Reimagining Service Systems in the Levant: The Role of Comprehensive Big Data Analytics, Business Analysis, and Artificial Intelligence

Abstract

This article develops a theoretical conceptual framework linking the invention of comprehensive big data analytics (BDA), business analysis (BA), and artificial intelligence (AI) to the configuration of service and service advantage in the Levant region, encompassing Jordan, Lebanon, Syria, and Palestine. Building on the resource-based view (RBV) and service-dominant logic, the paper proposes that AI-augmented analytics and business-analysis practices function as strategic resources and infrastructural layers that reconfigure public and private-sector service ecosystems. The analysis is grounded in regional empirical and case-study evidence from Jordan and Lebanon, illustrating how AI-driven analytics generate service improvement and institutional advantage in practice. The paper contributes a novel conceptual-theoretical model that situates AI-enhanced analytics as governance-relevant capabilities embedded in Levantine service systems, and outlines implications for policy, institutional design, and future research.

Keywords: Artificial intelligence; Big data analytics; Business analysis; Service advantage; Levant region; Resource-based view; Service-dominant logic; AI-driven analytics; Digital transformation

Introduction

The Levant region occupies a distinctive place in contemporary debates on digital transformation, combining structural fragility with growing ambitions for technological modernization (Mohammed & Laib, 2025). Across Jordan, Lebanon, Palestine, and Syria, service systems operate within institutional environments shaped by political uncertainty, uneven infrastructure, external pressures, and rising citizen expectations, rendering the modernization of service delivery both a developmental imperative and a governance priority (Traxler, 2018; Alameddine et al., 2019; Mahayosnand et al., 2021). In this context, services are not merely economic activities but also mechanisms of social

inclusion, public legitimacy, and administrative continuity (Dupuy & Defacqz, 2022; Rosenbloom et al., 2022).

Within this setting, the emergence of comprehensive big data analytics (BDA), business analytics (BA), and artificial intelligence (AI) has begun to reshape the logic by which services are designed, managed, and improved (Al-Sai et al., 2022; Deliu & Olariu, 2024; Ashal & Morshed, 2024; Bteibt, 2026). Comprehensive data analytics refers to the systematic integration of descriptive, predictive, and prescriptive analytics into organizational decision-making processes, whereas business analysis focuses on identifying requirements, process structures, stakeholder needs, and value flows that translate information into actionable decisions (Bizri et al., 2021; Bteibt et al., 2024; Alslaibi et al., 2024). AI extends both domains by enabling advanced pattern recognition, automation, natural language processing, and adaptive decision support, thereby transforming analytics from a retrospective reporting function into a forward-looking, service-shaping capability (Hashem, 2012; Landis, 2012; Alslaibi et al., 2024).

This transformation is particularly significant in the Levant, where service sectors increasingly rely on digital tools to alleviate capacity constraints, enhance service responsiveness, and address institutional gaps (Refaat & Mohanna, 2013; Bizri et al., 2021; Alslaibi et al., 2024). In Jordan, the national AI strategy explicitly links AI adoption to improvements in digital government services, employment, education, health, and public-sector efficiency (Majdalawi et al., 2015; Al-Onizat et al., 2025). In Lebanon, recent policy debates and practitioner discourses position AI and predictive analytics as instruments for rebuilding trust, modernizing governance, and streamlining public services through citizen-centric platforms, digital ID systems, and e-payment infrastructures (Halabi, 2021; Dagher & Nehme, 2021). In Palestine, research on ICT and telecommunications organizations indicates relatively strong readiness for digital transformation; however, expansion remains constrained by political and structural barriers, suggesting that service innovation is possible but unevenly institutionalized (Abu Afifa & Abu-Assab, 2023; Shehada & Burhanuddin, 2025; Naser-Karajah & Awwad, 2026). In Syria, government strategy documents and digital transformation debates similarly frame ICT modernization as a means to improve citizen services, institutional productivity, and long-term administrative reform, even though implementation is limited by data availability, infrastructure deficits, and capacity gaps (Alhaj Saleh & Alyaseen, 2022; Digital Watch Observatory, 2024; Levant24, 2025).

Against this background, the present article develops a theoretical and conceptual argument rather than an experimental or hypothesis-testing study. Its first aim is to explain how AI-augmented analytics and business analysis practices reconfigure service systems in the Levant by embedding intelligence into operational, managerial, and policy-making processes. Its second aim is to advance a conceptual understanding of how these capabilities generate service advantage at multiple levels: at the organizational level

through enhanced efficiency and responsiveness, at the institutional level through improved coordination and accountability, and at the regional level through strengthened digital competitiveness and service innovation capacity.

Literature Review and Theoretical Foundations

Big Data Analytics, AI, and Service Advantage

The contemporary literature on big data analytics (BDA) and artificial intelligence (AI) in services emphasizes that AI-driven analytics generate greater performance gains than analytics implemented without AI, because AI expands both the depth and scope of actionable insights (Bag et al., 2021; Bag et al., 2023). A meta-analysis of the service industry shows that AI-enhanced analytics positively affect operational efficiency, customer satisfaction, and competitive positioning, especially when integrated into organizational learning and decision-making routines (Bag et al., 2023; Sharmin Akter et al., 2025).

From a resource-based view (RBV) perspective, AI-driven analytics and business-analysis capabilities qualify as strategic resources when they are valuable, rare, inimitable, and organizationally embedded (Barney, 1991; Mele & Della Corte, 2013). In the Levant, where public-sector services dominate everyday life, the ability to deploy AI-augmented analytics can constitute a source of institutional advantage, enabling governments to improve responsiveness, transparency, and service quality in crisis-prone environments (Arezki & Senbet, 2020; Alkhaldi et al., 2024; Khosravi et al., 2024; Bornu, 2025).

Service-Dominant Logic and AI-Mediated Services

Service-dominant (S-D) logic reframes competitive advantage as co-created value emerging from service-to-service exchange networks (Vargo & Lusch, 2016). In this view, AI-driven analytics can be conceptualized as service-operating mechanisms that embed intelligence into customer interactions, back-office processes, and ecosystem coordination (Ayala et al., 2025; Zhou, 2025; Bteibt, 2026). AI-powered chatbots, recommendation engines, and prescriptive analytics dashboards function as service systems that generate value by continuously sensing, interpreting, and adapting to user behavior (Wirtz et al., 2021). A business-analytic lens further emphasizes that AI-driven analytics are embedded in enterprise architectures, process workflows, and stakeholder expectations (Gavrilova, 2022). This means that the theoretical contribution of this article lies in integrating RBV, S-D logic, and business-analysis theory to explain how AI-augmented analytics become institutionalized capabilities rather than isolated technologies.

Conceptual Framework

This section develops a novel conceptual framework that explains how the invention of comprehensive data analytics, business analysis, and AI translates into service and service advantage in the Levant region. The framework is composed of four interrelated components: (1) AI-augmented BDA infrastructure, (2) business-analysis embedding, (3) service-system reconfiguration, and (4) institutional and regional advantage, see figure 1.

AI-Augmented Analytics Infrastructure

The framework posits that AI-augmented analytics in the Levant can be structured as a layered architecture (Yassine et al., 2021; Alslaibi et al., 2024; Bteibt, 2026):

- Descriptive analytics, which map historical service patterns (e.g., patient flows, visa applications, transport demand).
- Predictive analytics, which forecast demand peaks, service bottlenecks, or customer churn using statistical and machine-learning models.
- Prescriptive and autonomous analytics, where AI systems propose or execute optimal service configurations (e.g., dynamic pricing, resource allocation, or route optimization).

This architecture is treated as an infrastructural layer that mediates service delivery across multiple organizations and sectors. Theoretically, this aligns with the notion of AI infrastructuring—where AI becomes a taken-for-granted, embedded layer in socio-technical systems (Bowker, 1991; Digital Watch Observatory, 2024).

Business-Analysis Embedding as a Governance Mechanism

The framework further argues that business analysis practices play a pivotal role in mediating the translation of AI-augmented BDA into coherent, actionable strategies that can be implemented across public-sector and service organizations. Business analysis defines and documents processes, stakeholder requirements, and value flow models, thereby ensuring that analytic outputs are not treated as isolated technical artefacts but are systematically aligned with institutional mandates, performance objectives, and service quality standards (Bizri et al., 2021; Alslaibi et al., 2024). In practical terms, this involves specifying how data are collected, transformed, and interpreted; clarifying decision rights and accountability structures; and articulating the expected value propositions for different stakeholder groups.

In the Levant, this governance role of business analysis is particularly salient given high levels of institutional fragmentation, overlapping regulatory frameworks, and frequent capacity constraints. These conditions make it necessary to explicitly map data flows, delineate stakeholder responsibilities, and design risk-mitigation and compliance

mechanisms to accompany the deployment of AI-driven analytics (Bizri et al., 2021; Alslaibi et al., 2024; Di Giulio & Vecchi, 2025). Accordingly, the framework conceptualizes business analysis capability not merely as a technical or procedural function but as a governance and coordination mechanism that embeds AI-driven analytics into institutional routines, policy-making processes, and broader architectures of public accountability.

Service-System Reconfiguration

The framework proposes that the combined use of AI-augmented analytics and BA transforms service systems by moving them away from static and bureaucratic models toward intelligent, context-sensitive ecosystems. This transformation can be understood through three interrelated dimensions. First, the temporal dimension reflects a shift from retrospective reporting toward real-time monitoring and predictive service management enabled by AI-driven BDA and decision-support systems (Akter & Kudapa, 2024). Second, the spatial dimension highlights the integration of BDA across ministries, municipalities, and private-sector actors, creating interconnected, interdependent service networks supported by digital platforms and smart-governance infrastructure (Mencütek, 2018; Das, 2024). Third, the institutional dimension emphasizes the incorporation of analytics into the legal, regulatory, and ethical frameworks that shape data governance and the deployment of AI technologies, reflecting the broader emergence of algorithmic governance in public administration (Tsourapas, 2019; Engin & Treleaven, 2019; Tamimi et al., 2024). Collectively, these dimensions illustrate how AI-augmented BDA and BA contribute to the development of adaptive, data-driven service ecosystems capable of improving responsiveness, coordination, and service quality in complex governance environments (Adewusi et al., 2023)

Institutional and Regional Advantage

The framework concludes that when AI-augmented BDA and BA capabilities are institutionally embedded, they create service advantage at three interconnected levels. At the organizational level, these capabilities enhance efficiency and responsiveness within public agencies. At the institutional level, they strengthen trust in state services and improve the quality of policymaking. At the regional level, they help position the Levant as a knowledge-based, AI-augmented service economy within the broader Middle East (Bizri et al., 2021; Alslaibi et al., 2024). This perspective is consistent with the concept of AI-powered service innovation capability, which conceptualizes service advantage as a multidimensional capability shaped by data-governance maturity, technical AI expertise, and organizational agility (Bowker, 1991; Adaileh & Alshawawreh, 2021; Digital Watch Observatory, 2024; Alhosani & Alhashmi, 2024).

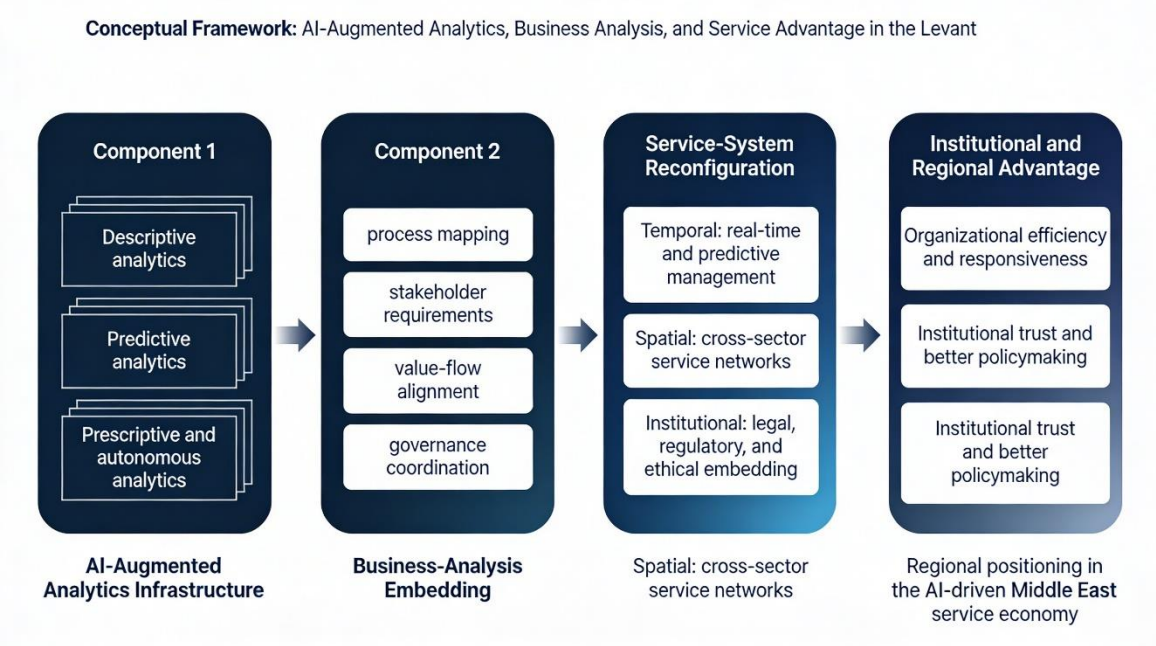

Figure 1: Conceptual Framework of AI-Augmented Analytics, Business Analysis, and Service Advantage in the Levant

Discussion: Levantine Empirical Context and Case-Based Illustrations

Regional Studies and Empirical Grounding

Although this paper is theoretical, it is informed by empirical and case-based evidence from the Levant and the wider Middle East. Existing research shows that governments and organizations across the region are increasingly adopting digital technologies, big data analytics, and artificial intelligence to improve service delivery, decision making, and operational efficiency. In Jordan, studies indicate that emerging technologies, including blockchain and AI-enabled platforms, can enhance information management, service accessibility, and coordination among public institutions (Mathani et al., 2024; Al-Onizat et al., 2025). Practitioner evidence also suggests that the Jordanian government is exploring data analytics and AI to strengthen public-service delivery, digital governance, and data-driven policy development (Alia & Jaradat, 2025; Al-Onizat et al., 2025; Asouli et al., 2026).

Similar trends are evident in wider public administration research. Studies on e-government systems show that digital service platforms and ICT infrastructures are increasingly integrated into public administration in Jordan and other regional economies, although implementation gaps and institutional constraints remain substantial (Abu-Shanab et al., 2010; Abu Rumman & Szilágyi, 2018; Hanandeh et al., 2024). In Lebanon, recent research suggests that data science and AI-driven analytics can support more

evidence-based policymaking, improve service responsiveness, and enhance transparency in governance (Moussawi & Kawass, 2024; Abu Salem & Saade, 2025).

At the regional level, research on digital governance in the Middle East and North Africa indicates that e-government initiatives and digital transformation programs can improve government effectiveness, transparency, and administrative modernization when supported by institutional reform and digital skills development (Dhaoui, 2021; Sahi, 2025; Guergah, 2026). At the same time, these processes are constrained by governance complexity, regulatory fragmentation, and limited administrative resources (Bteddini, 2016).

Taken together, this evidence suggests that the Levant is not merely adopting AI as a technical tool, but is gradually positioning AI-augmented analytics as a core element of service-system redesign. However, the literature also shows that fragmented data infrastructures, uneven institutional capacity, and evolving regulatory frameworks continue to shape the extent to which AI and analytics can produce sustained service advantages in public-sector and service ecosystems.

Case Example: Jordan's Data and AI-Driven Public-Service Transformation

A key Levantine example illustrating the conceptual framework is the Government of Jordan's use of BDA and AI to improve public service delivery (Abu-Shanab et al., 2018; Al-Araj et al., 2022; Mathani et al., 2024; Al-Onizat et al., 2025). The National Software Quality Assurance Centre (NSQAC) uses AI-augmented analytics to quality-assure public service websites and portals, focusing on user experience by mapping and covering all possible user scenarios and interface paths. This application of descriptive and scenario-based analytics improves service accessibility and reduces user frustration, translating directly into a service-quality advantage (National Software Quality Assurance Centre [NSQAC], n.d.; Digital Watch, 2023).

The Securities Depository Center leverages AI-driven BDA to provide investors with timely insights while preserving data security and privacy. From a business analysis perspective, this represents a service design innovation in which analytics are embedded into investor service workflows (Gov AI Summit Jordan, n.d.).

The Amman Chamber of Industry employs big data analytics to accelerate the transition to smart manufacturing, supporting industrial firms in improving efficiency, compliance, and environmental performance (Gov AI Summit Jordan, n.d.).

The Ministry of Labor uses data analytics to understand and manage employment trends, guiding youth toward in-demand occupations (Gov AI Summit Jordan, n.d.; Jordan Times, 2025).

Theoretically, the Jordanian case illustrates how AI-augmented BDA and business analysis can reconfigure public services as intelligent, data-driven systems rather than static, bureaucratic processes (Digital Watch, 2023).

Case Example: Lebanon's Digital Leap and AI-Enhanced Governance

Another key Levantine case is Lebanon's "digital leap" agenda, which seeks to modernize governance and public-service delivery through AI-driven analytics and citizen-centric platforms. The government's AI-driven governance reforms include (Ben Hassen, 2018; El Ammar & Profiroiu, 2020; OECD, 2020; El Hajj et al., 2023; Harb,2026)

- Predictive analytics for service optimization.
- Agentic AI models that automate administrative tasks.
- Data-science-based policy frameworks for public-sector transformation.

Theoretically, Lebanon's approach exemplifies how AI-powered analytics and business-analysis frameworks can be used to reconfigure the state itself as a service-oriented institution.

Conclusion and Future Research Directions

This article has developed a conceptual framework that links comprehensive big data analytics (BDA), business analysis, and artificial intelligence to service development and service advantage in the Levant region. Central to this framework is the argument that AI-augmented BDA should be understood not merely as instruments for operational efficiency, but as infrastructural and governance-related capabilities deeply embedded within the institutional fabric of Levantine service systems. By situating these capabilities within the resource-based view (RBV) and service-dominant (S-D) logic perspectives, the article advances a theoretically grounded account of how AI-driven analytics reconfigure the design, management, and delivery of services across multiple organizational and institutional levels.

Empirical and case-based evidence from Jordan and Lebanon has further illustrated the practical relevance of this framework. These cases demonstrate that AI-driven analytics have the potential to reshape public service ecosystems, strengthen institutional trust and accountability, and contribute to the region's strategic positioning within the broader Middle Eastern AI-driven service economy. At the same time, they underscore the importance of governance structures, business-analysis capabilities, and institutional readiness as enabling conditions for sustained service advantage.

Building on this foundation, several directions for future research merit scholarly attention. First, researchers should examine how AI-augmented BDA affects state-citizen relationships in conflict-prone and post-crisis contexts, where the social legitimacy of data-driven governance is particularly consequential. Second, future studies should investigate the institutional conditions—including regulatory frameworks, organizational culture, and leadership capacities—that enable or constrain the integration of AI-driven analytics into public-sector routines. Third, the conceptual framework advanced here should be operationalized and empirically tested through quantitative and comparative studies across Levantine countries, enabling the identification of context-specific patterns

and cross-national variations. Finally, future research should address the ethical dimensions of AI deployment in public services, particularly regarding data privacy, algorithmic transparency, and equitable access to AI-enhanced services.

Overall, this article suggests that the Levant's future service advantage will increasingly depend on how effectively, equitably, and responsibly AI-augmented BDA and business analysis are integrated into its service ecosystems—not only as technical solutions but also as governance instruments capable of fostering inclusive, adaptive, and resilient public service systems.

Ethical Approval and Consent to Participate:
This study did not involve experiments on humans or animals, and no identifiable personal data were collected; therefore, ethical committee approval and informed consent to participate were not required.

Consent for Publication:
Not applicable. This study does not include any identifiable data, images, or personal information that would require consent for publication.

References

Abu Afifa, A.& Abu-Assab, S. (2023). Big Data in the Telecommunication Sector in Palestine: Challenges and Opportunities. In: Alareeni, B.A.M., Elgedawy, I. (eds) Artificial Intelligence (AI) and Finance. Studies in Systems, Decision and Control, vol 488. Springer, Cham. https://doi.org/10.1007/978-3-031-39158-3_87

Abu Rumman, N., & Szilágyi, R. (2018). Overview of the electronic public services in agriculture in Jordan. *Journal of Agricultural Informatics*. https://doi.org/10.17700/jai.2018.9.2.433

Abu-Shanab, E., Al-Rub, S. A., & Md Nor, K. (2010). Obstacles facing the adoption of e-government services in Jordan. Journal of E-Governance, 33(1), 35-47.https://doi.org/10.3233/GOV-2009-0204

Abu Salem, F. K., & Saade, W. (2025). Towards a Socio-technical and Responsible AI Transformation in Lebanon: Guardrails from Socio-materiality and Trustworthy Machine Learning for Data Deserts.

Adaileh, M. J., & Alshawawreh, A. R. (2021). Measuring digital transformation impact in Jordan: A proposed framework. *Journal of Innovations in Digital Marketing*. https://doi.org/10.51300/jidm-2020-32

Adewusi, B. A., Adekunle, B. I., Mustapha, S. D., & Uzoka, A. C. (2023). Advances in AI-augmented user experience design for personalized public and enterprise digital

services. *International Journal of Advanced Multidisciplinary Research and Studies, 3*(6), 4408–4415. https://doi.org/10.62225/2583049x.2023.3.6.4408

Alameddine, M., Fouad, F. M., Diaconu, K., Jamal, Z., Lough, G., Witter, S., & Ager, A. (2019). Resilience capacities of health systems: Accommodating the needs of Palestinian refugees from Syria. *Social Science & Medicine, 220*, 22–30.https://doi.org/10.1016/j.socscimed.2018.10.018

Al-Araj, R., Haddad, H., Raymond, I., Hasan, E. F., & Nawaiseh, M. Y. (2022). The effect of artificial intelligence on service quality and customer satisfaction in the Jordanian banking sector. *WSEAS Transactions on Business and Economics, 19*, 1886–1897. https://doi.org/10.37394/23207.2022.19.173

Alghamdi, O. A., & Agag, G. (2023). Boosting Innovation Performance through Big Data Analytics Powered by Artificial Intelligence Use: An Empirical Exploration of the Role of Strategic Agility and Market Turbulence. *Sustainability*, *15*(19), 14296. https://doi.org/10.3390/su151914296

Alhosani, K. & Alhashmi, S.M. (2024). Opportunities, challenges, and benefits of AI innovation in government services: a review. *Discover Artificial Intelligence* 4, 18 (2024). https://doi.org/10.1007/s44163-024-00111-w

Alia, M. A., & Jaradat, Y. (2025, September). The Foundations and Infrastructure Required for Digital Transformation in the Jordanian Public Sector. In *2025 10th International Conference on Computer Science and Engineering (UBMK)* (pp. 1432-1437). IEEE. **DOI:** 10.1109/UBMK67458.2025.11206918

Alkhaldi, M., Asi, Y., AlBada, M., & Mansour, W. (2024). Rethinking and advancing the movement of resistance, activism, and advocacy in health in four central arenas of the Middle East Region. *World Medical & Health Policy*. https://doi.org/10.1002/wmh3.633.

Al-Sai, Z. A., Husin, M. H., Syed-Mohamad, S. M., Abdin, R. M. S., Damer, N., Abualigah, L., & Gandomi, A. H. (2022). Explore Big Data Analytics Applications and Opportunities: A Review. *Big Data and Cognitive Computing*, *6*(4), 157. https://doi.org/10.3390/bdcc6040157

Alslaibi, N., Qawasmeh, R., Samara, H., & Abualrob, R. (2025). Key drivers of bank financial performance: Insights from the Arab Levant region. *Banks and Bank Systems*. https://doi.org/10.21511/bbs.20(2).2025.12.

Al-Onizat, H., Alarabiat, A., Mahmoud, R., Aloglah, A., AlZoubi, W., Alawamleh, H., & Al-Shorman, H. (2025). Digital Public Services for Refugees: An Evaluation of

Blockchain Applications in Jordan. *Journal of Information Systems Engineering and Management*. https://doi.org/10.52783/jisem.v10i18s.2926.

Akter, M., & Kudapa, S. P. (2024). A comparative analysis of artificial intelligence-integrated bi dashboards for real-time decision support in operations. *International Journal of Scientific Interdisciplinary Research*, *5*(2), 158-191.https://doi.org/10.63125/47jjv310

Arezki, R., & Senbet, L. (2020). Transforming Finance in the Middle East and North Africa. , 1–34. https://doi.org/10.1596/1813-9450-9301.

Ashal, N., & Morshed, A. (2024). Balancing data-driven insights and human judgment in supply chain management: The role of business intelligence, big data analytics, and artificial intelligence. *Journal of Infrastructure, Policy and Development*. https://doi.org/10.24294/jipd.v8i6.3941.

Asouli, S., Ghunemat, H. A. Q., Al-Nawasreh, F., Alqudah, M., Hussein, A. J., Amer, I. M. F. B., ... & Alblewi, F. H. S. (2026). Impact of digital transformation on the direct management of Jordan's public utilities. *Perinatal Journal*, *34*(1), 944–955. https://doi.org/10.57239/prn.26.03410097

Ayala, N., Da Silva, J., Tinoco, M., Saccani, N., & Frank, A. (2025). Artificial Intelligence Capabilities in Digital Servitization: Identifying Digital Opportunities for Different Service Types. *International Journal of Production Economics*. https://doi.org/10.1016/j.ijpe.2025.109604.

Bag, S., Dubey, R., Gupta, S., & Griffin, J. J. (2023). Big data analytics and the use of artificial intelligence in the services industry: A meta-analysis. *Service Industries Journal, 44*(1–2), 1–25. https://doi.org/10.1080/02642069.2024.2374990

Bag, S., Gupta, S., & Dubey, R. (2021). AI-driven business analytics for competitive advantage in service-oriented enterprises: A review and integrative framework. *International Journal of Business and Emerging Markets, 13*(3), 312–335.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120.

Bizri, N., Alam, W., Mobayed, T., Tamim, H., Makki, M., & Mushrrafieh, U. (2021). COVID-19 in conflict region: the Arab Levant response. *BMC Public Health, 21*, Article 11580.doi:10.21511/bbs.20(2).2025.12

Bornu, T. (2025). THE CHALLENGE OF ARTIFICIAL INTELLIGENCE IN THE MIDDLE EAST CONFLICTS. *The American Journal of Political Science Law and Criminology*. https://doi.org/10.37547/tajpslc/volume07issue05-14.

Bowker, G. C., & Star, S. L. (1999). *Sorting things out: Classification and its consequences*. MIT Press.

Bteddini, L. (2016). Middle East and North Africa: Public employment and governance in MENA. *Report ACS18501, World Bank, Washington, DC*.

Bteibt, M. Y. (2026). Turning data into value: A conceptual model of BDAC across operations, marketing, and finance. *Journal of Global Economics, Management and Business Research, 18*(1), 346–360. https://doi.org/10.56557/jgembr/2026/v18i110282

Bteibt, M., Al-Malawani, L., & Al-Douraki, A. (2024). Big data and servitization platformapproach. In Actas del VII Congreso Iberoamericano de Jóvenes Investigadores en Ciencias Económicas y Dirección de Empresas (AJICEDE) (pp. 540–549). Universitat Jaume I. https://www.researchgate.net/publication/392759873_BIG_DATA_AND_SERVITIZATION_PLATFORM_APPROACH

Bteibt, M. Y. (2026). From Data to Strategy: How Big Data Analytics Shapes Marketing Plan Development in Digital Marketing Companies. Journal of Economics and Trade, 11(1), 242–252. https://doi.org/10.56557/jet/2026/v11i110333

Dagher, L., & Nehme, R. (2021). Can Lebanon's economy be saved? A plan for revival. *Middle East Policy*, *28*(1), 123-134. **https://doi.org/10.1111/mepo.12538**

Das, D. K. (2024). Exploring the Symbiotic Relationship between Digital Transformation, Infrastructure, Service Delivery, and Governance for Smart Sustainable Cities. *Smart Cities*, *7*(2), 806-835. **https://doi.org/10.3390/smartcities7020034**

Dhaoui, I. E-Government for Sustainable Development: Evidence from MENA Countries. *J Knowl Econ* 13, 2070–2099 (2022). **https://doi.org/10.1007/s13132-021-00791-0**

Digital Watch Observatory. (2024). Syria's digital policy and ICT environment. https://wp.dig.watch/countries/syria

Digital Watch. (2023). *Jordanian artificial intelligence strategy and implementation plan 2023–2027*. **Jordanian Artificial Intelligence Strategy and Implementation Plan (2023–2027) | Digital Watch Observatory**

Di Giulio, M., & Vecchi, G. (2025). Policy making and the digitalization of the public sector: Actors and strategies in Italy. *Policy Making and the Digitalization of the Public Sector*. https://doi.org/10.1007/978-3-031-83955-9

Dupuy, C., & Defacqz, S. (2022). Citizens and the legitimacy outcomes of collaborative governance: An administrative burden perspective**.** *Public Management Review, 24*(5), 752–772. https://doi.org/10.1080/14719037.2021.2000254

Deliu, D., & Olariu, A. (2024). The Role of Artificial Intelligence and Big Data Analytics in Shaping the Future of Professions in Industry 6.0: Perspectives from an Emerging Market. *Electronics*, *13*(24), 4983. https://doi.org/10.3390/electronics13244983

El Ammar, C., & Profiroiu, C. M. (2020). Innovation in public administration reform: a strategic reform through NPM, ICT, and e-governance. A comparative analysis between Lebanon and Romania. *Administratie si Management Public*, *35*, 75-89.

Engin, Z., & Treleaven, P. (2019). Algorithmic government: Automating public services and supporting civil servants in using data science technologies. *The Computer Journal, 62*(3), 448–460. https://doi.org/10.1093/comjnl/bxy082

Gavrilova, E. (2022). Business analytics approach to artificial intelligence. *SN Computer Science, 3*(5), 375. https://doi.org/10.1007/s42979-022-01304-2

Gov AI Summit Jordan. (n.d.). *Participating institutions: National Software Quality Assurance Centre, Securities Depository Center, Amman Chamber of Industry, Ministry of Labor*. GOV AI & DATA SUMMIT JORDAN – GOV AI & DATA SUMMIT JORDAN

Guergah, I. (2026). Digital Transformation and Its Impact on Public Policy-Making in Arab States. *Arabic Journal for Translation Studies*, *5*(14), 259-275.

Halabi, M. (2021). The legal and regulatory challenges of making e-transactions a defining part of the Lebanese economy. (c2021). . https://doi.org/10.26756/th.2022.180.

Hanandeh, A., Al Qudah, M., Mansour, A., Al-Qudah, S., Abualfalayeh, G., Kilani, Q., & Khasawneh, M. (2024). The achievement of digital leadership sustainability and business performance through the implementation of business intelligence and artificial intelligence. *Uncertain Supply Chain Management*. https://doi.org/10.5267/j.uscm.2024.5.012

Harb, B. (2026). Navigating multiple crises: An analysis of digital transformation in Lebanese public administration. *Administrative Sciences, 16*(2), 69. https://doi.org/10.3390/admsci16020069

Hashem, M. (2012). The Levant Reconciling a Century of Contradictions. *American Journal of Islam and Society*, *29*(2), 129–161. https://doi.org/10.35632/ajis.v29i2.1210

Jordan Times. (2025). *Government digitised 80% of services in 2025: Report*. Gov't digitised 80% of services in 2025 — report | Jordan Times

Khosravi, M., Mojtabaeian, S., Demiray, E., & Sayar, B. (2024). A Systematic Review of the Outcomes of Utilization of Artificial Intelligence Within the Healthcare Systems of the Middle East: A Thematic Analysis of Findings. *Health Science Reports*, 7. https://doi.org/10.1002/hsr2.70300.

Landis, J. (2012). The Syrian Uprising of 2011: Why the Asad Regime Is Likely to Survive to 2013. *Middle East Policy*, 19, 72-84. https://doi.org/10.1111/j.1475-4967.2012.00524.x.

Levant24. (2025). Syria's digital transformation initiatives and challenges. https://levant24.com/news/2025/06/syrias-digital-transformation/

Mahayosnand, P. P., Sabra, Z. M., & Sabra, D. M. (2021). COVID-19 and Gaza: The ideal time to establish a medical reserve corps of public health preventive medicine specialists. *Health Security, 19*(2), 235–239.https://doi.org/10.1089/hs.2020.0192

Majdalawi, Y., Almarabeh, T., Mohammad, H., & Quteshate, W. (2015). E-Government Strategy and Plans in Jordan. *Journal of Software Engineering and Applications*, 08, 211-223. https://doi.org/10.4236/jsea.2015.84022.

Mathani, B., Ajrash, H. S., Dalaeen, A. B. D., Alshboul, K., Almahameed, H., Alibraheem, M., Alzoubi, M., & Khalifeh, A. (2024). Identifying variables influencing the adoption of artificial intelligence big data analytics among SMEs in Jordan. *International Journal of Data and Network Science*. https://doi.org/10.5267/j.ijdns.2024.4.016

Mele, C., & Della Corte, V. (2013). Resource-based view and service-dominant logic: Similarities, differences, and further research. *International Journal of Service Science, Management, Engineering and Technology, 4*(3), 1–19.

Mencütek, Z.Ş. (2018). Refugee Governance, State and Politics in the Middle East (1st ed.). Routledge. https://doi.org/10.4324/9781351170369

Mohammed, T., & Laib, Y. (2025). Digitalization and economic growth in the MENA region: Evidence from panel data analysis. *Telecommunications Policy, 49*(7), 102992. https://doi.org/10.1016/j.telpol.2025.102992

Moussawi, L., & Kawass, R. (2024). How data science can transform Lebanon's public sector. *Research Features*. https://researchfeatures.com/data-science-transform-lebanon-public-sector/

Naser-Karajah, E.& Awwad, L.S. (2026). The Quality of Digital Services in Palestine in the Context of Governmental Digital Transformation: Literature Review and Exploration of Challenges and Solutions. In: Awwad, B., Awwad, R.A. (eds) Technology and Innovation Towards a Future of Business Sustainability. Contributions to Environmental Sciences & Innovative Business Technology. Springer, Singapore. https://doi.org/10.1007/978-981-95-6469-9_16

National Software Quality Assurance Centre (NSQAC). (n.d.). *Home*.National Software Quality Assurance Centre (NSQAC) - الجمعية العلمية الملكية

OECD. (2020). *Digital government in Lebanon: Governance for coherent and sustainable policy implementation.* OECD Publishing. https://doi.org/10.1787/a711b0c1-en

Refaat, M., & Mohanna, K. (2013). Syrian refugees in Lebanon: facts and solutions. *The Lancet*, 382, 763–764. https://doi.org/10.1016/s0140-6736(13)61461-0.

Rosenbloom, D. H., Kravchuk, R. S., & Clerkin, R. M. (2022). Public administration: Understanding management, politics, and law in the public sector (9th ed.). McGraw-Hill.

Sahi, A. (2025). E-GOVERNANCE AND GOVERNMENT COMMUNICATION IN THE ARAB WORLD: A COMPARATIVE STUDY OF THE ALGERIAN AND SAUDI

EXPERIENCES WITHIN THE CONTEXT OF DIGITAL TRANSFORMATION. *Lex Localis*, *23*(10), 1-34.

Saleh, A. A., & Alyaseen, I. F. T. (2022). E-governance system key successful implementation factors. *International Journal on Perceptive and Cognitive Computing*, *8*(1), 40-46.

Shehada, M., & Burhanuddin, B. (2025). Digital Transformation in Education: Policy Implementation and its Challenges in Palestine. *International Research-Based Education Journal*, *7*(2), 186-196.**DOI:** https://doi.org/10.17977/10.17977/um043v7i22025p186-196

Sharmin Akter, S M Rukaya Akhter, Mohsina Binte Rahman, & Prashanta Naidu. (2025). AI-DRIVEN BUSINESS ANALYTICS FOR COMPETITIVE ADVANTAGE IN SERVICE-ORIENTED ENTERPRISES: CUSTOMER EXPERIENCE AND EFFICIENCY. *International Journal of Business and Economics Insights*, *5*(3), 389–423. **https://doi.org/10.63125/mx0k6019**

Tamimi, A., Al-Abbadi, M., Tamimi, I. *et al.* The transformation of Jordan's healthcare system in an area of conflict. *BMC Health Serv Res* **24**, 1033 (2024). https://doi.org/10.1186/s12913-024-11467-1

Traxler, J. (2018). Digital literacy: A Palestinian refugee perspective**.** *Research in Learning Technology, 26.***DOI:** https://doi.org/10.25304/rlt.v26.1983

Tsourapas, G. (2019). The Syrian refugee crisis and foreign policy decision-making in Jordan, Lebanon, and Turkey. *Journal of Global Security Studies, 4*(4), 464–481. https://doi.org/10.1093/jogss/ogz016

Vargo, S. L., & Lusch, R. F. (2008). Service-dominant logic: Continuing the evolution. *Journal of the Academy of Marketing Science, 36*(1), 1–10.

Wirtz, J., Patterson, P. G., Kunz, W. H., Gruber, T., Lu, V. N., Paluch, S., & Martins, A. (2021). Brave new world: Service robotics, AI, and technology. *Journal of Service Management, 32*(1), 96–131.

Yassine, M., Diab, M., & Hadad, S. (2021). The impact of digital transformation on innovation and performance in companies—Nestlé Lebanon case study. *Research in Economics and Management*, 6(1), 112.https://doi.org/10.22158/rem.v6n1p112.

Zhou, S. (2025). AI Empowerment and Measurement: Reconstructing the Enterprise Digital Maturity Model and Its Implications for Service Ecosystem. *Frontiers in Sustainable Development*, *5*(9), 173–180. https://doi.org/10.54691/tt5b9s51.