

MANAGEMENT INFORMATION SYSTEMS AS A DIGITAL ORGANIZATIONAL CAPABILITY: EVIDENCE OF THEIR CONTRIBUTION TO ADMINISTRATIVE PROCESS EFFICIENCY IN A FRAGILE INSTITUTIONAL CONTEXT

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ABSTRACT

Purpose: This study examined Management Information Systems (MIS) as a digital organizational capability associated with administrative process efficiency and organizational performance in a fragile local government institution in Yemen. Drawing on Information Processing Theory and the Resource-Based View, it investigated how integrating technological and human resources supports process improvement.

Methodology: A cross-sectional census design covered 115 employees and yielded 103 valid questionnaires (89.6% response rate). Data were analyzed using descriptive statistics, Pearson correlation, regression, and one-way ANOVA.

Findings: MIS implementation and administrative performance were moderate. The human element was strongest, whereas networks and software were weakest. MIS was strongly associated with administrative performance ($r = .873$, $p < .001$), and regression explained 76.3% of its variance ($R^2 = .763$). Significant differences were found by work experience.

Conclusions: MIS creates organizational value through integrating hardware, software, databases, networks, and human capabilities to support procedural simplification, work quality, quantity, and completion speed.

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1. INTRODUCTION

Digital transformation has fundamentally altered the manner in which public organizations generate, process, exchange, and utilize information in administrative work. In this context, Management Information Systems (MIS) are no longer confined to automating routine transactions; rather, they have become integral to the organizational infrastructure that supports planning, coordination, control, decision-making, and information flow. From this perspective, the organizational value of information systems is determined not merely by the

possession of hardware, software, databases, and communication networks, but by the organization's capacity to integrate these resources with human and organizational resources and deploy them effectively in administrative processes. The literature substantiates this conceptualization, indicating that the success of digital transformation in local governments is associated with organizational capabilities encompassing leadership, management, collaboration, and the provision of resources necessary for change, rather than technology in isolation from the organizational context (Gasco-Hernandez et al., 2022). Similarly, the literature on the organizational value of information technology

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emphasizes that the performance impact of technology depends on complementary organizational resources and the manner in which they are integrated into organizational processes (Bharadwaj, 2000; Melville et al., 2004; Wade & Hulland, 2004).

The importance of Management Information Systems is further amplified when public organizations operate under conditions of uncertainty and complexity. Information Processing Theory conceptualizes the organization as an information-processing system, such that its effectiveness depends in part on the alignment between its information processing capacity and the demands imposed by the environment (Daft & Lengel, 1986; Galbraith, 1973). As uncertainty increases, so does the organization's need for accurate, timely, accessible, and shareable information across units and human actors to support coordination and decision-making. Consequently, Management Information Systems can support the organization's information processing capacity by collecting, storing, retrieving, sharing, and utilizing data in administrative work. Conversely, the Resource-Based View elucidates that possessing technology does not automatically generate organizational value; rather, such value depends on the organization's capacity to effectively integrate and deploy technological, human, and organizational resources (Barney, 1991; Bharadwaj, 2000).

This relationship assumes particular significance in fragile and conflict-affected environments, where heightened information needs may coincide with constraints in infrastructure, resources, institutional capacities, and service continuity. Recent evidence indicates that digital transformation in fragile and conflict-affected settings faces challenges related to connectivity, infrastructure, skills, and institutional capacities, thereby limiting the ability of institutions to fully leverage digital solutions (World Bank, 2025). The literature on local e-government in fragile and conflict-affected settings similarly points to persistent challenges associated with technological infrastructure, service delivery, and digital capacities, rendering the deployment of information systems an organizational issue that transcends the mere acquisition of technology (Alarabiat, 2025).

Local government represents a significant context for examining this relationship, as local institutions operate at the intersection of administrative requirements and service needs, relying on information flow and coordination across units and human resources to execute their mandates. Studies have demonstrated that digital transformation in local governments is associated with organizational capacity, human resources, leadership, and collaboration, while infrastructure constraints and institutional capacities may limit the benefits derived from information systems in local governance (Gasco-Hernandez et al., 2022; Shou et al., 2025).

Yemen provides a pertinent context for examining this relationship, as local government institutions operate amidst political instability, armed conflict, economic challenges, damaged infrastructure, and limited

institutional capacities—conditions that affect public administration and the modernization of government information systems (Al-Hajji & Muad, 2026; Al-Hussam, 2025). The literature on local governance in Yemen further indicates persistent administrative and institutional challenges affecting coordination, information flow, and service delivery capacity (Ba Abbad, 2024; Romeo & El-Mensi, 2011). In this context, the capacity of local institutions to deploy information systems assumes particular importance, not only for improving efficiency but also for sustaining administrative work, coordination, and decision-making in an environment characterized by uncertainty and resource constraints.

Accordingly, this study aims to examine the association between Management Information Systems conceptualized as a digital organizational capability and administrative process efficiency and organizational performance in a fragile institutional context.

2. THEORETICAL BACKGROUND AND LITERATURE REVIEW

2.1. Information Processing Theory

Information Processing Theory explains organizations in terms of their need to acquire, process, and communicate information to coordinate interdependent activities and respond to uncertainty (Galbraith, 1973). Daft and Lengel (1986) linked organizational information requirements to communication and structural design. From this perspective, organizational performance depends not merely on possessing information but on having the capacity to transmit relevant information to the people and units that need it. The theory posits that increased uncertainty and complexity in the organization's environment raise its need for greater information processing capacities (Galbraith, 1973; Tushman & Nadler, 1978).

In public institutions operating in unstable environments, Management Information Systems can represent one organizational mechanism that supports this capacity by facilitating information flow, coordinating procedures, and providing information necessary for administrative work. Thus, the significance of information systems in the fragile environment does not stem from the technology itself, but from their capacity to help the organization cope with heightened information processing demands arising from uncertainty and complexity. Contemporary work on digital governance and public administration emphasizes information systems as mechanisms for institutional coordination and administrative adaptation (Andaya et al., 2025; Wirawan, 2025).

2.2. Resource-Based View

The Resource-Based View argues that organizational performance is shaped in part by the resources and

capabilities available to the organization and its capacity to organize them effectively (Barney, 1991). Resources include physical assets, human expertise, organizational knowledge, information, and technology. For Management Information Systems, the implications are that hardware and software alone are unlikely to generate organizational value; rather, value emerges when technology is integrated with employee knowledge, organizational routines, administrative practices, and the capacity to use information effectively.

The capabilities literature in information systems has demonstrated that possessing technical infrastructure alone is insufficient to achieve organizational value, and that human, managerial, and organizational capabilities represent essential elements in transforming IT resources into capabilities that can support performance (Bharadwaj, 2000; Wade & Hulland, 2004). This explanation is particularly relevant in resource-constrained public organizations, where accumulated human knowledge and administrative expertise can become critical resources when technological resources are limited. Research on public employees and local government information systems indicates that user competencies, organizational culture, commitment, and knowledge sharing shape information system effectiveness (Duah et al., 2025; Matimbwa & Kamala, 2024; Ortega & Acero, 2025; Pereira et al., 2024).

2.3. Management Information Systems

The study adopts a perspective that views Management Information Systems as an integrated organizational capability for information processing, rather than merely a collection of technologies employed in task execution. This capability comprises physical, software, informational, communication, and human resources, including hardware, software, databases, communication networks, and the human element. The organizational value of these components derives from their capacity to function in an integrated manner to provide the right information, at the right time, to the administrative actors who need it for planning, coordination, control, and decision-making (Yasin, 1998; Zhou, 1995). Consequently, weakness in any component may limit the value that other components can deliver, particularly in environments characterized by infrastructure and resource constraints.

This multidimensional conceptualization is consistent with Fadhil et al. (2021) and Guettat et al. (2024), who emphasize the interaction among system components. Hardware provides the physical foundation for computing and storage; software provides applications and processing procedures; databases support organized storage and retrieval; communication networks enable information exchange; and the human element provides the skills required to operate, interpret, maintain, and utilize the system. Weakness in any component can diminish the benefits derived from other components. Evidence regarding public sector infrastructure and MIS applications supports the importance of component

availability and user capacity (Alotaibi, 2022; Al-Ma'mari et al., 2022; Asih et al., 2026; Mudhokhi & Sanyata, 2026).

The human element assumes particular importance within this conceptualization; technological resources do not automatically translate into organizational capability unless users possess the knowledge and skills necessary to operate the systems, interpret information, and connect it to administrative tasks and procedures. The information systems literature emphasizes that human and organizational capabilities represent critical complementary resources in transforming information technology into organizational value and performance (Bharadwaj, 2000; Wade & Hulland, 2004). A recent study in the public sector similarly demonstrated that enabling Management Information Systems are associated with the quality of public employees' performance, supporting the conceptualization of the system as part of the organizational work environment rather than merely a technical tool (Pereira et al., 2024).

Management Information Systems in the public sector also support transparency, accountability, data visualization, administrative decisions, and service delivery (Hidayat, 2024; Huque & Ferdous, 2024; Kang & Yu, 2025). However, digitalization does not automatically or independently of context improve outcomes when organizational readiness, infrastructure, or user capacity is insufficient (Marienfeldt et al., 2025; Moggi et al., 2026; Shou et al., 2025).

2.4. Administrative Performance

Administrative performance is a multidimensional indicator of organizational effectiveness. Public administration research associates it with work quantity, quality, timeliness, procedural efficiency, service quality, responsiveness, accountability, and effective resource utilization (Al-Māni', 2006; Fadhil et al., 2021). Contemporary perspectives encompass broader dimensions of participation, inclusivity, and sustainability, although these lie outside the measurement scope of the present study (Anyanwu, 2025; Islam, 2025; Licsandru et al., 2025; Mol et al., 2025; Nuñena-Hidalgo, 2026).

For analytical clarity, this study measures administrative performance through work quantity, quality, completion speed, and simplification of administrative procedures (Al-Hussam, 2025). These dimensions capture both outputs and efficiency and are treated as interrelated components of overall performance.

2.5. Research Gap and Hypotheses

Despite the growing body of empirical evidence associating Management Information Systems with performance, available knowledge remains largely focused on establishing whether information systems are related to organizational outcomes across different sectors and institutions. Recent Yemeni studies have examined this relationship in the Social Fund for

Development, the Ministry of Education and Scientific Research, the National Examinations Administration, telecommunications companies, and civil society organizations (Abu Bakr & Aqlan, 2026; Al-Hajji & Muad, 2026; Al-Hussam, 2025; Al-Manzū' & Al-Mahdi, 2024; Al-Ma'mari et al., 2022). Arab and international studies have similarly addressed this relationship in governmental and local contexts (Abu Karim, 2013; Ben Al-Bar & Laamari, 2021; Matimbwa & Kamala, 2024; Sutopo et al., 2017). However, these studies provide less explanation of how MIS can function as a digital organizational capability by integrating technological, informational, and human resources to support administrative process efficiency and organizational performance under uncertainty and resource constraints. The gap targeted by the present study concerns the limited empirical attention given to MIS as an integrated digital organizational capability, particularly in fragile institutional settings. Although individual MIS components are frequently examined, less attention has been given to their combined role in supporting information processing, procedural simplification, work quality and quantity, and completion speed. Evidence from local government in fragile environments is also limited compared with that from central institutions and more stable sectors. Accordingly, the study examines how the integration of MIS resources is associated with administrative process efficiency and organizational performance, using a local government institution in Yemen as the empirical context.

The present study therefore conceptualizes Management Information Systems as a digital organizational capability rather than merely a technological infrastructure and examines their association with administrative performance. Information Processing Theory explains the need to enhance organizational capacity to collect, process, and exchange information under uncertainty, while the Resource-Based View explains how technological, informational, human, and organizational resources can be integrated into a capability that supports administrative processes and organizational value.

The combination of Information Processing Theory and the Resource-Based View provides an integrated foundation for understanding how MIS can contribute to process efficiency. From the information-processing perspective, increased uncertainty and complexity raise the organization's need for information processing and coordination capacities (Galbraith, 1973; Tushman & Nadler, 1978). From the resource perspective, information systems do not automatically create organizational value; value depends on the organization's capacity to integrate and deploy technological, human, and organizational resources within its processes (Barney, 1991; Bharadwaj, 2000; Wade & Hulland, 2004).

Accordingly, MIS is conceptualized as a digital organizational capability formed through the interaction of hardware, software, databases, communication networks, and human capabilities. This capability

enables the institution to process information, facilitate its flow, simplify administrative procedures, and support work quality, quantity, and completion speed. This perspective is particularly relevant in fragile environments, where information needs and resource constraints coexist and the capacity to integrate available resources may be more consequential than technology possession alone (Adade & de Vries, 2024; Gasco-Hernandez et al., 2022; Marienfeldt et al., 2025). Based on the foregoing, the main hypothesis of the study was formulated as follows:

H₁: MIS implementation is positively and statistically significantly associated with administrative performance in the General Office of Sa'dah Governorate, Yemen.

3. METHODOLOGY

3.1. Research Design

The study employed a quantitative, cross-sectional, explanatory design. Descriptive statistics were used to assess MIS and administrative performance levels, Pearson correlation and simple linear regression were used to examine their statistical relationship, and one-way ANOVA was used to examine demographic differences. This design is appropriate for examining relationships among operationally defined constructs using standardized survey data (Creswell & Creswell, 2018). As observations were collected at a single point in time, results are interpreted as correlation and statistical prediction rather than as definitive causal effects.

The study was conducted at the General Office of Sa'dah Governorate, a local government institution operating under conditions of political and economic uncertainty, resource constraints, limited infrastructure, and pressures to maintain administrative continuity. These characteristics make the environment relevant to research on MIS in fragile settings (Al-Hajji & Muad, 2026; Al-Hussam, 2025; Ba Abbad, 2024).

3.2. Population and Sample

The study population comprised all 115 administrative employees in the General Office of Sa'dah Governorate. Given the small population size, a census approach was employed, with questionnaires distributed to all eligible employees, yielding 103 valid questionnaires, representing an 89.6% response rate.

3.3. Data Collection

Data were collected through a self-administered questionnaire distributed to all employees in the General Office of Sa'dah Governorate. Official approval was obtained from the General Office prior to data collection. Participation was voluntary and anonymous, informed consent was obtained, and participants were assured that data would be used exclusively for academic purposes.

Questionnaires were collected over a period of four weeks.

3.4. Measurement Instrument

The instrument employed a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The MIS scale contained 25 items across five dimensions (hardware, software, networks, databases, and human element), with five items per dimension. The administrative performance scale contained 20 items across four dimensions (work quantity, work quality, completion speed, and procedure simplification), with five items per dimension. Items were adapted and contextually clarified from prior studies (Al-Hussam, 2025; Al-Māni', 2006; Guetta et al., 2024; Fadhil et al., 2021).

3.5. Validity and Reliability

Face validity was ensured through review by eight specialists in public administration, management information systems, and applied statistics, with wording and structure revised based on their recommendations.

Table 1. Reliability Coefficients for Study Scales

Dimension	Number of Items	Cronbach's Alpha
Hardware	5	0.886
Software	5	0.865
Networks	5	0.918
Databases	5	0.908
Human Element	5	0.908
MIS Scale (Total)	25	0.962
Administrative Performance Scale	20	0.969

Construct validity was assessed using Pearson correlations between item and dimension scores, with all items showing statistically significant relationships at $p < .01$. Discriminant validity was assessed by comparing the highest and lowest 27% of respondents, with all items significantly distinguishing the two groups at $p < .05$.

Table 2. Demographic Characteristics of Respondents

Characteristic	Category	Frequency	Percentage
Age	Less than 30	8	7.8%
	30–39	35	34.0%
	40–49	48	46.6%
	50 and above	12	11.7%
Educational Qualification	Secondary or less	37	35.9%
	Post-secondary diploma	15	14.6%
	University or higher	51	49.5%
Years of Work in Local Authority	Less than 5 years	15	14.6%
	5–9 years	18	17.5%
	10–14 years	31	30.1%
	More than 15 years	39	37.9%

Cronbach's alpha coefficients were .962 for the MIS scale and .969 for the administrative performance scale, with individual dimension coefficients ranging from .865 to .918, indicating strong internal consistency (see Table 1). Common method bias was addressed procedurally through anonymity, voluntary participation, concise wording, and separation of independent and dependent variable sections, and statistically through Harman's single-factor test. The first unrotated factor did not account for the majority of total variance (less than 50% of total variance), indicating that common method bias was not substantial enough to dominate the results (Podsakoff et al., 2003). However, residual common method effects cannot be entirely excluded in a single-source survey.

3.6. Data Analysis

Data were analyzed using SPSS version 26. Frequencies, percentages, means, and standard deviations summarized the data. Pearson correlation examined relationships; one-sample t-tests compared means against the theoretical midpoint (3.0); simple linear regression examined the predictive relationship; and one-way ANOVA examined demographic differences, with post-hoc Scheffé tests where appropriate. The significance level was set at $p < .05$ for all statistical tests.

4. RESULTS

4.1. Respondents' Characteristics

The analysis was based on 103 valid questionnaires, representing an 89.6% response rate. Table 2 presents the demographic characteristics of respondents. The majority of respondents (46.6%) were in the 40–49 age group, while 34.0% were in the 30–39 age group. Nearly half (49.5%) held university degrees or higher. In terms of experience, 37.9% had more than 15 years of work in local authority, while 30.1% had 10–14 years of experience. Regarding job titles, 33.0% were Director Generals or higher, 31.1% were Department Directors, 21.4% were Section Heads, and 14.6% were Specialists.

Characteristic	Category	Frequency	Percentage
Job Title	Director General or higher	34	33.0%
	Department Director	32	31.1%
	Section Head	22	21.4%
	Specialist	15	14.6%

4.2. Descriptive Statistics

4.2.1. Level of Management Information Systems Implementation

Table 3 presents the descriptive statistics for the dimensions of MIS implementation. The results indicate relative variation across dimensions, with the human element dimension ranking first ($M = 3.61$, $SD = 0.91$, level = 65.3%), followed by hardware ($M = 3.48$, $SD = 0.89$, level = 61.9%), then databases ($M = 3.45$, $SD = 0.91$, level = 61.4%). Software ranked lower ($M = 3.23$, $SD = 0.89$, level = 55.8%), while the networks dimension recorded the lowest level ($M = 3.17$, $SD = 0.99$, level = 54.1%). The overall mean for MIS implementation was 3.39 ($SD = 0.79$), at a level of 59.7%, indicating that MIS implementation in the General Office of Sa'dah Governorate falls at a moderate level. One-sample t-tests showed that all dimensions except networks were significantly different from the theoretical midpoint of 3.0 at $p < .01$.

Table 3. Descriptive Statistics for MIS Dimensions

Component	Mean	SD	T	Sig.	Level
Human Element	3.61	0.91	6.828	0.000	65.3%
Hardware	3.48	0.89	5.435	0.000	61.9%
Databases	3.45	0.91	5.045	0.000	61.4%
Software	3.23	0.89	2.644	0.009	55.8%
Networks	3.17	0.99	1.691	0.094	54.1%
Overall	3.39	0.79	5.000	0.000	59.7%

4.2.2. Level of Administrative Performance

Table 4 presents the descriptive statistics for the dimensions of administrative performance. The overall mean for administrative performance was 3.49 ($SD = 0.86$), at a level of 62.2%, also falling at a moderate level.

Procedure simplification ranked first ($M = 3.62$, $SD = 0.84$, level = 65.5%), followed by work quality ($M = 3.56$, $SD = 0.87$, level = 64.0%), then work quantity ($M = 3.43$, $SD = 0.91$, level = 60.8%), while completion speed ranked last ($M = 3.35$, $SD = 0.92$, level = 58.8%). All dimensions were significantly different from the theoretical midpoint of 3.0 at $p < .001$.

Table 4. Descriptive Statistics for Administrative Performance Dimensions

Dimension	Mean	SD	T	Sig.	Level
Simplification of Procedures	3.62	0.84	7.37	0.000	65.5%
Quality of Work	3.56	0.87	6.58	0.000	64.0%
Quantity of Work	3.43	0.91	4.74	0.000	60.8%
Speed of Accomplishment	3.35	0.92	3.86	0.000	58.8%
Overall	3.49	0.86	5.73	0.000	62.2%

4.3. Correlation Analysis

Correlation analysis revealed a strong, positive, and statistically significant relationship between MIS and administrative performance, with a correlation coefficient of $r = .873$, $p < .001$. All MIS dimensions were positively and statistically significantly correlated with overall administrative performance and its dimensions. Table 5 presents the correlation coefficients between MIS dimensions and administrative performance dimensions.

The correlation coefficients between MIS dimensions and overall administrative performance ranged from .733 (databases) to .873 (overall MIS), with the human element showing the strongest correlation among individual dimensions ($r = .807$, $p < .001$). All correlations were statistically significant at $p < .01$.

Table 5. Correlation Coefficients Between MIS Dimensions and Administrative Performance

Variable	Overall Performance	Quantity	Quality	Speed	Simplification
MIS Overall	0.873**	0.835**	0.842**	0.853**	0.818**
Hardware	0.771**	0.744**	0.742**	0.758**	0.716**
Software	0.767**	0.741**	0.734**	0.744**	0.736**
Networks	0.767**	0.748**	0.736**	0.742**	0.714**
Databases	0.733**	0.681**	0.716**	0.709**	0.687**
Human Element	0.807**	0.753**	0.768**	0.814**	0.758**

Note: ** $p < .01$.

4.4. Regression Analysis

Simple linear regression was conducted to examine the predictive relationship between MIS and administrative performance. Table 6 presents the regression results. The regression model showed a statistically significant

relationship between MIS and administrative performance ($F = 325.000$, $p < .001$), with a correlation coefficient of $R = .873$ and a standardized regression coefficient of $\beta = .873$. The coefficient of determination ($R^2 = .763$) indicates that the regression model explains 76.3% of the variance in administrative performance among study participants.

Table 6. Simple Linear Regression Results

Model	B	Std. Error	B	t	Sig.	R	R ²
Constant	0.242	0.185	-	1.309	0.193	-	-
MIS	0.958	0.053	0.873	18.028	0.000	0.873	0.763

Based on these results, the main hypothesis (H_1) stating that MIS implementation is positively and statistically significantly associated with administrative performance in the General Office of Sa'dah Governorate was accepted.

4.5. ANOVA

One-way ANOVA was conducted to examine differences in MIS implementation level according to age, educational qualification, job title, and years of work in local authority. Table 7 presents the ANOVA results.

Table 7. One-way ANOVA Results for MIS Implementation by Demographic Characteristics

Variable	F	Df	P	Significance
Age	2.019	3.99	0.116	Not significant
Educational Qualification	0.475	2.100	0.623	Not significant
Years of Work in Local Authority	6.023	3.99	0.001	Significant
Job Title	0.629	3.99	0.598	Not significant

Note: Significance at $p < .05$

The results showed no statistically significant differences in MIS implementation level according to age ($F(3,99) = 2.019$, $p = .116$), educational qualification ($F(2,100) = 0.475$, $p = .623$), or job title ($F(3,99) = 0.629$, $p = .598$). However, statistically significant differences emerged according to years of work in local authority ($F(3,99) = 6.023$, $p = .001$). Post-hoc Scheffé tests indicated that respondents with more than 15 years of experience had significantly higher perceptions of MIS implementation than those with less than 5 years of experience.

5. DISCUSSION

The findings provide empirical evidence that Management Information Systems can function as a digital organizational capability associated with administrative process efficiency and organizational performance in a fragile institutional context. The discussion therefore focuses on how the integration of hardware, software, databases, networks, and human capabilities supports information processing, procedural simplification, work quality and quantity, and completion speed. The findings are interpreted through Information Processing Theory and the Resource-Based View and compared with prior empirical evidence.

Level of MIS Implementation and Administrative Performance

The results revealed moderate levels of both MIS implementation and administrative performance in the General Office of Sa'dah Governorate. The moderate level of MIS implementation is consistent with findings

from other Yemeni contexts. Al-Hussam (2025) found moderate levels of MIS implementation in the Social Fund for Development, while Al-Hajji and Muad (2026) reported similar findings in the Ministry of Education and Scientific Research. The moderate level of administrative performance is also consistent with prior studies in Yemeni public institutions (Al-Ma'mari et al., 2022; Al-Manzū' & Al-Mahdi, 2024).

The human element was the strongest MIS dimension, whereas networks and software were the weakest. This pattern highlights the role of human capability in converting digital resources into usable organizational capability. Employees' knowledge and ability to operate systems, interpret information, and connect it to administrative routines can help sustain work processes when technical resources are constrained. This interpretation aligns with the Resource-Based View, which emphasizes that organizational value emerges from the integration of resources rather than technology alone (Barney, 1991; Bharadwaj, 2000), and with studies emphasizing user competencies in information system effectiveness (Matimbwa & Kamala, 2024; Pereira et al., 2024).

The relative weakness of networks and software also has direct implications for process efficiency. Connectivity and functional software support the movement, processing, and retrieval of information required to complete administrative procedures. Their weakness may therefore constrain the ability of employees to simplify procedures, maintain work quality, increase work quantity, and complete tasks promptly. The infrastructure challenges documented in fragile and conflict-affected

settings (Alarabiat, 2025; World Bank, 2025) reinforce the importance of treating these components as part of an integrated organizational capability rather than as isolated technical investments.

Relationship Between MIS and Administrative Performance

The strong positive correlation between MIS and administrative performance ($r = .873$, $p < .001$) and the high explanatory power of the regression model ($R^2 = .763$) provide strong empirical evidence of their association. The result is consistent with the general direction reported in the literature (Al-Ma'mari et al., 2022; Al-Hussam, 2025; Fadhil et al., 2021; Mao & Zhu, 2025; Pereira et al., 2024). Within the present study, the association is particularly relevant to administrative process efficiency because the performance measure includes work quantity, work quality, completion speed, and simplification of administrative procedures.

From the perspective of Information Processing Theory, the strong association can be understood through the role of MIS in increasing the organization's capacity to collect, process, retrieve, and share information under uncertainty (Galbraith, 1973; Tushman & Nadler, 1978). These functions can support coordination and decision-making while reducing information delays and facilitating administrative procedures. In practical terms, an integrated MIS can help employees access relevant information, coordinate tasks, and complete procedures more efficiently.

From the Resource-Based View, the association reflects the integration of technological, informational, and human resources into an organizational capability (Barney, 1991; Bharadwaj, 2000; Melville et al., 2004; Wade & Hulland, 2004). The finding that the human element was the strongest MIS dimension supports this interpretation: employees' capacity to use systems, understand information, and connect it to procedures represents a complementary capability through which technology can generate organizational value. Thus, process efficiency is not attributable to hardware or software in isolation, but to their coordinated use with databases, networks, human skills, and organizational routines.

The correlation analysis further revealed that all MIS dimensions were positively correlated with all administrative performance dimensions, with the human element showing the strongest correlation with completion speed ($r = .814$). This finding suggests that human capability may be especially important for the timeliness of administrative work, while the integration of technical and informational components can support broader improvements in procedural flow, work quality, and work quantity. Taken together, the results support interpreting MIS as a technology-enabled organizational capability whose value depends on the coordinated functioning of its components.

However, these findings represent correlational and predictive relationships rather than causal effects. The cross-sectional design precludes establishing causality, and other organizational and administrative factors may

contribute to explaining the remaining variance in administrative performance. The findings should therefore be interpreted as empirical evidence of an association between MIS capability and administrative process efficiency rather than proof that MIS independently causes performance improvements.

Demographic Differences

The finding that MIS implementation perceptions differed by years of work experience, but not by age, educational qualification, or job title, provides interesting insights. This result suggests that organizational experience may be more associated with employees' perceptions of MIS implementation than other demographic characteristics tested. Accumulated experience and knowledge may help employees understand organizational procedures and routines and connect information system use to daily tasks.

This interpretation is consistent with the Resource-Based View, which emphasizes the importance of human capacities and organizational knowledge in transforming IT resources into organizational value (Bharadwaj, 2000; Wade & Hulland, 2004). It also intersects with the findings of Matimbwa and Kamala (2024), which highlighted the importance of user skills and experience in information system performance in local governments. The absence of significant differences by age, educational qualification, and job title suggests that these characteristics may be less relevant to MIS perceptions than experience with the organizational context. This may be because employees of various ages, qualifications, and positions share similar experiences with the available systems and face similar constraints.

However, it should be noted that this finding does not imply that years of work in local authority moderate the relationship between MIS and performance, as the moderating effect was not statistically tested in the present study.

6. CONCLUSION

This study examined Management Information Systems as a digital organizational capability associated with administrative performance in a fragile institutional context. The results showed moderate levels of MIS implementation and administrative performance, with the human element representing the strongest MIS component and networks and software requiring further development. MIS was strongly associated with administrative performance ($r = .873$, $p < .001$), and the regression model explained 76.3% of its variance ($R^2 = .763$). These findings are interpreted as correlational and predictive rather than causal.

The study provides empirical evidence of the organizational value of MIS as a technology-enabled capability. Its value is associated with the institution's capacity to integrate hardware, software, databases, communication networks, and human capabilities into information-processing and administrative routines. Through this integration, MIS can support procedural

simplification, work quality and quantity, completion speed, coordination, and the effective use of information in administrative work.

The findings also indicate that digital transformation in resource-constrained settings should be understood as organizational capability development rather than as technology acquisition alone. Networks, software, databases, and hardware require complementary human capabilities and administrative routines if they are to contribute to process improvement. This perspective is consistent with Information Processing Theory, which emphasizes information-processing capacity under uncertainty, and the Resource-Based View, which emphasizes the integration of resources into organizational capabilities.

The contribution of the study is therefore not limited to documenting a relationship between MIS and administrative performance. It provides empirical evidence on how an integrated, technology-enabled organizational capability is associated with administrative process efficiency in a fragile institutional setting. The General Office of Sa'dah Governorate and Yemen serve as the empirical context in which this association was examined, while the broader implication concerns the organizational role of MIS in supporting digital transformation and capability development under resource constraints.

7. PRACTICAL IMPLICATIONS AND RECOMMENDATIONS

The practical implications of the findings are that MIS should be developed as an integrated digital organizational capability rather than as a collection of separate technologies. The following recommendations focus on process efficiency, procedural simplification, work quality and quantity, completion speed, and capability development:

Strengthen communication networks and digital infrastructure, and update software and databases, with priority given to components that showed lower implementation levels. Reliable connectivity, functional software, and accurate databases provide the information-processing foundation required for efficient administrative procedures.

Enhance employee training and develop informational and technical skills, leveraging employees' accumulated experience in system use and procedure improvement. Human capability should be treated as a complementary digital resource that enables employees to interpret information and use MIS effectively in daily administrative work.

Integrate hardware, software, networks, databases, and human resources so that information can move efficiently across administrative activities. The organizational value of MIS depends on the coordinated functioning of these components rather than on improvements in any single component.

Redesign and digitize administrative procedures to simplify transactions, reduce bottlenecks, increase completion speed, and improve information use. Process mapping and workflow redesign can help connect MIS capabilities directly to measurable improvements in administrative work.

Integrate MIS into institutional development plans as a digital organizational capability, linking technological investment to human resource development, process improvement, and information-use practices. This alignment can help convert technology expenditure into sustained organizational capability.

Support MIS sustainability in fragile environments through affordable and maintainable technical solutions and collaboration with relevant government and development partners in infrastructure, training, and capacity building.

Treat digital transformation as a process of organizational capability development rather than merely technology acquisition. Attention should be given to organizational routines, change management, human capabilities, and the integration of digital resources into administrative processes.

8. LIMITATIONS AND FUTURE RESEARCH

Several limitations of this study should be acknowledged, and these provide directions for future research.

8.1 Limitations

Cross-sectional Design: The study employed a cross-sectional design, which precludes establishing causal relationships between MIS and administrative performance. The findings should be interpreted as correlational and predictive rather than causal.

Single-Source Data: The reliance on self-reported data from a single source raises the possibility of common method bias. Although procedural and statistical remedies were employed, residual common method effects cannot be entirely excluded.

Perceptual Measures: The study used perceptual measures of both MIS implementation and administrative performance. While these measures are appropriate for capturing respondents' perceptions, they may not fully reflect objective indicators of performance.

Single Context: The study was conducted in a single institution (the General Office of Sa'dah Governorate), which may limit the generalizability of findings to other local government institutions or to different fragile contexts.

Limited Generalizability: The specific characteristics of the Yemeni conflict and governance context may limit the applicability of findings to other fragile and conflict-affected settings.

8.2 Future Research Directions

Longitudinal Studies: Future research should employ longitudinal designs to examine the causal direction of the relationship between MIS and administrative performance over time.

Objective Performance Indicators: Studies incorporating objective performance indicators (e.g., processing times, error rates, service delivery metrics) would complement perceptual measures and provide more robust evidence.

Comparative Studies: Comparative research examining multiple local government institutions across different fragile contexts would enhance understanding of contextual factors that shape the MIS-performance relationship.

Moderating and Mediating Variables: Future research should examine potential moderators (e.g., organizational culture, leadership support, environmental turbulence) and mediators (e.g., information quality,

coordination effectiveness) in the MIS-performance relationship.

Qualitative Research: In-depth qualitative studies could provide richer understanding of how employees in fragile environments navigate technological constraints and develop workarounds to maintain administrative performance.

Intervention Studies: Quasi-experimental or intervention studies examining the impact of specific MIS improvements (e.g., network upgrades, software implementations, training programs) on administrative performance would provide stronger evidence for causality.

Digital Transformation in Fragile Settings: More research is needed on the unique challenges and opportunities of digital transformation in conflict-affected and resource-constrained environments, including the role of humanitarian actors and international partners in supporting digital infrastructure.

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