O. (2022). Future of digital transformation. In *Intelligent systems in digital transformation: Theory and applications* (pp. 611-638). Cham: Springer International Publishing.
- 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.
- Hussein, H., Albadry, O. M., Mathew, V., Al-Romeedy, B. S., Alsetoohy, O., Abou Kamar, M., & Khairy, H. A. (2024). Digital leadership and sustainable competitive advantage: leveraging green absorptive capability and eco-innovation in tourism and hospitality businesses. *Sustainability*, 16(13), 5371.
- Idemudia, S. O., Chima, O. K., Ezeilo, O. J., Ojonugwa, B. M., & Adesuyi, A. O. M. O. (2023). Digital Infrastructure Barriers Faced by SMEs in Transitioning to Smart Business Models.
- Imran, F., Shahzad, K., Butt, A., & Kantola, J. (2021). Digital transformation of industrial organizations: Toward an integrated framework. *Journal of change management*, 21(4), 451-479.
- Jasim, T. A., Khairy, H. A., Fayyad, S., & Al-Romeedy, B. S. (2024). Digital leadership and creative performance in tourism and hotel enterprises: leveraging strategic agility and organizational learning culture. *Geo Journal of Tourism and Geosites*, 54, 872-884.
- Karjaluoto, H., Mustonen, N., & Ulkuniemi, P. (2015). The role of digital channels in industrial marketing communications. *Journal of Business & Industrial Marketing*, 30(6), 703-710.
- Ku, E. C., & Chen, C. D. (2025). Data analysis capabilities and technology compromise lead to innovation and market performance for tourism businesses. *Internet Research*
- Kuo, C.-Y., Lee, C.-H., & Chang, Y.-P. (2025). Extending the Technology Acceptance Model in tourism contexts. *International Journal of Organizational Innovation*, 17(3), 65-80.
- Leveau, P. H. (2025). *Tourism, Technologies and Consumption in the 5.0 Era: Discovery and Reflection in the Face of Organizational and Societal Issues*. John Wiley & Sons.

- Li, Z., Wang, D., Abbas, J., Hassan, S., & Mubeen, R. (2022). Tourists' health risk threats amid COVID-19 era: role of technology innovation, Transformation, and recovery implications for sustainable tourism. *Frontiers in Psychology*, 12, 769175.
- Lim, J. (2023). Digital Sustainability: How does digital transformation in the tourism industry affect sustainable development?: A case study of the Innovation Voucher Project in Korea.
- Magdy, A., & Abouelazm, N. H. (2024). Towards Digital Transformation Technologies Application in the MICE Industry in Egypt. *Minia Journal of Tourism and Hospitality Research MJTHR*, 17(1), 81-117.
- Mahmoud, A., & Abdelaziz, M. (2024). The Impact of Accepting Digital Transformation Technologies on Employees' Intention to Use: Education Level as a Moderator. *Minia Journal of Tourism and Hospitality Research MJTHR*, 18(2), 1-27.
- Martinez-Cillero, M., Lawless, M., & O'Toole, C. (2023). Analysing SME investment, financing constraints and its determinants. A stochastic frontier approach. *International Review of Economics & Finance*, 85, 578-588.
- Meyer, E. T., & Schroeder, R. (2023). *Knowledge machines: Digital transformations of the sciences and humanities*. Mit Press.
- Motamedimoghdam, M., Mira da Silva, M., & Amaral, M. (2025). Organizational capabilities for digital innovation: a systematic literature review. *European Journal of Innovation Management*, 28(7), 3024-3048.
- Ochieng, M. (2024). *Enhancing Digital Transformation Success in Education through Effective Stakeholder Engagement Strategies* (Doctoral dissertation, Walden University).
- Pandey, N., Nayal, P., & Rathore, A. S. (2020). Digital marketing for B2B organizations: structured literature review and future research directions. *Journal of Business & Industrial Marketing*, 35(7), 1191-1204.
- Paul, L., & Rena, R. (2024). Tech Disruption in Business Tourism: Mastering Strategic Approaches for a Transformative Future. *Researchers World*, 15(2), 81-91.
- Pereira, J. F. V. S. (2022). *Task Allocation and Scheduling in Collaborative Robotics* (Master's thesis, Universidade de Aveiro (Portugal)).
- Qi, Y., Chen, Q., Yang, M., & Sun, Y. (2024). Ambidextrous knowledge accumulation, dynamic capability and manufacturing digital transformation in China. *Journal of Knowledge Management*, 28(8), 2275-2305.
- Rane, N., Choudhary, S., & Rane, J. (2023). Sustainable tourism development using leading-edge artificial intelligence (AI), blockchain, internet of things (IoT), augmented reality (AR) and virtual reality (VR) technologies. *Blockchain, internet of things (IoT), augmented reality (AR) and virtual reality (VR) technologies (October 31, 2023)*.
- Santarsiero, F., Carlucci, D., & Schiuma, G. (2024). Driving digital transformation and business model innovation in tourism through innovation labs: An empirical study. *Journal of Engineering and Technology Management*, 74, 101841.

- Shen, L., Zhang, X., & Liu, H. (2022). Digital technology adoption, digital dynamic capability, and digital transformation performance of textile industry: Moderating role of digital innovation orientation. *Managerial and Decision Economics*, 43(6), 2038-2054.
- Sigala, M. (2018). Implementing social customer relationship management: A process framework and implications in tourism and hospitality. *International Journal of Contemporary Hospitality Management*, 30(7), 2698-2726.
- Soni, R., & Dave, D. M. (2024). Revolutionizing industrial manufacturing through cloud computing. *International Journal of Engineering Research & Technology (IJERT)*, 13(03).
- Soomro, B. A., Mangi, S., & Shah, N. (2021). Strategic factors and significance of organizational innovation and organizational learning in organizational performance. *European Journal of Innovation Management*, 24(2), 481-506.
- Sugathapala, M. A. S. H. (2024). exploring the digital landscape: evaluating the effects and possibilities of digital transformation within the tourism sector. *Gsj*, 12(1).
- Taha, S., Salem, A. E., & El-Manhaly, S. (2023). Enhancing Domestic Tourism by Using Mobile Applications: Egyptian Tourists' Perspective. *The Scientific Journal of the Faculty of Tourism and Hotels, Alexandria University*, 20(1), 78-94.
- Teece, D., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-533.
- Trankle, S. A., Usherwood, T., Abbott, P., Roberts, M., Crampton, M., Girgis, C. M., ... & Reath, J. (2020). Key stakeholder experiences of an integrated healthcare pilot in Australia: a thematic analysis. *BMC Health Services Research*, 20(1), 925.
- Troisi, O., Grimaldi, M., & Visvizi, A. (2022). Digital transformation in tourism ecosystems: What impact on sustainability and innovation?. In *The international research & innovation forum* (pp. 73-81). Cham: Springer International Publishing.
- Tuo, Y., Wu, J., Zhao, J., & Si, X. (2025). Artificial intelligence in tourism: insights and future research agenda. *Tourism Review*, 80(4), 793-812.
- UNWTO. (2019). Digital transformation in tourism: Trends and challenges. United Nations World Tourism Organization Report.
- Yu, W. L. G. (2025). *Towards Developing a Holistic Management Framework for Organizational Digital Transformation* (Doctoral dissertation, University of Wales Trinity Saint David).
- Zeqiri, A., Ben Youssef, A., & Maherzi Zahar, T. (2025). The Role of digital tourism platforms in advancing sustainable development goals in the Industry 4.0 era. *Sustainability*, 17(8), 3482.
- Zhang, G., Wang, X., Xie, J., & Hu, Q. (2024). A mechanistic study of enterprise digital intelligence transformation, innovation resilience, and firm performance. *Systems*, 12(6), 186.

Appendix (A) the interview protocol

Introduction:

Thank you for agreeing to participate in this interview. The purpose of this study is to understand how digital transformation is influencing organizational innovation in tourism organizations. Your insights as a manager/academic are invaluable to this research. There is no right or wrong answers, and your responses will be kept confidential and used only for academic purposes. Please feel free to speak openly and provide examples from your experience.

Interview Questions

1. Understanding and Perceptions of Digital Transformation

- How do you define digital transformation in the context of your tourism organization?
- What role do you think digital technologies currently play in your organization's operations and services?

2. Implementation and Operational Impact

- Can you describe specific digital technologies or tools that have been implemented in your organization?
- How have these technologies affected operational efficiency or administrative processes?
- What improvements or changes have you observed since implementing these digital solutions?

3. Organizational Innovation and Adaptation

- How has your organization's culture, structure, or workflows changed in response to digital transformation?
- Can you provide examples of innovative practices or new ways of working that emerged from this transformation?
- How do employees and leadership adapt to ongoing digital changes?

4. Workforce Digital Skills and Capacity Building

- What challenges related to digital skills or training have you encountered in the workforce?
- How is your organization addressing these challenges?
- How important is continuous digital training for maintaining innovation momentum?

5. Leadership and Strategic Vision

- To what extent do you believe leadership commitment influences the success of digital transformation initiatives?
- How is digital transformation integrated into your organization's strategic planning?

6. Infrastructure and Resources

- What infrastructural or resource constraints have impacted your digital transformation efforts?
- What support or investments would you consider critical to advance digital maturity?

7. Customer Engagement and Experience

- How have digital technologies enhanced engagements with tourists or customer experience?
- Are there specific platforms or digital channels that have been particularly impactful?

8. Collaboration and Ecosystem Development

- What kinds of collaboration exist between your organization and other stakeholders (e.g., private sector, academia, government agencies) in adopting digital innovations?
- How do these partnerships influence your innovation capabilities?

9. Challenges and Barriers

- What are the main barriers your organization faces in progressing with digital transformation?
- How do you think these barriers can be overcome?

10. Future Outlook

- What is your vision for the future of digital transformation in Egypt's governmental tourism sector?
- What recommendations would you offer to policymakers or organizational leaders to foster digital and innovative growth?

Closing:

Thank you for your time and insightful responses. Your contribution is greatly appreciated and will help inform efforts to enhance digital transformation and innovation in Egypt's tourism sector.