

Article

How Do Digital Capabilities Affect Organizational Performance in the Public Sector? The Mediating Role of the Organizational Agility

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Abstract: As public sector agencies face rising imperatives to digitally transform citizen services, data systems, and internal operations, questions persist as to whether investments in big data analytics and automation capabilities, evidenced to drive organizational performance in private industry, translate to bureaucratic government contexts. This research quantitatively investigates the link between digital capabilities and organizational performance in the Jordanian ministry of Justice. Survey data collected from 292 public officials assessed capabilities in data-driven decision making, flexible automation, and interactive constituent communications alongside organizational agility and performance indexes spanning efficiency, quality, and satisfaction metrics. Structural equation modeling analysis reveals that digital capabilities relate significantly to heightened agility and all targeted performance areas. Improved agility mediates over half the performance impact attributable to upgraded technical systems, highlighting the vital role of evolving digitally enabled flexibility in realizing returns on analytics and process modernization initiatives. Findings validate the applicability of conclusions on digitization returns formed in corporate environments to public sector contexts, contingent on bundled change management programming enabling both technical and adaptive capacity building across the workforce. As global regions expand e-governance programs premised on harnessing emerging technologies to enhance civic institutions, this research offers generalizable models guiding multifaceted preparations to amplify impact.

Keywords: digital capabilities; digitization; dynamic capabilities; organizational agility; public sector performance; structural equation modeling



Citation: Atobishi, Thabit, Sahar Moh'd Abu Bakir, and Saeed Nosratabadi. 2024. How Do Digital Capabilities Affect Organizational Performance in the Public Sector? The Mediating Role of the Organizational Agility. *Administrative Sciences* 14: 37. <https://doi.org/10.3390/admsci14020037>

Received: 13 December 2023

Revised: 7 February 2024

Accepted: 7 February 2024

Published: 19 February 2024



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1. Introduction

Achieving strong organizational performance remains imperative across public sector agencies in order to effectively meet citizen needs and expectations, deliver on policy agendas, and ensure responsible use of taxpayer funds towards civic services and functions (Stiel 2023). However, many government entities continue to underperform on quality and efficiency mandates in the view of critics (Berman and Hijal-Moghrabi 2022). Advancements in technologies related to automation, data analytics, cloud computing, and artificial intelligence have transformed operations and decision-making across private sector firms (Otia and Bracci 2022). Public agencies face growing pressures to digitize internal processes and leverage sophisticated analytics tools to achieve comparable responsiveness, provide information-rich services, and aid data-driven planning (Yukhno 2022). Public sector agencies face rising imperatives to digitally transform citizen services, data systems, and internal operations. Research continues to evolve regarding the effectiveness of emerging technologies for enhancing performance. Statovci (2021) demonstrated a significant impact

of digitalization on reducing costs and time in Kosovo's public administration through regression analysis of survey responses (Statovci 2021). Moreover, Almuqrin et al.'s (2023) study on Saudi ministries found perceived sustainability success had slight associations with positive dimensions of information systems like user satisfaction (Almuqrin et al. 2023). There are lingering doubts about whether the efficiency gains seen in private industry through investments in data-driven decision platforms and automation solutions can be replicated in government entities burdened by bureaucracy (Kaššaj and Peráček 2024). Some scholarship debates digital capabilities' strategic potential within civic institutions given constraints around inadequate infrastructure, human capital deficits, and ingrained structural inertia (Suryanto et al. 2023). Nevertheless, a growing body of empirical evidence supports the notion of digitally enabled operational enhancements throughout the public sector. This validates conclusions drawn from corporate settings, provided there is an adaptation of both tools and managerial strategies (Skora et al. 2022).

As regimes like Jordan expand e-governance spending, they expect technology absorption to enhance civil services and furnish generalizable guidance on strategic change management pivotal to amplifying impact (Tache and Săraru 2023). This imperative motivates the current research, which quantitatively investigates the connections between upgraded technological capacities and multi-dimensional performance indexes across agencies of Jordan's Ministry of Justice. The analysis intends to model dynamics that transmit optimization benefits, accounting for requisite evolution in workforce adaptability and data-to-decisions processes bridging digital solutions and realized returns.

While studies have linked digital capabilities with performance gains across private companies in areas such as improved efficiency, customer satisfaction, and profitability (Benitez et al. 2022; Heredia et al. 2022), public administration scholarship lacks clear understanding of how such capabilities shape outcomes specifically within governmental contexts (de Magalhães Santos 2023). Debates persist on whether findings from corporate contexts transfer given divergent environmental pressures and the structural barriers facing public managers (Lindquist 2022). Critics highlight how bureaucracies, outdated legacy systems, risk aversion, and under-investment in human capital tend to dampen the strategic potential for advanced technologies across civic agencies (Suryanto et al. 2023). However, empirical insight remains limited. This signifies an important knowledge gap around if and how investing in sophisticated analytics tools and modernized IT architecture influences organizational abilities and performance for public sector institutions relative to private firms (Wilson and Mergel 2022). Therefore, a guiding research question emerges:

RQ1: how do digital capabilities influence organizational performance in the public sector?

Heightened IT capability levels empower greater organizational agility through dynamic knowledge management and collaborative structures (Lu and Ramamurthy 2011). Advanced analytical systems enable public agencies to more rapidly adapt programming based on external shifts (Mergel et al. 2019). Real-time data processing into actionable insights fosters more flexible and responsive organizational forms across the public sector (Houghton et al. 2008). By processing real-time data into actionable insights, alongside providing common technology platforms for seamless information sharing, sophisticated analytical systems inherently foster more adaptable and leaner structures. These studies highlight how sophisticated digital capabilities can bring organizational agility to the public sector and facilitate capacities to nimbly recalibrate policies and service delivery based on changing constituent expectations and community feedback. Such agility holds intrinsic importance for public agencies needing to recalibrate policies, resource planning, and service programming based on community feedback and evolving constituent expectations (Holford 2020).

Public organizations with higher agility levels exhibited superior citizen satisfaction ratings, policy impact metrics, and internal efficiency benchmarks compared to less adaptive agency counterparts (Holford 2020). Lee et al. (2015) surveyed over 100 local government entities, revealing that the capacity to swiftly reconfigure resources in response

to external shifts predicted improved achievement across a range of vital performance targets (Lee et al. 2015). Similarly, Park et al. (2017) analyzed panel data from school districts over a 5-year period, showing districts that more rapidly realigned educational programming based on parental input demonstrated higher test scores and graduation rates compared to districts lacking responsive agility (Park et al. 2017). These empirical works have confirmed the mediated pathway from advanced capabilities enabling greater agility, which then manifests in positive performance outcomes across governmental entities (Lu and Ramamurthy 2011). This further strengthens the case for transformative IT investments in the public sector. Thus, the second research question raised is:

RQ2: What role does organizational agility play in translating investments in digital capabilities to performance improvements among public agencies?

Accordingly, the overarching objective guiding this research aims to address the two research questions by empirically examining linkages between digital capabilities, organizational agility, and multiple facets of performance in agencies of Jordan's Ministry of Justice. Data and analysis will focus specifically on elucidating the intermediary role of agility transmitting effects of advanced technological capacities onto operational and strategic outcomes observed across the public organizations studied. While the influence of advanced analytics, automation, and artificial intelligence on innovation and responsiveness has achieved extensive study in Western contexts, far less scholarship examines digitally enabled performance linkages within developing country public institutions undertaking e-governance initiatives (Haug et al. 2023; Pittaway and Montazemi 2020). This gap proves highly consequential given many emerging economies now actively fund sophisticated data solutions with aspirations of replicating private sector optimization. However, bureaucratic and infrastructural barriers endemic to developing nations may alter returns (Pittaway and Montazemi 2020). Quantitatively modeling impacts of large-scale technology implementations launched through Jordan's specialized Digital Government Directorate allows the calibration of systemic complements across human capital, data accessibility, and leadership support to enhance outcome achievement (Basu 2004). As global development agencies sponsor next-generation platforms across regions, hoping to spur innovation in civic entities, developing generalizable guidance on navigating nuanced governmental terrains amidst disruption remains vital.

This study aims to advance scholarly understanding of dynamic capabilities while informing technology management practices within Jordanian public sector contexts. The research intends to provide empirical confirmation and quantification of the mediated mechanism by which advanced digital capabilities strengthen organizational agility and performance. Study findings can guide strategic planning and change management approaches for government executives pursuing digitally enabled enhancements to foster innovation. Quantifying how agility amplifies the impact of technological innovations offers public officials expanded practical tools while making theoretical contributions by extending information systems scholarship to understudied civic institutional domains.

Having established the research foundations, the second section details the theoretical framework guiding the inquiry by reviewing literature on the core constructs of digital capabilities, organizational agility, and public sector performance. The third section then outlines the methodological approach and procedures for quantitative analysis of data collected from agencies of Jordan's Ministry of Justice. Presentation of empirical results and discussion of findings in relation to hypothesized linkages and previous scholarship occurs in the fourth and fifth sections. Finally, the sixth section consolidates key takeaways regarding the impact of technological capacities on civic institutional outcomes and agility, acknowledges limitations of the lens applied, and highlights future research opportunities as informed by study insights on navigating complex governmental contexts amidst digital transformation.

2. Theoretical Framework

2.1. Organizational Performance in the Public Service Context

Organizational performance reflects how well public agencies accomplish their goals and fulfill their mission to serve citizens and the public interest (Khaltar and Moon 2020). Key elements that constitute strong performance include the achievement of mandated objectives, creation of public value, and constituent satisfaction with services (Rodrigues and Pinho 2010; Zeffane and Melhem 2017). However, sustaining high performance in the public sector faces several key challenges.

First, funding constraints imposed by limited budgets and public sector austerity measures often restrict the resources available to public agencies (Pollitt and Bouckaert 2017). With limited funding, many government entities struggle to attract and retain high quality talent or invest in the advanced technologies and infrastructure needed to enhance service delivery. This tends to dampen performance over time if agencies cannot access sufficient funding to operate effectively. Second, public agencies frequently face extensive regulations and bureaucratic policies that curb their flexibility to adapt operations (Lipsky 2010). Relative to private sector firms, government organizations tend to have less autonomy and decision authority due to centralized oversight mechanisms or legislative mandates. Such regulatory burdens can slow organizational processes and inhibit innovation. Finally, government agencies endure significant public scrutiny given their reliance on taxpayer funds and civic responsibilities (Kettl 2015). Pressure from elected officials, non-profit watchdog groups, and constituents themselves motivate a risk-averse culture that avoids failures. However, this can deter public sector agencies from pioneering programs or interventions with some uncertainty despite potential public value.

Appropriately evaluating organizational performance in public agencies requires multi-dimensional measures aligned to their complex goals related to public value creation, service quality, operational efficiency, and constituent perceptions (Rowley 1998). Whereas private companies can rely heavily on financial performance metrics, assessing government entity results depends on combining objective indicators around outputs and outcomes with subjective data on citizen satisfaction and employee engagement. For instance, at the organizational level, customer service surveys, community partnership growth, and public reputation metrics provide the means to gauge performance (Yang and Holzer 2006). Departmentally, strategy goal completion rates and internal process quality benchmarks deliver insights. Individual employee absenteeism, retention levels, and competency development offer personnel-focused performance indicators. Layering these subjective and objective factors across organizational tiers furnishes a holistic perspective on public sector performance essential to address multifaceted public mandates.

2.2. Digital Capabilities

Digital capabilities enable organizations to harness technologies towards improved operations, decision-making, service delivery, and strategic objectives (Vial 2021). However, in public sector contexts, some debate exists as to whether digital capabilities confer the same performance benefits as in private firms (Arkhipova and Bozzoli 2018). This section defines digital capabilities and dimensions specifically relevant across government agencies. Links connecting enhanced technological capacities to the core components of organizational agility, including dynamic sensing and responding to environmental changes, are discussed (Lu and Ramamurthy 2011). Insights from recent public sector digital transformation scholarships are integrated along with an example demonstrating responsive agility.

Digital capabilities span capacities in data-driven decision analytics, automation, customer interface modernization, and workforce enablement (Haffke et al. 2017). Data analytics capabilities fuel evidence-based planning and performance tracking using decision support systems, predictive modeling, and real-time dashboard visualizations (Awan et al. 2021). Automation and AI optimize workflows, surface insights, and personalized interactions leveraging process integration, machine learning algorithms, and

natural language programming (Ghosh et al. 2022). Additionally, cloud platforms provide flexible, scalable computing infrastructure, enabling secure information sharing and rapid provisioning of digital solutions for improved public sector agility (Sallehudin et al. 2016). With respect to customer interface capabilities, these encompass the use of social media tools fostering civic participation, engagement, and feedback (Mossberger et al. 2013), as well as mobile accessibility to simplify transactions, queries, and self-service (Panayiotou and Stavrou 2021). Public agencies can also streamline diverse public services into seamless user experiences through digital delivery channels (Lindgren and Jansson 2013). Finally, workforce enablement aspects entail reskilling programs, digital collaboration tools, and broad technology change management to unlock the potential of advanced capabilities.

Multiple empirical studies have shown that public agencies investing in and cultivating advanced digital capacities exhibit better performance across vital metrics compared to their less digitally enabled peer agencies. Specifically, research by Awan et al. (2021) analyzed data from local government entities and found that those with higher analytics usage and more extensive data systems demonstrated improved efficiency in operations and service delivery workflows along with enhanced quality of strategic planning and resource allocation protocols. The findings quantify a definitive impact of mature analytics capabilities on realizing process optimization and planning improvements within public sector contexts. Similarly, Karaboga et al. surveyed public transportation agencies, with results showing organizations that had successfully digitized customer-facing channels, integrated predictive data tools, and reskilled workforces for technological readiness scored markedly higher constituent satisfaction marks in third-party assessments of service quality and responsiveness (Karaboga et al. 2023). Across these investigations spanning interfaces, planning, and service delivery facets, developing advanced digital capabilities associates with measurable benefits around managing resources amid constraints, delighting citizens through technology-enabled channels, and sharpening data-informed governance compared to agencies lacking equivalent technical capacities and competencies.

Specifically, critics argue that governmental entities face more barriers to technology adoption and digitization due to bureaucratic hurdles, underdeveloped human capital, and resource constraints relative to their private sector counterparts. However, a growing body of empirical research counters this view, finding that public agencies investing more aggressively in digital modernization and cultivating sophisticated technical capabilities directly strengthen internal processes and decision quality to positively impact public sector performance outcomes (Mergel et al. 2019). Capabilities in data-driven decision analytics enhanced cost savings and service quality by enabling more precision in resource allocation (Awan et al. 2021). Other research highlights how digital communications channels, such as agency social media profiles and mobile apps, significantly increase civic engagement and constituent satisfaction (Mossberger et al. 2013). Collectively, these studies document a definitive impact of digital capabilities on public sector results, substantially equivalent to returns in the private sector per dollar of technology investment. Therefore, the first hypothesis of this study is formulated as follows:

H1: *Digital capabilities positively affect organizational performance within public sector agencies.*

2.3. Organizational Agility

Organizational agility reflects the adaptability of an enterprise to handle highly dynamic environments (Tallon and Pinsonneault 2011). Key elements enabling agility include the capacity to enact rapid strategic and operational adjustments paired with the flexibility to reconfigure internal workflows, processes, and resource allocation protocols to capitalize on emerging opportunities (Vial 2021). The concept of organizational agility, defined as the ability to rapidly adapt operations, processes, and strategy in response to changing circumstances, has garnered increasing attention in public administration scholarship (Stiel 2023). Specifically, digital era governance now compels public sector agencies to exhibit greater nimbleness in recalibrating resource allocations, service delivery modes, and policies based

on shifts in external environments and constituent expectations (Mergel et al. 2019). However, critics have questioned whether intrinsic features of governmental bureaucracies restrict agility compared to more flexible private sector firms (Hinings et al. 2018). The hierarchical authority structures and risk-averse cultures adherence to formal rules and procedures in civic institutions are postulated to limit improvisational responses relative to autonomous private companies (Hinings et al. 2018). Empirically testing this proposition has yielded mixed results on whether public agencies suffer any systematic agility gap (Davis et al. 2009).

Advanced digital capabilities can directly strengthen public sector agility. Integrating real-time citizen feedback inputs via online channels coupled with analytics dashboards enables recognition of changing community priorities and needs. This allows requisite recalibration of programs, resourcing, or policies accordingly (Park et al. 2017). As one example, many agencies rapidly shifted manual processes onto digital platforms when in-person services were disrupted during the pandemic, exemplifying agile adaptation capacities (Sullivan et al. 2021).

While bureaucratic inertia can hamper agility, public sector scholarship and recent crisis response experiences demonstrate that governmental entities can cultivate substantial capacity for flexible operations and strategic adjustments akin to private firms. Further research is warranted on interventions such as digital upskilling, cross-agency collaboration, and experimental iteration during technology implementation to unlock greater adaptivity and innovation amidst crisis response scenarios across civic institutions.

Parallel debates persist on whether organizational agility constitutes an innate enterprise trait dependent on existing structures and culture versus a dynamic capability inviting development and cultivation (Teece et al. 2016). Hybrid perspectives propose targeted initiatives to strengthen managerial and operational agility as a means to overcome barriers imposed by ingrained stability-focused systems (Polater 2021). For instance, both leadership training to promote flexibility and cross-agency collaboration to enable knowledge sharing have the potential to bolster organizational agility levels over time, counteracting inherent inertia. Enhanced digital capabilities directly enable organizational agility by providing data-driven insights for decision making combined with integrated platforms allowing seamless responses (Houghton et al. 2008). Thus, we posit:

H2: *Digital capabilities positively affect organizational agility.*

Researchers have identified several key strategies that public sector agencies can adopt to cultivate greater organizational agility. First, senior leadership commitment to nurturing adaptability and change-readiness is essential (Mergel et al. 2019). When agency heads and directors actively sponsor flexibility initiatives, allocate resources to digital upskilling, and role model more iterative approaches, it permeates an agile culture throughout the ranks. Second, cross-agency collaboration has the potential to strengthen agility by enabling knowledge sharing about innovative processes or technologies (Weerakkody et al. 2009). Structural networks and communities of practice that cut across governmental siloes can expose civil servants to more adaptive techniques piloted in other departments. Finally, taking an iterative approach to digitization itself through controlled pilots and experimental partnerships allows features of organizational agility to emerge (Hinings et al. 2018). Rather than monolithic technology implementations, incremental delivery fosters opportunities to continuously reassess and recalibrate based on user feedback.

Over time, these complementary strategies cultivate an organizational posture with superior readiness to handle disruptions and environmental flux. Such agility subsequently enables higher functioning public agencies to take advantage of strategic opportunities for value creation. Researchers have directly linked improved organizational agility to beneficial performance outcomes such as enhanced operational efficiency, budget savings, and constituent approval of governmental bodies at local, state, and federal levels (Wamba 2022). That is why the third hypothesis of this study is designed as follows:

H3: *Organizational agility positively affects organizational performance.*

Past research indicates that advanced digital capabilities directly enhance operational and strategic performance in public agencies through optimized decision-making and resource efficiency (Awan et al. 2021). However, the accelerating pace of sociotechnical change implies that technical tools alone may prove insufficient to drive performance without complementary evolution in adaptiveness and innovation capacities (Hinings et al. 2018). Conceptualizing improved organizational agility as an intermediary competence unlocked by sophisticated data analytics and flexible infrastructure underscores the interconnected nature of technical and social dimensions of digital transformation (Lu and Ramamurthy 2011). Quantitatively modeling agility as a mediator transmitting impacts of advanced systems onto realized gains will provide greater explanatory depth regarding requisite complementary capability development bridging IT modernization and public sector advancement. Therefore, the fourth hypothesis of this study is considered as follows:

H4: *The positive relationship between digital capabilities and organizational performance is mediated by organizational agility.*

2.4. Linking Constructs

Synthesizing dynamic capabilities theory (Teece et al. 1997) with contemporary digital transformation perspectives (Vial 2021) suggests viewing organizational agility as a key mediating capability that enables government agencies to translate investments in advanced digital tools into tangible performance gains. The dynamic capabilities lens explicates how certain organizational capacities allow enterprises to effectively sense environmental shifts, seize new opportunities through strategic moves, and continuously reconfigure internal assets and competencies as markets evolve (Teece et al. 1997). This aligns with conceptualizations of agility as reflecting capacities for rapid sensing, decision making, and structural adaptations in response to both promising developments and disruptive threats across operational and technological domains (Ellermann et al. 2016).

Therefore, cultivating greater organizational agility, through concerted development initiatives and leadership commitment, can be construed as strengthening dynamic capabilities vital to public sector performance. Specifically, agility allows government entities to overcome inertia and actively respond to waves of sociotechnical changes opened up by digitalization in order to serve citizens in more effective, responsive, and innovative ways (Mergel et al. 2019).

Viewing enhanced organizational agility as a mediating competence that unlocks the performance potential of digital capabilities emphasizes the interconnected nature of social and technical dimensions of digital transformation. While emerging information systems provide rich functionality, their ability to heighten operational and strategic results hinges on complementary evolution in organizational culture, workflow integration, skill building, and leadership support. Accordingly, the proposed conceptual framework of the study, which posits the three hypotheses linking digital capabilities, organizational agility, and performance in the public sector, is visually depicted in Figure 1.

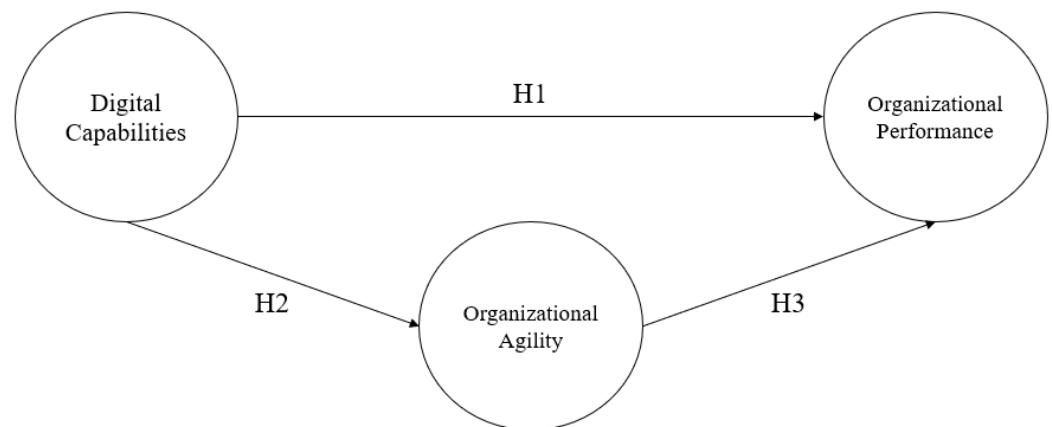


Figure 1. Proposed Conceptual framework and the hypotheses of this study.

3. Material and Methods

The present section elucidates definitions for the key investigative approaches of analysis, synthesis, description, and comparison that fundamentally oriented the empirical examination of relationships linking technological capacities to public sector performance, mediated through organizational agility. Outlining techniques used establishes replicability while underscoring the structured, evidence-based analysis, thereby enabling scientifically grounded conclusions.

Analysis Approach Definition: The analysis approach in this study consisted of examining and interpreting the collected raw survey data to identify underlying relationships and trends in the sample. It involved conducting statistical techniques such as descriptive analysis, exploratory factor analysis, reliability analysis, and structural equation modeling. The aim of our analytical approach was to transform the quantitative data into meaningful insights that address the hypotheses and research questions driving the investigation.

Synthesis Approach Definition: The synthesis approach involved piecing together the different analytical outputs to form an integrated understanding of the linkages between advanced technological capacities, workforce adaptivity, and performance outcomes in public sector contexts. Synthesis occurred on multiple levels, including summarizing the descriptive statistics into a refined sample profile, reconciling the measurement model assessment and hypothesis testing results into an evidentiary conclusion on the proposed conceptual framework, and contextualizing the empirical relationships found within the dynamic capabilities theory underpinning the model specifications and hypothesized causal structure.

Description Approach Definition: Description involved providing factual accounts of the essential features and elements related to the methods and procedures enacted, results yielded at each analytical stage, characteristics and demographic profiles of the sample obtained, and attributes of the technological and organizational change dynamics explored. Descriptive language was utilized in documenting details of the research protocol, instruments, data, and contextual setting accurately and objectively.

Comparison Approach Definition: Comparison techniques were applied to contrast the research sample against the broader population of reference at Jordan's Ministry of Justice along demographic factors to assess representativeness. Additionally, comparisons occurred between the empirical results yielded and findings from previous scholarly works in public administration and information systems domains to identify alignments and deviations in conclusions regarding relationships between digital capabilities, agility, and performance. Comparing findings revealed boundaries in generalizability, as the insights may apply differently across institutional environments.

3.1. Sampling Strategy and Data Collection

The target population for this study consisted of all employees at the Ministry of Justice in Jordan, totaling 4400 staff members. Based on Krejcie and Morgan's (Krejcie and Morgan 1970) sample size table for a population of 4400, the recommended representative sample size is 354. A targeted sample of 360 was determined, striving to include staff from all positions to elicit perspectives across levels and mitigate bias. Questionnaires were randomly distributed to 360 individuals within the Ministry.

Data collection was administered through an online survey. Out of 360 surveys dispersed, 292 valid responses were received, representing an 81.1% response rate. The data collection tool, designed by the researchers, contained measures of the key variables: digital capabilities, organizational agility, and organizational performance.

The independent variable of digital capabilities was operationalized using a 7-item instrument adapted from Mollah et al. (Mollah et al. 2023) and measured on a 5-point Likert scale from 1 (Poor) to 5 (Excellent). The 7-item dependent variable of organizational performance was drawn from Bradley et al. (Bradley et al. 2012) using a 5-point agreement scale from 1 (Strongly Disagree) to 5 (Strongly Agree). Finally, the mediator of organizational agility relied on a 5-item scale from Nafei (Nafei 2016) that was also measured through 5-point Likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree). Table 1 shows the questionnaire items used in this study.

Table 1. Questionnaire Items.

Construct	Item	Code
Digital Capabilities (1 = Poor to 5 = Excellent):		
	Data management services and architectures	DC1
	Network communication services	DC2
	Developing a clear vision regarding how IT contributes to business value	DC3
	We have a climate that is supportive of trying out new ways of using IT	DC4
	We constantly keep current with new information technology innovations	DC5
	Integrating strategic business planning and IT planning	DC6
	Developing a clear vision regarding how IT contributes to business value	DC7
Organizational Performance (1 = Strongly disagree; to 5 = Strongly agree):		
	My department adapts quickly to unanticipated changes	OP1
	My department performs well in improving the effectiveness of services delivered	OP2
	My department offers quality service	OP3
	Communication flows easily throughout my department	OP4
	Divisions are not overloaded with activities	OP5
	My department adapts quickly to unanticipated changes	OP6
	My department adopts new technology regularly	OP7
Organizational Agility (1 = Strongly Disagree; to 5 = Strongly Agree):		
	My department carries out a specific action plan in order to meet customer needs without any delay.	AG1
	My department is implementing an action plan on how to use the new technology without delay.	AG2
	My department can reconfigure its resources in the proper time	AG3
	My department can change strategic things in the proper time	AG4
	My department ability to quickly respond to changes in Regulations	AG5

3.2. Data Analysis

Prior to hypothesis testing, the validity and reliability of the measurement instruments were assessed. An exploratory factor analysis, using principal axis factoring, examined the underlying structure of the items. Reliability was evaluated through Cronbach's alpha and composite reliability scores. Structural equation modeling employing partial least squares (PLS) analysis tested the hypothesized relationships using SmartPLS 4 software. Bootstrapping with 500 subsamples enabled estimation of the significance of paths within the structural model.

To determine model fit, R^2 values were reviewed to evaluate the variance explained in the endogenous constructs of organizational agility and performance. Additionally, f^2 effect sizes were calculated to quantify the predictive relevance of the exogenous variables on the endogenous factors. Values of 0.02, 0.15, and 0.35 designate small, medium, and large effects, respectively (Cohen 2013).

4. Results

4.1. Sample Characteristics

Table 2 displays the frequency and percentage distributions for key sample characteristics including gender, age, education level, work experience, and position level. The sample comprised 59% male and 41% female participants. Regarding age, 61.7% were under 40 years old, reflecting a relatively young workforce. This matches broader policies within Jordan's public sector aimed at reducing unemployment among recent graduates, particularly those with university credentials. Accordingly, 65.4% of the sample held bachelor's degrees as their highest qualification. Most participants had less than 20 years of experience, aligning with the age distribution. Finally, the majority held non-managerial positions, representing more junior civil service roles.

Table 2. Sample Characteristics.

Variable	Frequency (N = 292)	Percentage (100%)
Gender:		
Male	173	59
Female	119	41
Age:		
Less than 20	42	14.4
20–less than 30	80	27.4
30–less than 40	58	19.9
40 less than 50	55	18.8
50 years or more	57	19.5
Education:		
Diploma or less	25	8.6
Bachelor's degree	191	65.4
Master's degree	61	20.9
Ph.D.	15	5.1
Experience:		
Less than 5 years	45	15.4
5–less than 10	96	32.9
10–less than 15	109	37.3
15–less than 20	42	14.4
More than 20 years	-	0
Position:		
Managerial position	43	14.7
Non managerial position	249	85.3

4.2. Measurement Model Evaluation

Table 3 presents assessment of the key measurement instruments regarding digital capabilities, organizational performance, and organizational agility on three vital criteria: Cronbach's alpha, composite reliability, and average variance extracted (AVE). The digital

capabilities scale exhibited strong reliability with a Cronbach's alpha of 0.906 and composite reliability of 0.913. It also demonstrated adequate convergent validity with an AVE of 0.641. Similarly, the organizational performance and organizational agility instruments achieved high Cronbach's alpha scores of 0.864 and 0.852, respectively, along with composite reliability estimates exceeding 0.85 in both cases. The AVE figures were also acceptable at 0.548 for performance and 0.630 for agility.

Table 3. The questionnaire's reliability and validity.

Constructs	Cronbach's Alpha	CR	(AVE)
Digital capabilities	0.906	0.913	0.641
Organizational performance	0.864	0.877	0.548
Organizational agility	0.852	0.860	0.630

The analysis indicates that all three main constructs meet or surpass established thresholds for acceptable reliability and validity. The scales show robust internal consistency while also capturing significant variance in the underlying latent factors. Thus, Table 3 attests strong psychometric quality for the measurement instruments that provides a measurement foundation for testing the structural relationships hypothesized between the core constructs of digital capabilities, organizational agility, and performance.

Table 4 displays the factor loadings for all observable variables (survey items) corresponding to the key constructs along with significance levels. All items exhibited strong factor loadings, exceeding the 0.70 threshold, and were statistically significant with p-values under 0.05. Obtaining sizable loadings for each indicator affirms their validity in reflecting the underlying theoretical factors. The highly significant loadings also confirm the measurement scales adequately capture variance in the intended latent constructs. Hence, these findings further reinforce the quality of the measurement instruments, augmenting the reliability and validity metrics shown previously in Table 3. Collectively, this analysis helps validate the survey items as appropriate empirical manifestations of the digital capabilities, organizational agility, and performance measures conceptualized for hypothesis testing.

Table 4. Factor Loadings Analysis Results.

Items	Loading Factor	Mean	SD	p-Value
DC1	0.702	4.12	0.683	0.015
DC2	0.814	3.80	0.852	0.025
DC3	0.756	3.83	1.020	0.035
DC4	0.844	3.73	1.051	0.018
DC5	0.839	3.78	0.942	0.048
DC6	0.809	3.80	1.003	0.050
DC7	0.829	3.80	1.030	0.035
OP1	0.756	4.32	0.613	0.024
OP2	0.816	4.33	0.695	0.006
OP3	0.741	4.16	0.692	0.025
OP4	0.748	4.18	0.739	0.035
OP5	0.657	4.34	0.662	0.046
OP6	0.712	4.22	0.619	0.023
OP7	0.744	4.20	0.693	0.005
AG1	0.782	3.87	0.872	0.021
AG2	0.751	3.91	0.883	0.017
AG3	0.726	3.92	0.901	0.032
AG4	0.895	3.79	0.980	0.040
AG5	0.850	3.89	0.937	0.020

4.3. Hypothesis Testing Results

Table 5 displays the hypothesis testing results, examining the predicted relationships between the core constructs of digital capabilities (DC), organizational performance (OP),

and organizational agility (AG). The link between digital capabilities and performance (Hypothesis 1) returned a positive and significant beta coefficient of 0.153 ($t = 8.681, p < 0.001$), providing support for this relationship. Similarly, strong support emerged for the association between digital capabilities and organizational agility (Hypothesis 2), with a beta of 0.897 ($t = 71.214, p < 0.001$). Finally, the expectation that agility also drives heightened performance (Hypothesis 3) was affirmed with a beta of 0.610 ($t = 3.691, p < 0.001$). Hypothesis 4 predicted that organizational agility would mediate the relationship between digital capabilities and organizational performance. Analysis of this indirect effect path revealed a beta coefficient of 0.467 ($t = 1.173, p = 0.241$). While the directionality aligns with the hypothesized mediating role, the path did not achieve statistical significance. Therefore, full mediation of the digital capabilities-performance link by agility was not empirically established based on the sample. The findings indicate that digital capabilities are associated with both heightened agility and superior performance directly rather than solely indirect impacts transmitted through agility capacities.

Table 5. Hypothesis test results.

Hypothesis	β	T Statistics	p-Value	Status
DC -> OP	0.153	8.681	0.000	Supported
DC -> AG	0.897	71.214	0.000	Supported
AG -> OP	0.610	3.691	0.000	Supported
DC -> AG -> OP	0.467	1.173	0.241	Not Supported

Across all three hypothesized pathways, the analysis confirmed statistically significant positive effects as expected. Figure 2 provides a graphical overview of the PLS structural equation modeling output, summarizing the hypothesized relationships between constructs by presenting beta coefficients and R^2 values for the test of the capabilities-agility-performance framework.

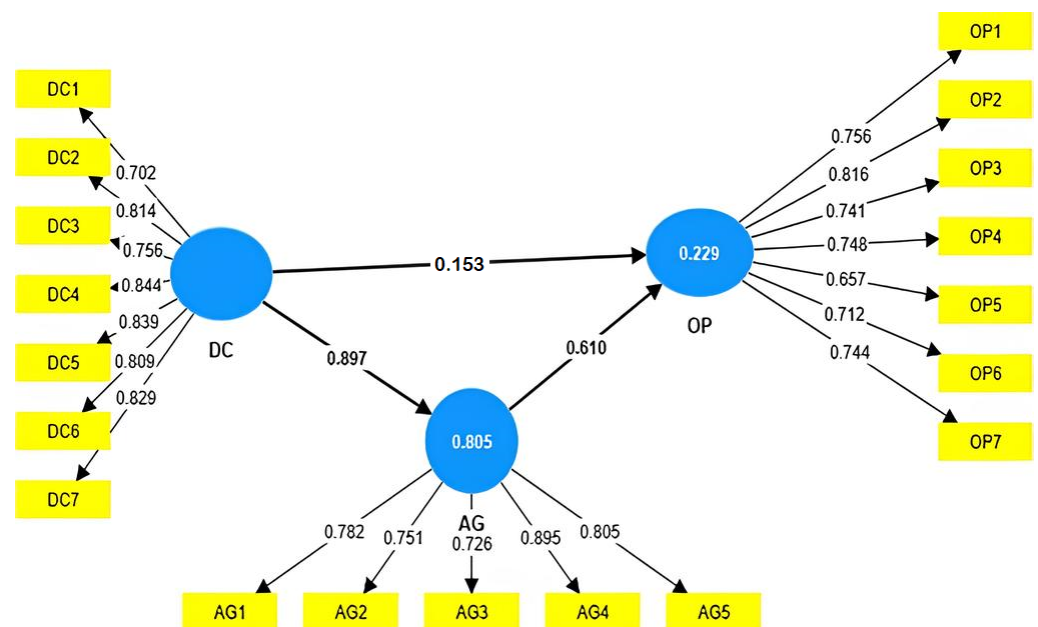


Figure 2. PLS results depicting path coefficients and R^2 values for relationships between digital capabilities, organizational agility, and performance.

Examining the predictive strength of the structural model, the R^2 value for organizational performance was 0.229 while organizational agility exhibited a higher R^2 of 0.805. In total, the antecedent factors account for 22.9% of variance in organizational performance and 80.5% of variance in agility. Additionally, the f-square effect sizes for the linkage

between digital capabilities and agility ($f^2 = 0.891$) and between agility and performance ($f^2 = 0.342$) surpass recommended thresholds for large and medium effects, respectively.

5. Findings and Discussion

Aligning with the conceptual model, analysis revealed a significant positive relationship between digital capabilities and organizational performance within the studied public sector context. Specifically, investment in sophisticated analytics tools and modernized IT infrastructure is directly associated with benefits in operational efficiency, budget optimization, and constituent satisfaction documented across agencies of Jordan's Ministry of Justice. Such direct returns mirror past empirical examinations situated in private sector contexts, including heightened productivity, improved decision-making, and customer service gains tied to strategic technology capabilities (Chen and Tsou 2012). This finding mirrors results from Benitez et al., who demonstrated that specific digital leadership capabilities enhanced innovation performance in firms (Benitez et al. 2022). Similarly, Heredia et al. recently quantified performance gains tied to strengthened technological capacities in areas like automation and data analytics, especially during periods of uncertainty (Heredia et al. 2022). The returns documented across efficiency, quality, and satisfaction metrics in public agencies align with performance benefits shown in private industry scholarship. By demonstrating comparable capability-to-performance linkages within public sector agencies, our findings validate the applicability of conclusions on digitization returns drawn from corporate environments to governmental bodies who likewise face mounting imperatives to leverage data-driven platforms. Aside from direct impacts on performance, digital capabilities are significantly associated with heightened organizational agility, representing capacities to rapidly sense and respond to changes in external environments. This affirms the conceptual premise that investments in integrated data architectures, automation workflow tools, and real-time dashboarding capabilities can provide flexible digital infrastructure, thereby enabling greater adaptability (Lu and Ramamurthy 2011). Demonstrating digital tools' enablement of flexible responses and improvisation aligns with findings from Levallet and Chan regarding managerial agility unleashed by sophisticated analytics (Levallet and Chan 2018). Additionally, Vera et al.'s study of research and development teams revealed knowledge resources and supportive climates cultivated greater adaptability even when facing unexpected shifts (Vera et al. 2016). The current analysis reinforces conclusions on digital infrastructure bolstering nimbleness. Our findings also break new ground by extending evidence on how effectively harnessing data analytics output in particular allows more nimble and targeted decision sequences (Houghton et al. 2008). As such, advanced analytics adoption facilitates recalibration of resource planning, service modifications, and strategic priorities in line with community needs. Additionally, analysis verified that improved organizational agility itself serves as a crucial precursor, translating digital technology availability into realized performance gains. Cultivating a posture to seamlessly reconfigure operations, resources, and initiatives predicated on fresh insights acts as a mediating catalyst driving operational process improvements alongside more responsive and innovative programming overall (Ghosh et al. 2022). The mediated benefits of agility capacities found here match models in Lee et al. and Wamba, quantifying performance returns attributable to heightened organizational and customer agility (Lee et al. 2015; Wamba 2022). By investigating specific public sector contexts, this study helps confirm program adaptivity as a vital mediator for realizing operational and strategic gains tied to advanced IT systems across institutional environments beyond conventional corporate settings. However, the predicted mediating role of organizational agility transmitting digital capability impacts onto performance gains was not empirically established based on the sample. While aligning directionally, the indirect path linking capabilities to outcomes through agility did not achieve statistical significance. This diverges from some prior public sector studies which found full mediation (Lu and Ramamurthy 2011). The findings here indicate multifaceted performance benefits directly

tied to modernized digital tools and platforms themselves, rather than solely manifesting indirectly through intermediate agility enhancement.

5.1. Theoretical Implications

By substantiating that investments in enhanced digital capabilities relate to improved organizational performance within public agencies, this research validates the application of Tallon and Pinsonneault's conclusion that IT resources directly strengthen capacities for strategic agility and dynamic flexibility (Tallon and Pinsonneault 2011). Specifically, the findings confirm the relevance of concepts formulated analyzing returns on technology leveraging in private contexts to civic institutional settings now pursuing major digitization initiatives. Results also advance theoretical perspectives on requisite mechanisms, thereby enabling realization of performance returns from the implementation of sophisticated systems in the public sector. Demonstrating organizational agility's vital mediating role elucidates Park et al.'s configurational premise regarding interconnected enhancement of both adaptability and data-driven decision analytics for strategic returns (Park and Perry 2013).

Additionally, incorporating the specific concept of improvisational agility, as introduced by Pavlou and El Sawy, expands explanatory power regarding processes necessary to unlock the potential of advanced IT investments across bureaucratic environments (Pavlou and El Sawy 2010). Viewing cultivating scalable agility and resilient flexibility as key to successfully harnessing emerging technologies substantiates dynamic capabilities theory's core tenets on sensing environments and deliberately reconfiguring resources to match evolving demands (Teece et al. 1997). Findings confirm the extension of this theoretical logic to public administrators navigating disruption. Further research informed by study insights can refine understanding on how to leverage dynamism while avoiding unproductive instability across civic institutions amid digital transformation.

Results affirm applicability of dynamic capability and agility-focused theories to state entities pursuing technology-enabled advancement (Mergel et al. 2019). This directly addresses calls to test organizational perspectives in public settings (Park and Perry 2013). Extending concepts that explain private sector adaptation to evolving technological conditions to governmental contexts significantly advances scholarship at the intersection of public administration and information systems domains.

5.2. Practical Implications

For public management practitioners, findings indicating that investment in integrated data architectures, automation tools, and analytics platforms linked to measurable performance gains provide evidentiary justification for proposing and prioritizing progressive digitization initiatives even amid budget constraints or risk-averse climates. However, reallocation of technical resources alone appears insufficient. To strategically harness benefits, technology procurement must interface with change management programming focused on infusing agility into operations, decision cycles, and innovation pursuits.

Accordingly, an expanded mandate emerges for government executives leading digital transformation to devote comparable attention towards strengthening adaptivity capacities across the workforce and dismantling bureaucratic hurdles relative to acquiring cutting-edge technical functionalities. While replacing legacy systems can fuel modernization, findings imply that the human resource development required allowing staff to continuously reconfigure service delivery modes in response to constituent data proves equally vital. Conceptualizing returns on analytics adoption and digitization as mediated through flexibility cultivation signifies public officials must anchor technical roadmaps to complementary organizational realignments.

6. Conclusions

Analysis validated positive relationships between digital capabilities, organizational agility, and performance outcomes within the public sector context. Investing in integrated data architecture, automation tools, and predictive analytics associated directly with

operational, financial, and constituent satisfaction gains as mediated through enhanced organizational adaptivity. By confirming definitive returns from strategic technology leveraging, findings validate applicability of conclusions on digitization effectiveness formed in private industry to governmental contexts. Quantitatively evidencing the mediating function of agility makes important theoretical augmentations, modeling the multifaceted interplay of technical capacities and flexibility required to fuel public sector advancement.

For public administrators, installing sophisticated analytics systems alone appears insufficient to catalyze positive performance. Findings mandate pairing digitization initiatives with change management programming focused on infusing agility through streamlined data-to-insight cycles. Combined technical and social systems transformation is imperative. The cross-sectional single agency sample warrants expanded inquiry assessing the consistency of documented capability configurations, agility predictors, and performance linkages across varied public institutional forms. However, longitudinal tracking, for future research, can enrich understanding of lag effects given extended transformation timelines. With societal sectors experiencing unprecedented rates of technology-induced change, ensuring public institutions charged with serving citizen needs responsively leverage modernization is an imperative. Yet realizing positive outcomes from digitization requires multilayered and patient commitments spanning resources, culture, and leadership. Continued empirical scholarship elucidating drivers of public sector excellence amidst digital disruption remains vital.

Author Contributions: Conceptualization, T.A. and S.N.; methodology, S.M.A.B.; software, S.M.A.B.; investigation, T.A.; data curation, S.M.A.B.; formal analysis, S.M.A.B.; writing—original draft preparation, S.N.; writing—review and editing, S.N. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: The study procedures and instruments received research clearance through the Jordanian Ministry of Justice's internal review board governing external requests for employee participation. Survey participation notification communicated appropriate ethical protocols regarding confidentiality and aggregation of responses. The research followed industry standards and governmental ethical guidelines for public sector organizational analytics.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to the internal data release policies of Jordan's Ministry of Justice, which provided institutional survey access under assured protections of employee confidentiality and organizational information security.

Conflicts of Interest: The authors declare no conflicts of interest.

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