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A Conceptual Framework of Digital Transformation and Business Model Innovation in the UAE Public Sector: A Dynamic-Capabilities Perspective

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Abstract

Digital transformation (DT) is reshaping governance worldwide, yet its translation into genuine innovation and sustainable public value remains poorly theorized in non-OECD contexts. The United Arab Emirates (UAE) provides a compelling case: while national programs such as Smart Dubai and the UAE Artificial Intelligence Strategy 2031 demonstrate visionary ambition, many public entities still struggle with fragmented systems, uneven skills, and cultural inertia. This review paper synthesizes global and regional literature to examine how DT drives Business Model Innovation (BMI) through two enabling capability systems—Enterprise Architecture (EA) and Digital Business Strategy (DBS)—and how Entrepreneurial Orientation (EO) moderates these effects. Guided by Dynamic Capabilities Theory (DCT), the paper integrates evidence from studies on collaboration, governance, technology integration, and capability development to develop a UAE-specific conceptual model. The review identifies critical gaps in linking strategy, structure, and culture, arguing that EA and DBS make digital transformation operational and directional, while EO makes it transformational. The

proposed framework offers both scholarly and managerial pathways to advance public-sector innovation in the UAE.
Keywords: Digital Transformation, Business Model Innovation, Enterprise Architecture,Digital Business Strategy, Entrepreneurial Orientation

Introduction

Across the world, governments are grappling with a dual mandate: deliver more responsive public services while advancing sustainability goals under intensifying fiscal and environmental constraints. Digital transformation (DT) the strategic integration of data, platforms, and advanced technologies into public processes and services—has become a core lever for pursuing that mandate. Yet the mechanics of how DT actually translates into public-sector innovation and, ultimately, sustainable performance remain unevenly understood across contexts. Much of what we know is shaped by cases from Europe, North America, and parts of Asia, leaving gaps in regions undergoing rapid governance reforms and technology adoption—most notably the Arab world and the United Arab Emirates (UAE).

A careful synthesis of recent research on innovation and sustainability in public administration underscores three messages that set the stage for this paper. First, collaborative governance, participatory mechanisms, and cross-sector networks are not "soft" add-ons; they are structural enablers of innovation (Eraso et al., 2021; Prémont, 2013; Shrestha & L'Espoir Decosta, 2023). Second, digital technologies—from open innovation platforms and e-government to AI, analytics, and digital HR—can magnify public value, but only when embedded in organizational capabilities and citizen-centred design (Lee, Hancock & Hu, 2014; Marino-Romero, Palos-Sanchez & Velicia-Martin, 2023; Sepahvand et al., 2023). Third, internal capability systems (leadership, quality, knowledge networks) and quality management practices foster the dynamic capacities that convert potential into sustained outcomes (Dooley, Kirk & Philpott, 2013; Hudnurkar et al., 2022). At the same time, persistent constraints—financial, structural, and capability-related—limit progress (Williams, 2001), and empirical coverage outside OECD contexts remains thin. With the notable exception of work on UAE sustainable procurement (Al Nuaimi, Khan & Ajmal, 2020), Arab-region public sector studies are underrepresented.

The UAE presents an especially compelling and under-theorized setting. Over the last two decades, national strategies such as the UAE National Innovation Strategy (2014), Smart Dubai, and the UAE Strategy for Artificial Intelligence 2031 have institutionalized digital ambition across ministries and emirates. Evidence from the UAE shows measurable benefits: big-data-enabled financial services and FinTech innovation improve bank performance (Al-Dmour et al., 2021); supply-chain digitalization enhances agility via firm innovation (Wang et al., 2025); and smart-government initiatives identify success factors such as security, infrastructure, skills, and citizen engagement (Ahmat et al., 2024). Yet other UAE studies highlight stubborn gaps: regulatory and cultural frictions, uneven digital literacy, and the still-emerging capacity to convert technology investments into sustained service innovation and inclusion (Abuzanjal & Bashir, 2024; Santandreu Calonge et al., 2025; Morshed & Khrais, 2025). In sustainable procurement—an archetypal public function—innovation capability ranks low relative to cost and organizational concerns (Al Nuaimi et al., 2020), suggesting that established administrative logics often dominate even amid national digital aspirations.

This conceptual paper responds to those tensions with a humanized and context-sensitive proposition: in the UAE public sector, digital transformation catalyzes business model innovation (BMI) when two enabling capability systems are in place—Enterprise Architecture (EA) and Digital Business Strategy (DBS)—and when the organizational climate is sufficiently entrepreneurial, i.e., characterized by Entrepreneurial Orientation (EO) that supports risk-taking, proactiveness, and innovativeness. We anchor this proposition in Dynamic Capabilities Theory (Teece, Pisano & Shuen, 1997; Teece, 2020): DT helps public organizations sense opportunities (e.g., data-driven foresight), seize them (e.g., platform choices, service redesign), and transform operational models (e.g., agile workflows). EA provides the structural capacity to orchestrate digital resources and align IT and process portfolios; DBS provides strategic intent and prioritization; EO conditions whether digital reconfigurations actually translate into meaningful, and sometimes disruptive, public value innovations.

The paper contributes in three ways. First, we integrate dispersed literatures—public sector innovation, DT, EA, DBS, EO, and BMI—into a single UAE-focused conceptual model that is both theoretically grounded and practically usable. Second, we specify the mechanisms (mediations and moderation) through which capabilities interact, reflecting the UAE's unique blend of centralized strategy and decentralized implementation. Third, we surface an agenda for empirical testing that is attentive to the UAE's regulatory frameworks, demographic diversity, and ambitious national visions.Therefore, this paper aims to synthesize international and UAE-specific evidence on public sector DT and innovation, highlighting capability gaps. It also aims to develop a Dynamic-Capabilities-based conceptual framework linking DT to BMI.

Related Work on Public Sector Innovation and Sustainability

Collaboration and governance. Studies consistently show that innovation in public systems depends on collaborative architectures. Participatory action research in Colombia fostered community capabilities for sustainable environmental practices (Eraso et al., 2021). Territorialized, cross-sector collaboration improves decision quality, particularly in rural and tourism contexts (Prémont, 2013; Shrestha & L'Espoir Decosta, 2023). These findings matter for the UAE, where inter-agency programs (e.g., Smart Dubai's platform approach) rely on coordinated governance and stakeholder buy-in.

Technological integration and open innovation. Open innovation platforms and smart-city architectures enable public–private coordination and iterative problem-solving (Lee et al., 2014). Digital capabilities—especially in knowledge-intensive settings—improve organizational performance when aligned with resources and culture (Marino-Romero et al., 2023). Sustainable e-HRM emphasizes the social dimension of transformation, highlighting human capital as a critical enabler (Sepahvand et al., 2023). These insights complement UAE initiatives that integrate AI, data exchanges, and platform ecosystems across agencies.

Internal capability systems. TQM practices are positively associated with corporate sustainability, with innovation capability mediating effects on social/environmental outcomes (Hudnurkar et al., 2022). Knowledge networks in university–industry ecosystems demonstrate the need for lifecycle planning, governance, and role clarity (Dooley et al., 2013). For UAE ministries and authorities, such internal alignment—between leaders, processes, and learning systems—is decisive for sustaining digital improvements.

Constraints and sustainability logics. Williams (2001) reminds us that energy and sustainability reforms demand policy and financing changes at scale; Merad, Dechy, and Marcel (2014) position sustainability as preservation of "critical capital," reframing what must be governed and measured. In the UAE, sustainable procurement still privileges cost and structural factors over innovation capability (Al Nuaimi et al., 2020), echoing the broader challenge of translating digital ambition into redesigned routines and incentives.

Regional coverage gap. The evidence base is geographically skewed. Apart from UAE-focused work on procurement (Al Nuaimi et al., 2020) and more recent UAE studies on smart government, banking, workforce skills, and supply chains (Ahmat et al., 2024; Al-Dmour et al., 2021; Santandreu Calonge et al., 2025; Wang et al., 2025; Abuzanjal & Bashir, 2024; Morshed & Khrais, 2025), Arab-region public sector innovation remains underexplored. This gap motivates a UAE-specific, theory-driven framework.

Digital Transformation in the UAE

The United Arab Emirates (UAE) has proactively embraced digital transformation (DT) as a national imperative, embedding it within its broader socio-economic development strategies such as *Smart Dubai* and the *UAE Strategy for Artificial Intelligence 2031*. Through deliberate policymaking, institutional leadership, and substantial investment, the country has cultivated a digital ecosystem that links governance modernization with economic diversification. The UAE's approach to DT is distinctive: it combines visionary central directives with decentralized implementation across ministries and emirates, resulting in notable achievements as well as emerging frictions.

In the financial services sector, DT has significantly reshaped business and operational processes. Al-Dmour et al. (2021) found that big data analytics capabilities enhance bank performance in the UAE, with financial technology (FinTech) innovation acting as a crucial intermediary mechanism. Banks that leverage analytics and digital interfaces experience improved decision-making and customer engagement, leading to greater efficiency and competitiveness. Similarly, Wang et al. (2025) demonstrated that supply-chain digitalization in UAE firms enhances innovation and agility. Their findings reveal that in dynamic industries, digitalization fosters superior coordination and responsiveness, confirming that digital capabilities have become a critical determinant of organizational resilience.

Public sector modernization represents another major front in the UAE's digital journey. Ahmat et al. (2024) identified essential parameters for designing effective smart government systems, emphasizing that robust digital infrastructure, data security, privacy protection, digital skills, and citizen trust are indispensable for success. However, despite significant progress, cultural adaptation and digital literacy continue to hinder full integration. The findings underscore that technology alone cannot guarantee transformation—social and organizational readiness play equally vital roles. These issues also surface in broader analyses of government innovation. Abuzanjal and Bashir (2024) reported that while UAE government entities have made strides in adopting frameworks like the Government Excellence Model (GEM), deep-rooted cultural barriers and a limited innovation mindset persist. GEM adoption appears to mitigate some of these challenges, yet structural inertia remains a pressing concern.

Cybersecurity has emerged as a defining issue in the UAE's DT agenda. Morshed and Khrais (2025) observed that advanced cybersecurity measures, AI-based threat detection, and professional ethics training are instrumental in increasing digital trust and system adoption across the Gulf region. Their study, however, highlights the need for further examination of UAE-specific regulatory environments and cultural nuances surrounding breach disclosure and ethical accountability. Without harmonized regulations and localized governance models, the sustainability of digital confidence may remain uneven. Furthermore, Santandreu Calonge et al. (2025) emphasized that the UAE's human capital development is yet to fully catch up with its technological ambition. Their review revealed an urgent need for inclusive, AI-focused upskilling and reskilling initiatives to address the country's growing skills gap and ensure that both citizens and expatriates are equipped to participate meaningfully in the digital economy. Collectively, these studies paint a dual narrative. On one hand, the UAE exhibits advanced digital infrastructure, strong policy leadership, and global ambition; on the other hand, challenges in human capital development, cross-agency coordination, and cultural adaptation persist. The interplay between success and constraint underscores a broader insight: digital transformation is as much a social and organizational phenomenon as it is a technological one. Hence, understanding why some UAE government entities achieve greater digital maturity than others requires a capability-centered theoretical explanation—one that integrates structure, strategy, and culture as mutually reinforcing components.

Clarifying Key Constructs: DT, BMI, EA, DBS, and EO

Digital Transformation (DT) in this context transcends the mere digitization of records or the automation of processes; it signifies a fundamental reconfiguration of how value is created, delivered, and captured within public institutions. Scholars such as Verhoef et al. (2021) and Merín-Rodrigáñez, Dasí, and Alegre (2024) describe DT as a strategic process that aligns leadership, resources, and organizational purpose through the use of digital technologies. Holopainen, Saunila, and Ukko (2024) similarly emphasize that DT requires not only technological competence but also managerial foresight and cross-functional coordination. Zhang et al. (2023) extend this conceptualization by applying the principle of *ambidexterity*—distinguishing between exploitative DT, which focuses on optimizing existing processes and services, and explorative DT, which pursues innovation through experimentation. In the UAE public sector, both forms coexist: ministries strive to streamline established operations through digital integration while simultaneously experimenting with frontier technologies such as AI, blockchain, and big data analytics.

Business Model Innovation (BMI) complements DT by reshaping the mechanisms through which public value is generated. It entails the reconfiguration of service delivery models, stakeholder relationships, and resource flows. Scholars have characterized BMI as a dynamic capability that enables organizations to sense emerging opportunities, seize them through innovative propositions, and transform delivery mechanisms to sustain competitive or service advantage (Foss & Saebi, 2018; Ferreras-Méndez et al., 2021; Latifi, Nikou & Bouwman, 2021). In the public sector, BMI translates into creating new forms of citizen engagement, co-production of services, and redefined accountability structures—core priorities within the UAE's vision for smart governance.

Enterprise Architecture (EA) provides the structural foundation upon which digital transformation and innovation can thrive. It comprises formalized artifacts, frameworks, and

management practices that align business goals with IT systems and infrastructure (Pattij, van de Wetering & Kusters, 2022; Foorthuis et al., 2016). EA ensures coherence between digital initiatives by setting standards, defining roadmaps, and enforcing governance across complex organizations. Although implementation often faces challenges due to bureaucratic rigidity or resource fragmentation (Gong & Janssen, 2023), EA acts as a structural dynamic capability—it orchestrates resources, evaluates strategic options, and coordinates change across multiple organizational layers (Yeow et al., 2018; van de Wetering, 2022). Within the UAE context, EA is crucial for harmonizing digital services across federal and emirate-level institutions, ensuring interoperability and consistent service quality.

Digital Business Strategy (DBS) represents the strategic dimension of capability building. It integrates digital technologies and organizational objectives, guiding investment and transformation priorities (Hess et al., 2016; Yeow et al., 2018). Unlike traditional IT strategy, which operates as a functional subset, DBS is enterprise-wide and iterative—it aligns digital opportunities with long-term strategic intent (Chanias et al., 2019; El Sawy et al., 2016). Matt et al. (2015) argue that successful DBS requires dynamic leadership, change readiness, and the ability to link technological trajectories with organizational learning. In the UAE, DBS serves as the connective tissue between national digital visions and ministerial implementation, shaping how resources are allocated and how technology investments align with policy objectives.

Finally, Entrepreneurial Orientation (EO) introduces the cultural and behavioral dimension that determines whether DT efforts translate into genuine innovation. EO encompasses three interrelated attributes—risk-taking, proactiveness, and innovativeness (Covin & Slevin, 1991; Lumpkin & Dess, 2001; Dess & Lumpkin, 2005). In the public sector, EO manifests as openness to experimentation, willingness to engage with uncertainty, and commitment to proactive problem-solving. An entrepreneurial culture empowers public servants to pursue digital initiatives that challenge conventional processes, enhancing responsiveness and creativity. Empirical research by Kraus et al. (2023) demonstrates that organizations with strong EO exhibit higher levels of business model innovation, as their leaders legitimize experimentation and treat failure as a learning process. For UAE government entities—where hierarchical traditions coexist with a strong national innovation agenda—EO becomes the psychological bridge between technological potential and transformative action.

In summary, these five constructs—Digital Transformation, Business Model Innovation, Enterprise Architecture, Digital Business Strategy, and Entrepreneurial Orientation—collectively form the conceptual scaffolding for understanding how the UAE public sector can convert digital ambition into sustainable innovation. DT provides the technological pathway; BMI represents the outcome of value reconfiguration; EA and DBS supply the structural and strategic enablers; and EO infuses the organizational spirit that transforms digital intent into enduring institutional capability.

Conceptual Framework: A Dynamic-Capabilities Model for UAE Public Sector Innovation

Framing logic

At the heart of this paper is a simple—but powerful—claim: digital transformation (DT) becomes innovation only when it is channeled through the right capability system. We therefore advance "A Digital Transformation Framework for Business Innovation: Integrating

Strategy, Architecture, and Entrepreneurial Orientation." In this model, DT is the engine that converts data, platforms, and analytics into redesigned service logics—public-sector business model innovation (BMI) such as proactive eligibility decisions, predictive inspections, one-stop platforms, or omni-channel service pathways (Verhoef et al., 2021; Zhang et al., 2023). Yet engines need transmission. Enterprise Architecture (EA) and Digital Business Strategy (DBS) provide that transmission by turning technical potential into coordinated, sequenced, and resourced change. EA supplies the structural orchestration—artifacts, standards, integration patterns, data models, roadmaps, and governance routines—that reduce integration debt and make cross-agency alignment feasible. DBS supplies the strategic prioritization—which public problems to solve first, which platforms to scale, how to allocate scarce budgets and talent, and how to connect digital portfolios with national goals. A third element, Entrepreneurial Orientation (EO), operates as a contextual amplifier: when risk-taking, proactiveness, and innovativeness are part of the administrative culture, leaders and teams are more likely to retire legacy practices, legitimize experimentation, and convert pilots into scaled services. Grounded in Dynamic Capabilities Theory (DCT), the framework makes explicit how UAE government entities sense (via data platforms and analytics), seize (via portfolio choices and design governance), and transform (via operating-model change and inter-agency alignment) in ways consistent with national visions and regulatory guardrails (Teece, Pisano & Shuen, 1997; Teece, 2020).

This framing is intentionally pragmatic. It recognizes that the UAE's digital ambition is not constrained by a lack of technology; it is constrained by the uneven ability to orchestrate technology with strategy and culture. DT without EA risks fragmented systems and duplicated interfaces; DT without DBS risks "project drift," where technology is procured without clear value logic; DT without EO risks efficiency tweaks that never become genuine service reinvention. Put differently, EA and DBS make DT *doable* and *directional*, while EO makes it *transformational*. The interdependence of these elements reflects DCT's insight that advantage comes not from static assets but from the routines that reconfigure them as contexts change.

Constructs and Propositions

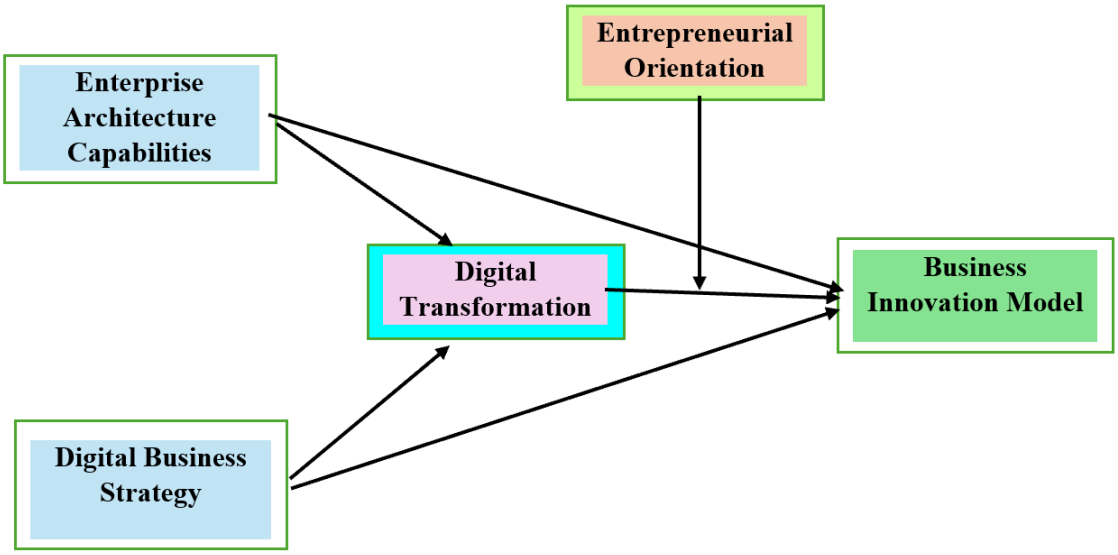
Within this architecture, DT is expected to have a direct, positive effect on BMI. In government, the pathway is intuitive: digital identity, shared data layers, and analytics enable value propositions such as "tell-us-once" administrative experiences, anticipatory eligibility decisions, or risk-based inspections; they also enable new delivery channels (self-service mobile, assisted digital, proactive notifications) and coordination mechanisms (interoperability hubs, open APIs, shared platforms) (Verhoef et al., 2021; Zhang et al., 2023). Hence H1 posits that DT is positively and significantly related to BMI.

EA deepens this effect in two ways. First, it enables DT by codifying current and target states, defining standards, and sequencing change so that projects interlock rather than collide. Second, it can directly enable BMI by making modular service redesign possible—surfacing redundancies, revealing reusable components, and coordinating stakeholders around end-to-end journeys (Pattij, van de Wetering & Kusters, 2022; Yeow et al., 2018; van de Wetering, 2022). Accordingly, H2 asserts EA's positive influence on DT; H3 asserts EA's positive influence on BMI; and H4 anticipates that part of EA's effect on BMI is mediated through DT—EA creates the preconditions for digital change, which in turn manifests as new service logics.

DBS operates at the strategic layer. It clarifies where digital will create public value, which platforms deserve investment, and how benefits will be measured and scaled across agencies. In the UAE, DBS is the connective tissue between national visions (e.g., AI Strategy 2031, Smart Government) and ministerial project portfolios. When DBS is strong, DT efforts are concentrated on high-leverage problems, aligned with budgets and talent pathways, and structured to learn iteratively (Hess et al., 2016; Chanias, Myers & Hess, 2019). Thus H5 proposes that DBS positively influences DT; H6 proposes a direct DBS→BMI link (strategy can sponsor innovative business models even before full digital maturity); and H7 proposes mediation through DT—DBS sets strategic intent, DT executes that intent as reconfigured value creation.

Finally, EO determines whether digital change remains incremental or becomes transformational. In entities with strong EO, managers authorize experiments, tolerate intelligent failure, and move quickly from pilots to institutionalized services; staff proactively scan for opportunities to recombine data and processes; and risk is managed rather than avoided (Covin & Slevin, 1991; Lumpkin & Dess, 2001; Kraus et al., 2023). We therefore expect H8: EO positively moderates the DT→BMI relationship, strengthening DT's payoff in terms of business model change. The same digital platforms produce more innovative service models under higher EO because people feel permitted—and obligated—to use them creatively.

Two boundary conditions are worth noting. First, regulatory coherence can accelerate or dampen these effects: when data-sharing statutes, procurement rules, and privacy frameworks are aligned with digital goals, DT and BMI scale faster; when they are fragmented, the best EA and DBS still face friction. Second, environmental dynamism can condition returns: in policy domains with fast-changing citizen needs (e.g., public health, security, urban mobility), the value of DT-enabled BMI is particularly high, consistent with findings on digitalization and agility in dynamic UAE industries (Wang et al., 2025).



Theoretical Contribution

This research makes a clear contribution both to theory and to the UAE public sector context. Theoretically, it extends Dynamic Capabilities Theory (DCT) by showing how Digital Transformation (DT), Enterprise Architecture (EA), Digital Business Strategy (DBS), and Entrepreneurial Orientation (EO) interact as a unified capability system within public institutions. The framework explains that EA provides the structural foundation for coordination, DBS offers strategic direction, and EO brings the mindset needed to turn digital change into Business Model Innovation (BMI). By linking these dimensions, the study bridges a gap between technical and behavioral views of digital transformation and offers a practical model that future research can test empirically. Contextually, this paper grounds DCT in the UAE's governance setting, where centralized vision meets decentralized execution. It highlights how capability development—supported by EA, DBS, and EO—helps public organizations overcome fragmentation, skill gaps, and cultural barriers while turning national strategies like Smart Dubai and AI 2031 into operational reality. This contribution deepens existing knowledge by shifting the discussion from technology adoption to capability building and provides a roadmap for UAE policymakers to design digital initiatives that are both innovative and sustainable.

Conclusion

The UAE combines policy ambition with implementation heterogeneity. Ministries and authorities share national direction but differ in legacy architectures, skills, and culture. EA and DBS capture those differences in structural and strategic readiness; EO captures behavioral readiness. The country's platform-state trajectory—from Smart Dubai's integrated services to national data exchanges and AI programs makes the leverage points of EA and DBS especially salient (Ahmat et al., 2024). At the same time, documented skills and culture gaps—AI upskilling needs, cybersecurity ethics, and uneven digital literacy make EO a realistic and necessary lever to ensure that digital investments translate into redesigned services rather than isolated apps (Santandreu Calonge et al., 2025; Morshed & Khrais, 2025). In short, the model mirrors the UAE's real governance mechanics: central vision, distributed execution, shared platforms, and varying organizational appetites for change.

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