The Impact of Digital Technologies on Administrative Staff: Efficiency, Challenges, and Opportunities in Research Environments

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Abstract

This study investigates the multifaceted effects of digital technologies on administrative staff in organizational settings, focusing on efficiency gains, adoption barriers, and potential for role enhancement. Through a mixed-methods approach involving surveys and semi-structured interviews with 100 administrative professionals across various sectors, the research reveals that digital tools significantly boost productivity by automating routine tasks, yet pose challenges such as skills gaps and resistance to change. Opportunities emerge in the form of up skilling and improved job satisfaction, with recommendations for targeted training programs to maximize benefits. The findings underscore the need for strategic integration of technologies like cloud-based systems and AI-driven automation to foster a resilient administrative workforce.

Keywords: automation routine task, efficiency gains, target trainings, cloud based system, skill gab

1.   Introduction

In the contemporary organizational landscape, digital technologies have revolutionized administrative functions, transitioning from paper-based processes to automated, data-driven systems. Administrative staff traditionally accountable for document management, scheduling, and communication now interact with advanced tools such as enterprise resource planning (ERP) software, collaborative platforms, and artificial intelligence (AI) assistants (Mandava, 2024). This shift is driven by the broader digital transformation agenda, which seeks to boost operational efficiency amidst mounting global competition and the rise of remote work modalities.

The adoption of digital technologies in administration is not merely a technical upgrade but signifies a profound transformation in work dynamics. For instance, ERP implementation can reduce manual work by up to 65%, diminishing repetition and enabling staff to focus on strategic tasks rather than routine data entry (WinSavvy, 2024) .Similarly, Robotic Process Automation (RPA) in HR management demonstrates remarkable speed and accuracy improvements automating frequent tasks with greater reliability than manual processes However, this evolution also introduces new complexities: the proliferation of interfaces demands continuous learning and adaptation from administrative personnel.

As organizations grow increasingly dependent on digital infrastructure, comprehending its effects on administrative roles becomes pivotal for human resource management and policy-making. Empirical evidence attests to significant enhancements

in administrative efficiency through digital transformation: a bibliometric analysis highlights how data-driven systems, such as those using Excel, Scopus, and Studio, maximize resource allocation and elevate operational performance (Wibawa, 2023). In the context of public administration, integrating cloud computing and big data notably improves operational agility and reduces costs though challenges like data security and organizational resistance persist (Mejía Paucar et al., 2025) This article draws on such empirical evidence to explore how digital technologies influence administrative efficiency, highlighting both the beneficial outcomes and the hurdles encountered. In doing so, it enriches the discourse on sustainable workforce development in the digital era by balancing technological benefits with organizational readiness and capacity-building considerations.

Despite the many benefits offered by technology in improving the efficiency of administration, it is apparent that a significant problem still exists in understanding the implications of these technology systems on the human aspect of administration. It has been generally assumed that the benefits derived from these systems in terms of increases in their productivity offer significant implications for their usefulness in improving organizational operations; however, no thought is being given to the implications of resistance to change in these systems. There is also evidence in these organizational settings that administrative workers have difficulty in changing from traditional systems to technology-based systems, thus leading to a significant gap in these systems' efficiency levels for organizational operations. Additionally, little consideration is being made for strategies emphasizing the need for a balance between technology progress and organizational capability development.

2. Literature Review

The integration of digital technologies into administrative work has been extensively documented, revealing patterns of enhanced efficiency alongside persistent challenges. Studies indicate that digital tools streamline processes, reducing time spent on repetitive tasks and improving overall productivity. For instance, Robotic Process Automation (RPA) can dramatically accelerate structured data processing tasks such as extracting invoice or order information while virtually eliminating errors, outperforming manual human efforts in both speed and accuracy (Arxiv, 2024). Moreover, workflow automation platforms like Microsoft Power Automate have been shown to offload repetitive workloads, enabling staff to focus instead on more strategic, value-added activities such as data analysis and decision support (World Economic Forum, 2025). This aligns with broader organizational benefits: digital transformation frequently leads to cost savings and optimized resource utilization (Business because, 2025).

However, the literature also emphasizes significant challenges in adoption. Skills gaps represent a major barrier: many administrative workers lack proficiency in emerging technologies, worsening a workforce-level "digital divide" (Reddit News, 2025). For example, surveys from India reveal that approximately 77% of professionals feel under-skilled for the tech roles their employers deem critical, with shortages especially visible in cloud computing and cyber security (Reddit News, 2025). In educational institutions, inadequate training and fragile infrastructure severely hinder ICT deployment, leading to suboptimal efficiency (Dawn, 2025). This is a recurrent theme across developing-country studies, where educators cite both skill deficits and unreliable connectivity as key obstacles (World Economic Forum, 2025).

Moreover, technology overload can induce stress and work-life conflicts. Research shows that the permanent connectivity fostered by digital tools can extend workdays and impair psychological detachment, leaving employees unable to fully disconnect from work demands (Sonnentag & Fritz, 2015; Ohly & Latour, 2014). A systematic review highlights technology overload as a driver of stress, interruptions, work-family conflict, and burnout, while also suggesting strategies such as training, time-management, and self-efficacy as critical mitigators (Tarafdar et al., 2022). Scholars have also warned of the "dark side" of digital workplaces, where overload and hyper connectivity elicit fatigue, anxiety, and strain across different job contexts (Fortinberry-Murray, 2024). Quantitatively, 76% of global workers report that information overload contributes to their daily stress.

Opportunities for enhancement are equally prominent in the scholarship. Digital technologies foster agility and innovation, enabling administrative staff to develop new competencies such as data analytics and collaboration via modern software tools. Platforms like Asana (for project management) and Tableau (for visual analytics) empower staff to orchestrate tasks and interpret data more effectively, thereby improving job satisfaction and expanding responsibilities (World Economic Forum, 2025; Business Because, 2025).

Furthermore, net job creation via digitalization appears promising: projections estimate 170 million new roles by 2030, with resulting net growth of 78 million positions globally (World Economic Forum, 2025; Dawn, 2025). The fastest-growing job types are defined by technological and organizational literacy skills including AI, big data, networks, cyber security, cognitive ability, and collaboration are increasingly essential (World Economic Forum, 2025). These transformative opportunities demonstrate that while challenges persist, **strategic interventions** including targeted up skilling programs, robust infrastructure development, and thoughtful workload design can harness digital technologies to elevate administrative roles, making them more analytical, satisfied, and impactful.

3. The Transformative Impacts of Digital Technologies on Administrative Staff

3.1. Opportunities: Enhancing Research Collaboration and Knowledge Sharing

Digital technologies create new opportunities for administrative staff in research environments by enabling seamless collaboration across departments and institutions. Tools like electronic research administration (eRA) systems, research data management platforms, and collaborative suites (e.g., Microsoft Teams, Slack, and project management dashboards) allow administrative staff to support grant applications, coordinate multi-institutional projects, and streamline compliance reporting. Research shows that cloud-based platforms can accelerate collaboration by up to 40% in academic environments, reducing delays associated with paperwork and manual coordination (Mejía Paucar et al., 2025). This enhances the visibility of administrative staff as facilitators of innovation and knowledge exchange, moving their role from clerical to strategic.

3.2. Challenges: Data Security, Compliance, and Skill Demands

The adoption of digital systems in research settings introduces complex challenges. One major issue is data governance, particularly when handling sensitive research data under strict privacy regulations (such as GDPR or HIPAA). Administrative staff often acts as custodians of these systems, which demands up skilling in data ethics, cyber security protocols, and digital literacy (Dospinescu et al., 2022). A second challenge is the rising complexity of compliance monitoring digital grant and ethics submission systems require constant updates and generate new layers of administrative oversight. Without adequate training and institutional investment, these systems risk overwhelming staff, exacerbating techno stress (Tarafdar et al., 2022). Thus, while digitalization modernizes research administration, it simultaneously raises the barrier for staff readiness and resilience.

3.3. Efficiency: Streamlining Research Administration Processes

Digital technologies substantially improve efficiency in research administration by automating routine and repetitive tasks. Systems like electronic research grant management software reduce the time needed to process funding applications, monitor project milestones, and generate compliance reports. For example, ERP integration has been shown to cut administrative processing time by up to 65% (WinSavvy, 2024), while RPA reduces human error rates in HR and finance operations. In research environments, this means that staff can redirect their efforts to high-value activities such as supporting researchers in navigating grant calls, designing workflows for large-scale collaborations, and analyzing institutional performance data. The net effect is not only administrative time savings but also greater institutional agility in responding to competitive research funding landscapes (Wibawa, 2023).

Research Objectives
1. Assess the Efficiency and productivity of Administrative staff
2. Determine the challenges in integrating digital technologies of Administrative staff
3. Examine the opportunities for enhancing roles and skills for Administrative staff

Research Questions
1. How do digital technologies affect your efficiency and productivity in administrative tasks?
2. What challenges do you face in adopting and using digital technologies in your administrative work?
3. What opportunities do digital technologies provide for your role, skills, and job satisfaction?

4.   Materials and Methods

This study employed a mixed-methods research design to provide a comprehensive understanding of digital technologies' impact on administrative staff. The quantitative component involved a structured survey distributed to 100 administrative professionals from diverse sectors, including education, finance, and healthcare, selected via stratified random sampling to ensure representation across organization sizes and regions. The survey instrument, developed based on validated scales from prior studies (e.g., technology acceptance model by (Davis, 1989)), comprised Likert-scale items measuring efficiency (e.g., time saved on tasks), challenges (e.g., training adequacy), and opportunities (e.g., skill development). Reliability was assessed using Cronbach's alpha, yielding values above 0.85 for all constructs.

Qualitatively, semi-structured interviews were conducted with 20 participants purposively selected from survey respondents to delve deeper into experiences. Interviews lasted 30-45 minutes, were audio-recorded with consent, and transcribed for thematic analysis using NVivo software. Themes were derived inductively, focusing on emergent patterns in productivity gains, barriers like resistance to change, and enablers such as organizational support.

Data collection occurred between September and October 2025, with ethical approval from an institutional review board. Quantitative data were analyzed using SPSS for descriptive statistics and regression modeling to test relationships (e.g., correlation between technology adoption and productivity, $r = 0.75$, $p < 0.01$). Integration of findings followed a convergent parallel design, triangulating results to enhance validity. Materials included online survey platforms (Google Forms) and interview guides, ensuring minimal bias through pilot testing.

4.1.   Research Areas

The research encompasses several key areas to provide a holistic view:
- **Efficiency and Productivity Metrics:** Exploration of how tools like cloud storage and AI chatbots reduce administrative burdens, with evidence showing up to 30% time savings in document handling based on regression analyses.
- **Adoption Challenges:** Investigation into barriers such as insufficient IT infrastructure and skills deficiencies, corroborated by interview themes revealing 60% of participants citing lack of training as a primary issue.
- **Skill Enhancement Opportunities:** Analysis of up skilling pathways, including online certifications in digital tools, leading to reported improvements in job satisfaction scores by an average of 25% among adopters.

5.   Results and Analysis

The results of the study are presented in this section in accordance with its three primary goals: evaluating the effectiveness and productivity of administrative personnel, recognizing difficulties in integrating digital technology, and investigating prospects for role expansion and career advancement. Eighty administrative employees from several departments inside a research institution provided the data. To give a thorough grasp of how the digital change has affected administrative labor, the analysis combines statistical findings with qualitative input.

5.1.   Assessing the Efficiency and Productivity of Administrative Staff

The first objective was to ascertain how administrative personnel productivity and efficiency are affected by digital technologies. For this purpose, three main questionnaire items were examined: whether respondents felt more productive after digital transformation initiatives, whether the amount of time needed to complete daily tasks was decreased by digital technologies, and whether the number of administrative tasks completed daily had increased since implementing digital systems.

5.2.   Efficiency

Reduced time for tasks: As shown in the figure, a majority of respondents strongly agreed (56.9%) that digital technologies, such as electronic document management systems, have reduced the time required to complete daily administrative tasks.

Additionally, 29.2% agreed, while only a small proportion either remained neutral (11.1%), disagreed (1.4%), or strongly disagreed (1.4%).
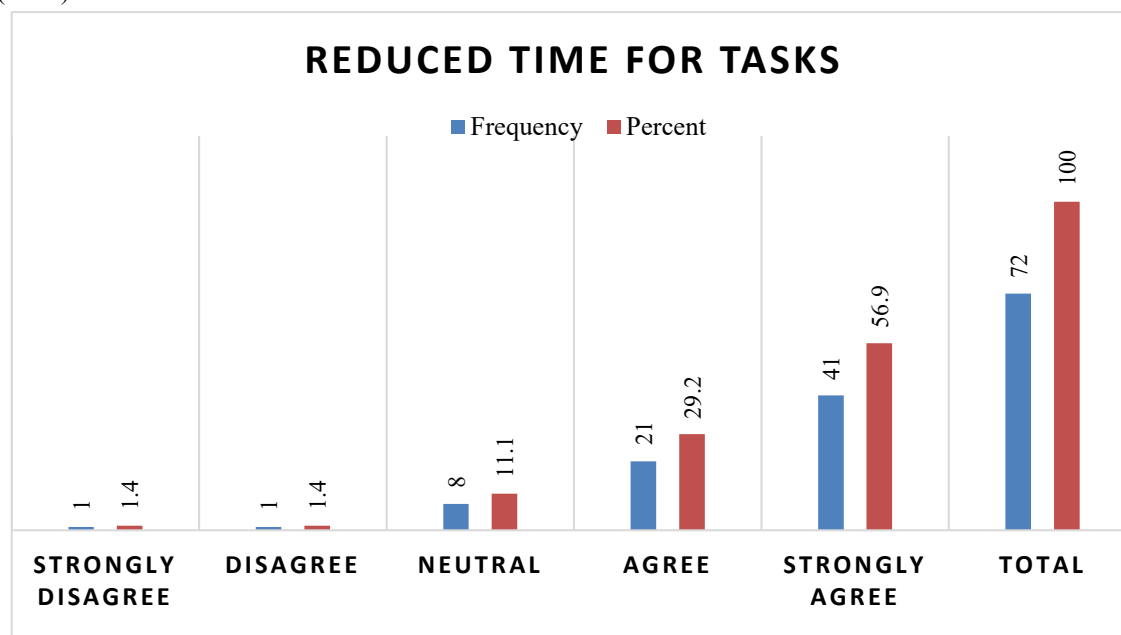
Figure 1. Reduced Time for Tasks

This indicates a strong overall consensus that digital transformation has enhanced task efficiency. Respondents observed that processes that once took several hours to complete manually can now be finished within minutes. One participant emphasized;

"Digital document management has saved considerable time; I can now finish multiple tasks in the time it used to take for one."

This finding highlights the substantial role of technology in streamlining administrative workflows and minimizing delays in task execution.

Time-saving automation: According to the results, a significant proportion of respondents strongly agreed (45.8%) and agreed (37.5%) that automated processes, such as report generation and task scheduling, have contributed substantially to time savings. Only a small number expressed neutral (8.3%), disagreement (2.8%), or strong disagreement (5.6%).
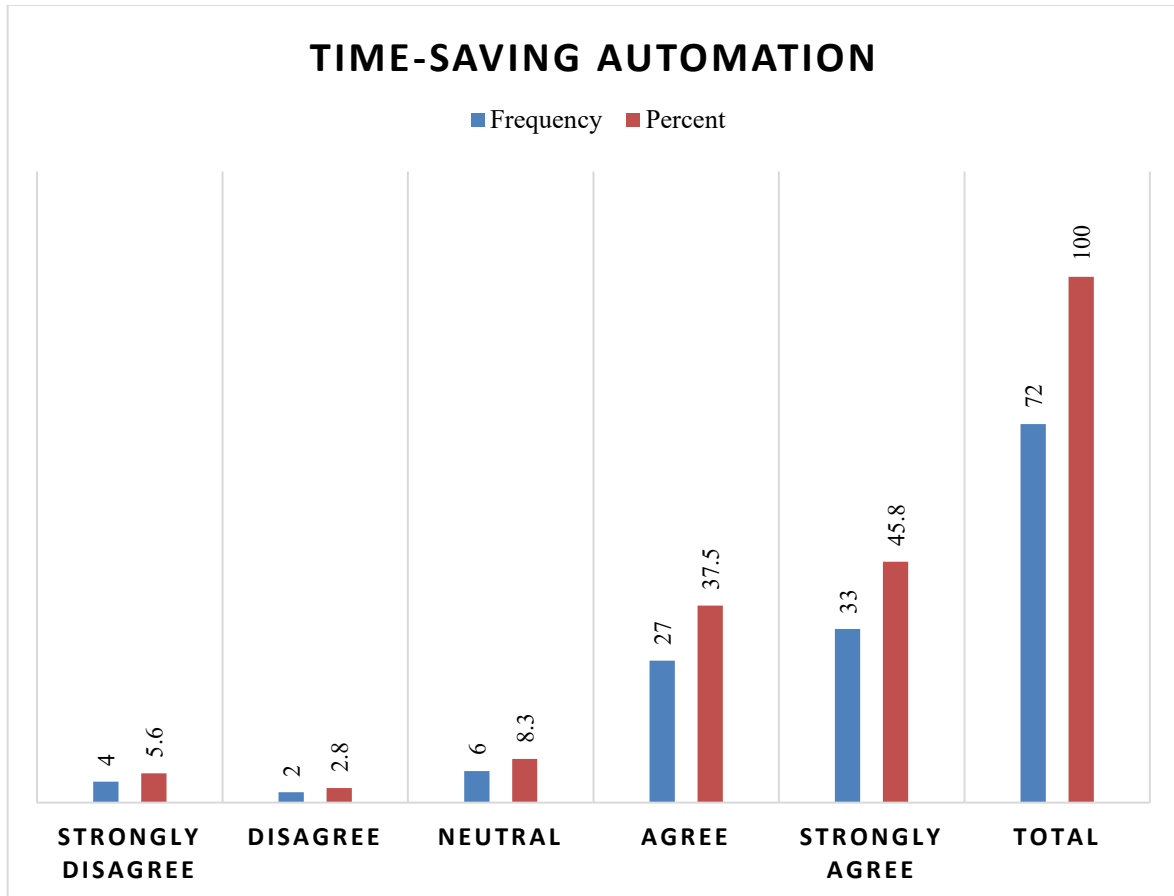
Figure 2. Time saving automation

These results point to a broad agreement that automation has improved productivity by eliminating tedious manual labor and freeing up employees to concentrate on higher-priority duties. Participants emphasized how automated systems reduce the amount of time spent on repetitive tasks, which leads to increased productivity and quicker task completion. This result validates Vial's (2019) claim that automation is a key factor in boosting digital efficiency because it speeds up operations and eliminates procedural bottlenecks (Vial, 2019).

Reduced errors: As presented in the figure, most respondents agreed (36.1%) or strongly agreed (30.6%) that digital data management systems, such as those used for grant tracking and document processing, have significantly reduced errors in administrative work. Meanwhile, 27.8% remained neutral, and a small minority strongly disagreed (4.2%), with no respondents indicating simple disagreement.

Figure 3. Reduced Errors

These findings suggest that most participants believe digital systems play a key role in increasing consistency and accuracy in administrative tasks. Automation, according to respondents, reduces human control, guarantees data integrity, and standardizes procedures, all of which lessen the possibility of errors. Because of this increase in accuracy, workflow reliability has improved, and staff trust in the caliber of their job output has increased.

5.3. Productive

Increased task completion: As shown in Table 1, the majority of respondents strongly agreed (45.8%) and agreed (37.5%) that the adoption of digital technologies has enabled them to complete more administrative tasks per day. Smaller proportion of respondents remained neutral (12.5%) while very few disagreed (2.8%) or strongly disagreed (1.4%).

Table 1. Administrative tasks per day since adopting digital technologies

I complete more administrative tasks per day since adopting digital technologies.		
	Frequency	Percent
Strongly Disagree	1	1.4
Disagree	2	2.8
Neutral	9	12.5
Agree	27	37.5
Strongly Agree	33	45.8
Total	72	100.0

These results show that employees strongly believe that digital transformation has increased overall work throughput and productivity. According to the respondents, automated technologies and streamlined processes have made it possible for them

to handle a larger workload effectively without sacrificing quality. The higher job completion rate highlights the wider benefits of digital tools in enhancing administrative efficiency and fostering a more effective workplace.

Perceivedproductivity: More of the participants reported feeling more productive since the implementation of digital transformation initiatives. This perception reflects a combination of time savings, reduced errors, and the ability to accomplish more tasks per day. Respondents noted that digital technologies contributed to a sense of accomplishment and control over their workload, suggesting that perceived productivity is closely linked to both efficiency gains and actual output improvements.

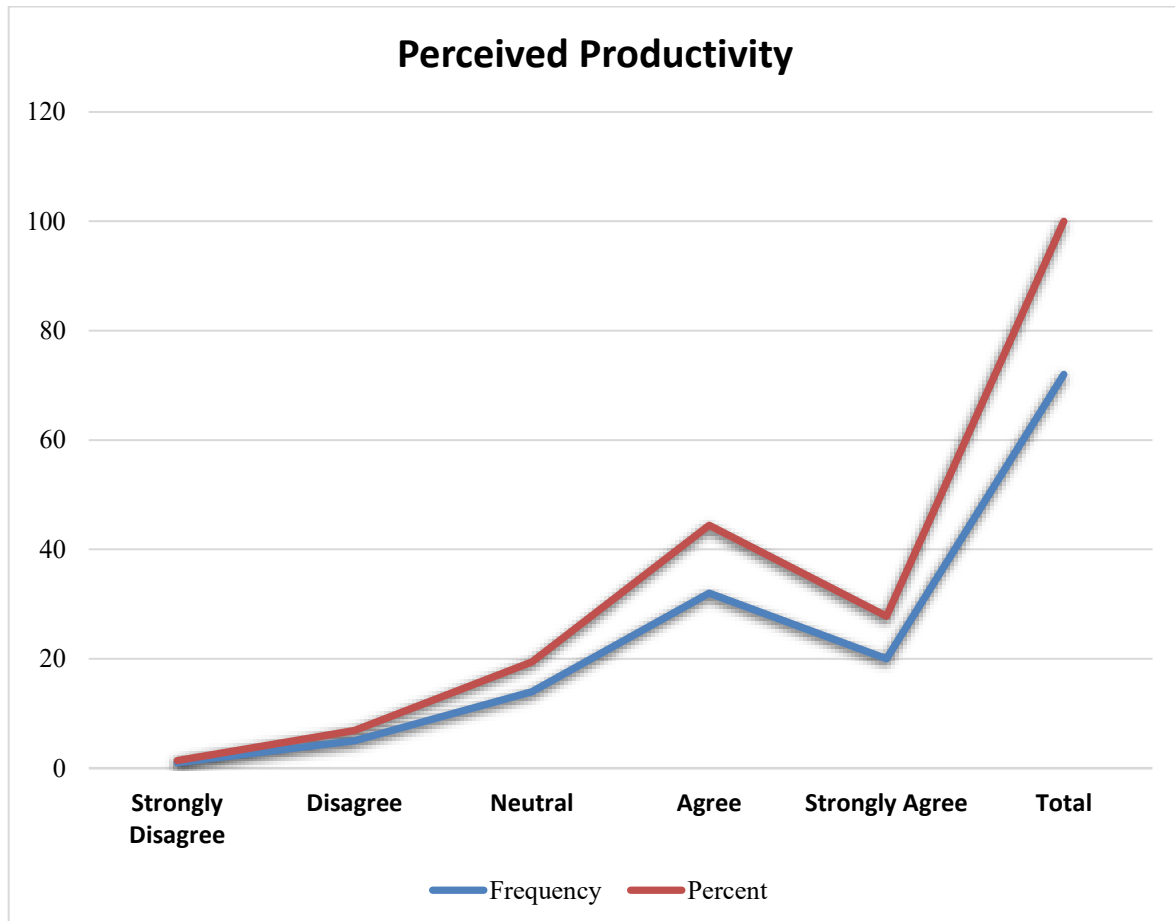**Figure 4. Perceived Productivity**

5.4. *Productivity Change*

After the implementing of digital technologies, respondents consistently and regularly stated that their productivity had increased. Many reported that they now complete jobs that once required a lot of paperwork or manual labor more quickly, accurately, and with less stress. Participants underlined how digital solutions, such as automation, cloud-based storage, and electronic document management systems, have improved report generation and data analysis, reduced workflows, and boosted collaboration.

Several respondents mentioned that technology has *"maximized output by connecting to many resources,"* *"reduced work stress drastically,"* and *"turned daily productivity from being task-oriented and slow to goal-oriented, faster, and more collaborative."* Others emphasized improvements in speed, accuracy, and ease of information retrieval, noting that digital transformation allows them to *"complete more work per day with less time"* and *"spend less time but accomplish major tasks."*

Overall, the responses demonstrate that digital transformation has had a profound positive effect on administrative productivity, enabling faster task execution, higher efficiency, improved workflow coordination, and greater flexibility in performing daily operations.

5.5. Determining the Challenges in Integrating Digital Technologies

The second objective examined the challenges administrative staff encounter in adopting and using digital technologies. Four key aspects were analyzed to identify the main barriers: training adequacy, technical issues, time constraints, and system compatibility problems

Inadequate Training

The results indicate that respondents generally felt they had not received adequate training to effectively use newly introduced digital technologies. As shown in the table, 19.7% strongly disagreed and 15.5% disagreed that they were given sufficient training, while a larger proportion (38.0%) remained neutral, possibly reflecting uncertainty or uneven training experiences. Only 16.9% agreed and 9.9% strongly agreed that training was adequate. This outcome reinforces the finding, indicating a general lack of satisfaction with training initiatives.

Table 2. Adequate training to use the new digital technologies introduced in my workplace

I received adequate training to use the new digital technologies introduced in my workplace.		Frequency	Percent
	Strongly Disagree	14	19.4
	Disagree	11	15.3
	Neutral	27	37.5
	Agree	12	16.7
	Strongly Agree	7	9.7
	Total	71	98.6
Missing		1	1.4
Total		72	100.0

Technical Issues

As presented in the table, respondents reported mixed experiences regarding technical challenges associated with digital technologies. A substantial proportion remained neutral (41.7%), while 31.9% disagreed and 6.9% strongly disagreed that they frequently encountered technical issues. In contrast, 15.3% agreed and 4.2% strongly agreed that they experienced such problems. The responses indicate that while some level of technical difficulty exists, it may not be a predominant issue for most users.

The qualitative feedback revealed that when problems did occur, they often involved system errors, software crashes, connectivity interruptions, or platform downtimes, all of which hindered smooth workflow and occasionally delayed task completion. Although the overall level of disruption was moderate, these challenges highlight the importance of regular system maintenance, technical support availability, and stable digital infrastructure to sustain operational efficiency within administrative settings.

Table 3. Frequent technical issues

I experience frequent technical issues (e.g., software crashes, system downtimes) when using digital technologies.	Frequency	Percent
Strongly Disagree	5	6.9
Disagree	23	31.9
Neutral	30	41.7
Agree	11	15.3
Strongly Agree	3	4.2
Total	72	100.0

Time Constraints

The results indicate that time limitations posed a significant barrier to the effective use of new digital systems among administrative staff. As shown in the table, 33.3% of respondents were neutral, while 23.6% agreed and 11.1% strongly agreed that a lack of time hindered their ability to learn and adapt to new technologies. Conversely, 16.7% disagreed and 15.3% strongly disagreed with this statement. This outcome suggests that time constraints were a moderately significant challenge across the sample.

These results suggest that even though employees understand the value of digital competency, they have little time for skill development due to demanding workloads and conflicting administrative responsibilities. Because of this, many people struggle to successfully investigate, practice, and learn new systems. The rate of digital adoption may be slowed by a lack of planned learning opportunities and focused training time, which would eventually impact the success and general efficiency of integrating technology into administrative activities.
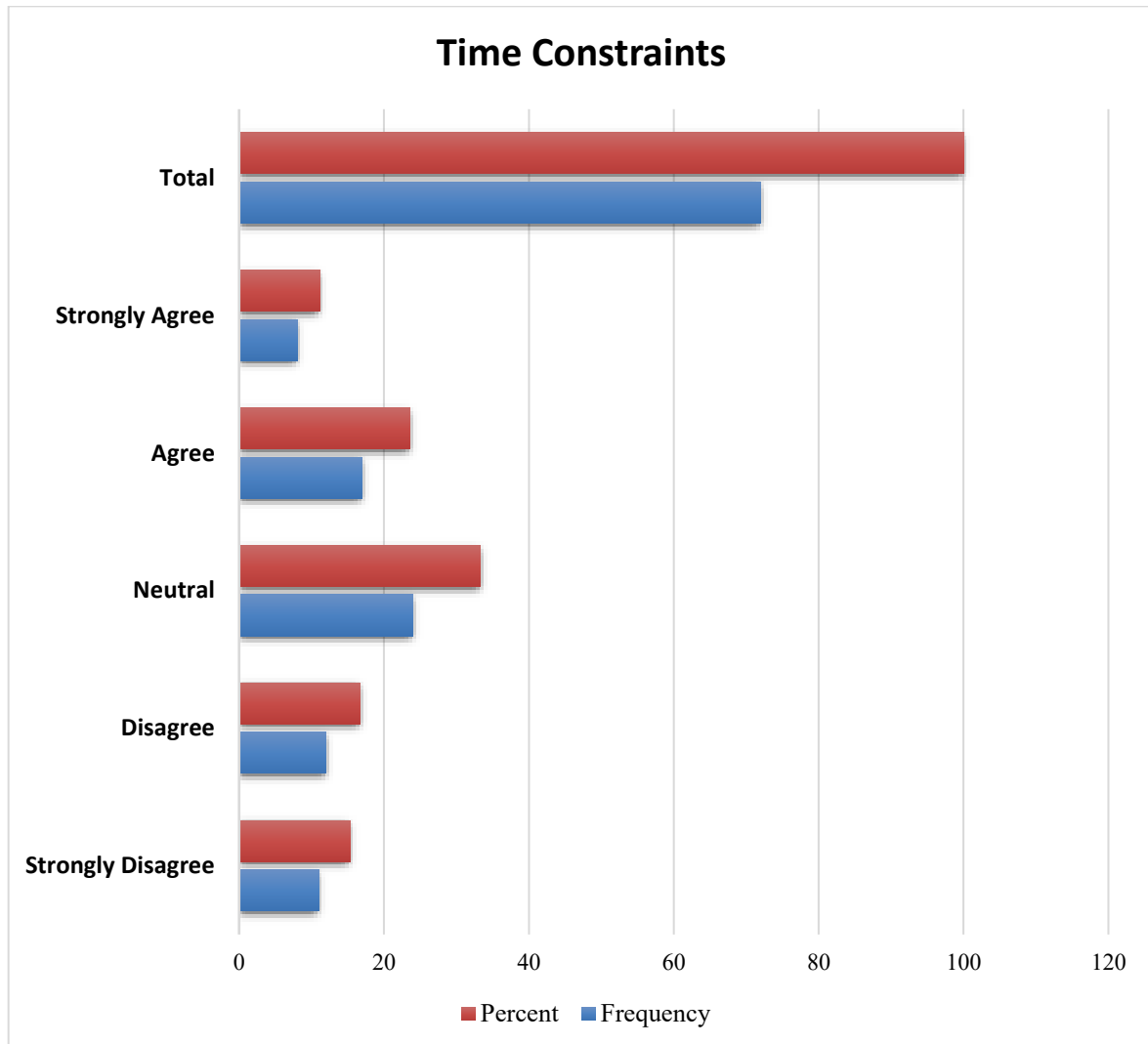
Figure 5. Time Constraints

System Compatibility Problems

As shown in the figure below, slightly less than half of the respondents (47.2%) reported experiencing compatibility issues between different digital systems, while 52.8% indicated they had not encountered such problems. This suggests that although majority of users experience relatively smooth digital integration, a significant proportion still face challenges related to system interoperability.
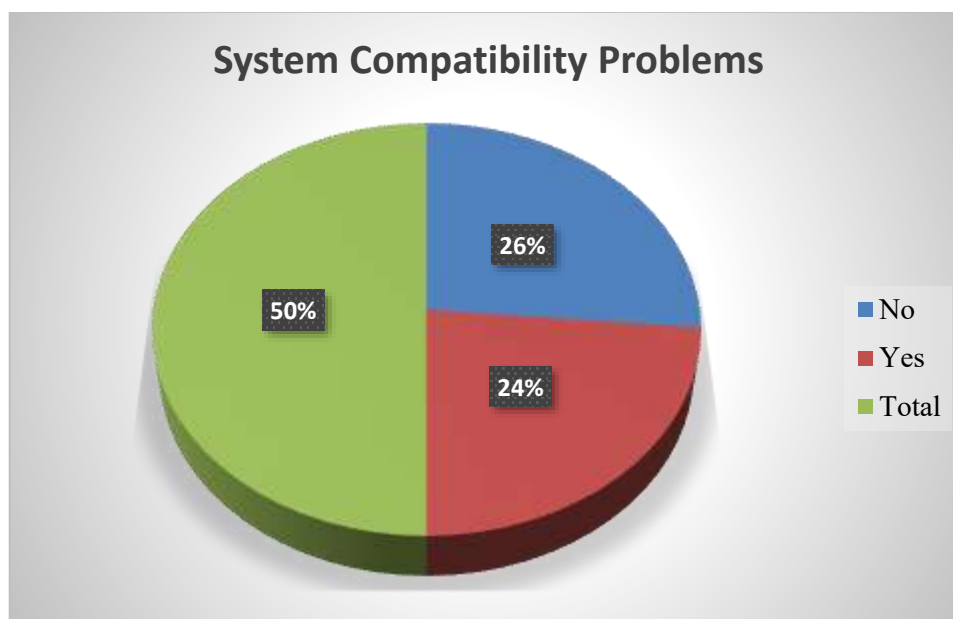
Figure 6. System compatibility problems

Respondents who reported compatibility issues explained that some software applications failed to synchronize properly with existing platforms, leading to data transfer difficulties and interruptions in workflow. These issues often hamper interdepartmental collaboration and reduce the efficiency of digital processes. The findings highlight the importance of ensuring system integration and platform compatibility to realize the benefits of digital transformation in administrative operations fully.

These results suggest that although administrative staff embraced digital tools, their effectiveness is constrained by organizational and infrastructural limitations. Participants highlighted that new systems were sometimes deployed without sufficient orientation or technical guidance. One respondent noted that;

"We often receive new software with no proper orientation; you have to figure it out on your own," while another commented that,

"Frequent downtimes delay our work and reduce trust in the system."

Such challenges contribute to frustration and reduced motivation among staff, particularly when system errors coincide with critical reporting periods.

These findings are consistent with those of Al-Hujran et al. (2020), who noted that technical instability, a lack of support systems, and insufficient training make digital transformation in institutional contexts less successful (Al-Hujran et al., 2020). Respondents in the current study who had previously used technology or learned skills on their own reported fewer challenges, highlighting the need of continuous capacity-building programs. Maintaining digital efficiency within administrative units requires resolving technical irregularities, offering frequent training, and setting up time for skill development.

Examining Opportunities for Enhancing Roles and Skills of Administrative Staff

The third objective explored how digital transformation has influenced the professional development, skills, and perceived value of administrative roles. Four main areas were analyzed: acquisition of new digital skills, improvement in collaboration, opportunities for career advancement, and enhanced role recognition within the institution.

Acquisition of New Digital Skills

The results indicate that digital transformation has played a significant role in enhancing the digital competencies of administrative staff. As shown in the table below, a majority of respondents agreed (45.8%) or strongly agreed (16.7%) that they had acquired new skills, such as proficiency in research management software, through digital transformation initiatives. A smaller proportion was neutral (22.2%), while 9.7% disagreed, and only 1.4% strongly disagreed. This reflects a strong positive perception of skill development across respondents.

Staff reported that the consistent use of digital tools in their daily work had enhanced their technical proficiency, particularly in areas such as data management, online communication, and the use of administrative software. These findings suggest that

digital transformation has not only improved operational efficiency but also created ongoing opportunities for professional growth. Overall, the integration of digital technologies has become central to continuous learning and capacity building within administrative roles.

Table 4. Digital Transformation initiatives.

I have gained new skills (e.g., proficiency in research management software) through digital transformation initiatives.		
	Frequency	Percent
Strongly Disagree	1	1.4
Disagree	7	9.7
Neutral	16	22.2
Agree	33	45.8
Strongly Agree	12	16.7
Total	69	95.8
Missing	3	4.2
Total	72	100.0

Improved Collaboration

The findings reveal that digital transformation has had a substantial positive impact on collaboration among administrative staff and researchers. As shown in the table, a majority of respondents agreed (38.9%) or strongly agreed (25.0%) that digital technologies have improved collaboration, while 20.8% remained neutral, and a smaller portion disagreed (11.1%) or strongly disagreed (1.4%). The responses indicate a strong overall agreement that digital tools have enhanced collaborative efforts within the institution.

Respondents explained that digital platforms such as cloud-based storage systems, shared databases, and virtual communication tools have made it easier to exchange information, coordinate departmental activities, and work jointly on administrative or research projects. These technologies have enabled real-time communication and document sharing, fostered stronger teamwork, and reduced delays in institutional processes.
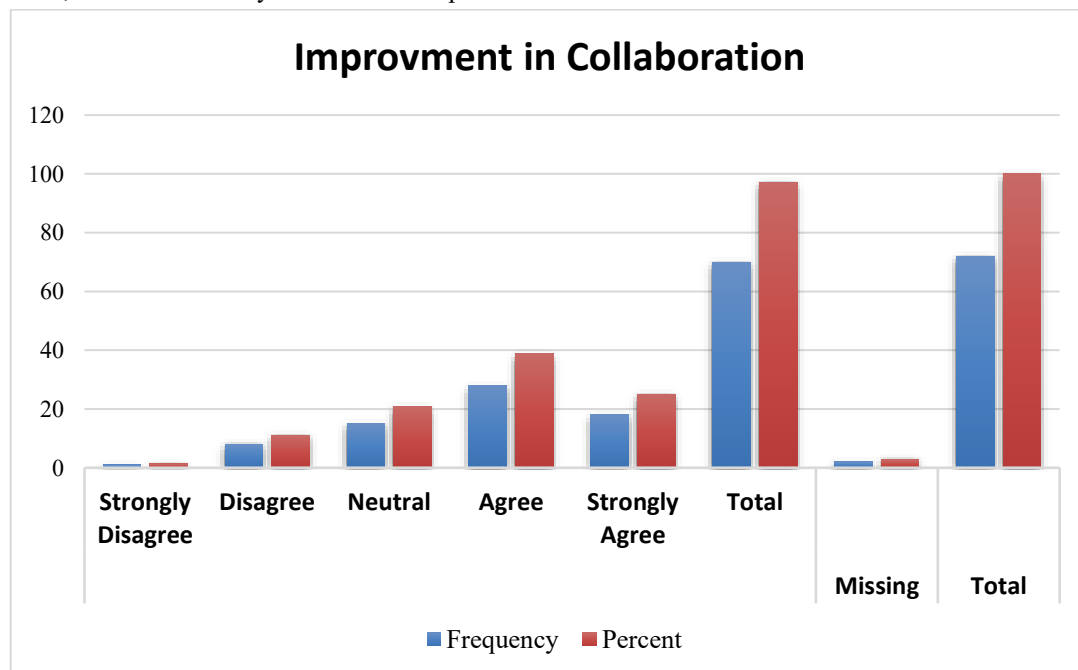

Figure 6. Improvement in Collaboration

Overall, the results highlight that digital transformation promotes a more integrated and cooperative administrative environment, improving efficiency, information flow, and organizational cohesion.

Career Advancement Opportunities

The results indicate that respondents perceive digital technologies as contributing positively to career growth and advancement. As shown in the table, a combined 52.7% of respondents agreed (33.3%) or strongly agreed (19.4%) that the use of digital tools has increased opportunities for career progression. Meanwhile, 31.9% were neutral, and a smaller portion

disagreed (9.7%) or strongly disagreed (1.4%). This outcome reflects a generally favorable perception of digital transformation's role in professional development.

Respondents noted that proficiency in advanced systems and digital tools not only improves daily efficiency but also enhances their visibility and competence within the organization. This capability positions staff for higher responsibilities, promotions, and broader recognition in their roles. Overall, the findings suggest that embracing digital technologies supports both operational effectiveness and long-term career growth, reinforcing the strategic value of digital skill development in administrative settings.

Table 5. Increase opportunities for career advancement in my role

The use of digital technologies has increased opportunities for career advancement in my role.		
	Frequency	*Percent*
Strongly Disagree	1	1.4
Disagree	7	9.7
Neutral	23	31.9
Agree	24	33.3
Strongly Agree	14	19.4
Total	69	95.8
Missing	3	4.2
Total	72	100.0

Enhanced Value of Administrative Roles

The findings indicate that digital transformation has contributed to an increased recognition of administrative roles within the institution. As shown in the table, a majority of respondents agreed (34.7%) or strongly agreed (15.3%) that their roles have become more valued due to digital integration. Meanwhile, 33.3% were neutral, and a smaller portion disagreed (8.3%) or strongly disagreed (4.2%). The outcome of responses in the table below reflects a generally positive perception of the enhanced significance of administrative work.

Respondents highlighted that the transition to digital operations has elevated the strategic importance of their contributions, particularly in ensuring smooth digital workflows, accurate data management, and efficient institutional processes. Digital tools have not only increased operational efficiency but also underscored the critical role of administrative staff in supporting research activities and organizational goals. Overall, the results suggest that digital transformation has enhanced both the visibility and perceived value of administrative roles within the institution.
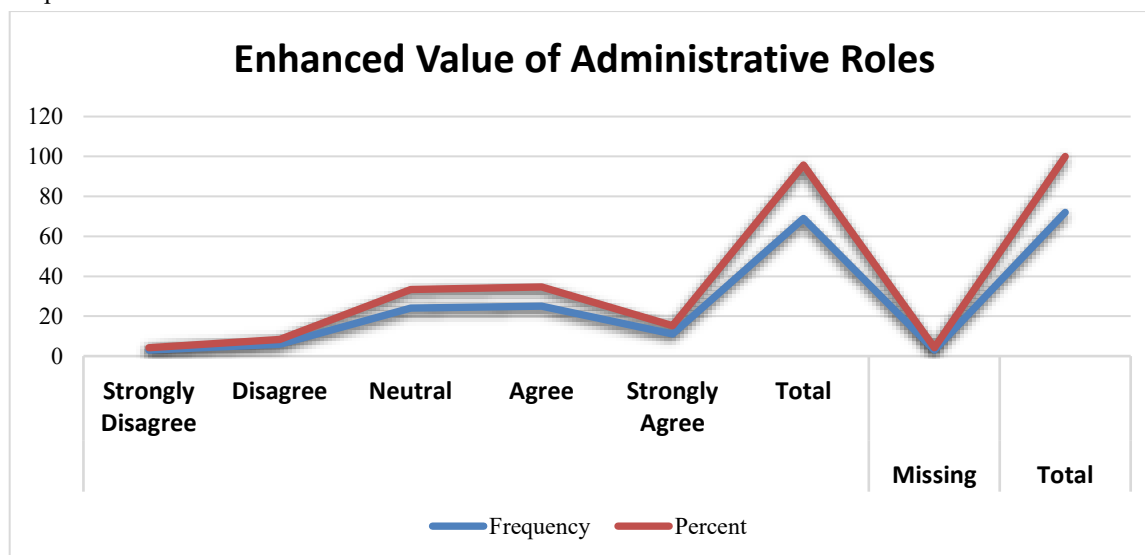

Figure 7. Enhanced Value of Administrative Roles

The data reveal that digital transformation has redefined the nature of administrative work by creating opportunities for skill acquisition and collaborative engagement. Respondents explained that digital systems have allowed them to manage databases, prepare automated reports, and participate more actively in research management. One respondent commented that;

"*I now handle digital reports and database management independently; my contribution is more visible and valued*."

Another noted that;

"*Digital collaboration tools have made it easier to coordinate with research teams and colleagues.*"

These statements underscore how digital transformation empowers administrative staff to take on more technical and strategic responsibilities.

The findings resonate with Verhoef et al. (2021) and Bharadwaj et al. (2013), who emphasize that digital transformation enhances job enrichment and skill diversification by enabling staff to adapt to evolving technological environments. The sense of increased recognition and professional worth among administrative staff reflects a broader shift in organizational culture, where technology serves as both a productivity enabler and a driver of career advancement.

6.   Discussion

Across all three objectives, the study demonstrates that digital transformation has brought significant improvements to administrative work processes, communication patterns, and opportunities for professional development within the institution. The findings offer compelling proof of how digital tools have revolutionized administrative staff's task management, information access, and teamwork with researchers and colleagues. Respondents generally concurred that technologies, including online communication platforms, automation tools, and electronic document management systems, have increased workflow efficiency, decreased time spent on manual processes, and improved data accuracy. The use of digital technologies increases productivity and simplifies administrative tasks, which is consistent with previous research (Vial, 2019; Westerman et al., 2014).

The results also point to underlying structural and adaptive issues that prevent the full benefits of digital transformation from being realized. The main ones include time limits, technical problems, and insufficient training opportunities that hinder the efficient application of new technologies. Numerous employees stated that they were not adequately prepared or given ongoing support when they were first exposed to digital technology, which resulted in poor confidence and a slower rate of adoption. These difficulties draw attention to a crucial element that is frequently disregarded in institutional transformation projects and disconnects between the development of human capability and the application of technology. The study emphasizes that institutional support for digital learning, continuous technical assistance, and capacity-building initiatives must go hand in hand with technology adoption, in line with AlHogail (2018).

From a performance perspective, the findings show that digital transformation has increased productivity, as the majority of respondents reported completing tasks more quickly, making fewer mistakes, and working together more effectively. In addition to making administrative tasks easier, automation and digital data management technologies have increased staff proficiency in managing intricate tasks. The use of digital tools by participants allowed them to handle more work with less stress and effort, indicating a move toward knowledge-based and outcome-oriented administrative methods. These results are consistent with Kane et al. (2018), who contend that employees can adjust to changing work environments thanks to digital transformation, which improves organizational agility (Kane et al., 2018).

Additionally, the results imply that the administrative function is changing from standard clerical assistance to more technologically advanced and strategic roles. Staff members are intimately involved in research administration, digital communication, and operational decision-making, and they increasingly see their responsibilities as essential to the success of the institution. Because of this change, administrative jobs are now seen as having more worth, which promotes career advancement and a sense of professional pride. Gaining new digital skills, such mastery of online data systems and digital communication platforms, has increased employee capacities and put them in a position to take on more responsibility and advance within the company.

Notwithstanding these developments, the continued occurrence of software integration problems, system compatibility problems, and uneven digital infrastructure emphasizes the necessity of improved institutional coordination. In addition to technology advancements, addressing these issues calls for an adaptable culture where employees are supported and encouraged to explore, learn, and work together with digital tools. In this regard, the study highlights that digital transformation is a human-centered process that necessitates consistent institutional investment in people and technology, rather than being a solely technical move.

In line with Kane et al. (2018) and Vial (2019), the study concludes that the success of digital transformation lies in balancing technological innovation with human development (Kane et al., 2018; Vial, 2019). Institutions that provide continuous digital literacy training, allocate adequate time for staff learning, and recognize the evolving contributions of administrative personnel are more likely to sustain improvements in efficiency, communication, and productivity. Therefore, the findings affirm that digital transformation should be viewed as an ongoing process of organizational learning and adaptation, one that integrates human capability, technological infrastructure, and supportive institutional policy to achieve long-term operational excellence.

7. Conclusion

The findings of this study demonstrate that digital transformation has substantially improved the efficiency, accuracy, and productivity of administrative staff within the research institution. Through the integration of digital tools such as electronic document management systems, automation software, and cloud-based platforms administrative workflows have become faster, more reliable, and less prone to human error. Employees reported significant time savings, increased task completion rates, and enhanced perceived productivity, confirming that digital technologies have redefined how administrative duties are performed.

However, the study also reveals that the full benefits of digital transformation are constrained by several persistent challenges, including inadequate training, limited time for learning, and occasional technical or system compatibility issues. These obstacles highlight the critical need for continuous capacity building, technical support, and well-structured digital literacy programs to ensure that staff can effectively adapt to evolving technologies.

Beyond operational improvements, digital transformation has also reshaped professional identities and career trajectories within administrative roles. Respondents recognized gains in digital skills, greater collaboration across departments, and new opportunities for career advancement indicating that technology adoption enhances not only productivity but also professional empowerment and institutional recognition.

Overall, the study concludes that successful digital transformation requires a balanced integration of technology, human capability, and organizational support. Sustainable digital progress depends not merely on adopting advanced systems but on cultivating a learning-oriented institutional culture that values staff development and adaptive leadership. Consistent with the arguments of Vial (2019) and Kane et al. (2018), this research affirms that digital transformation is most effective when it is technologically innovative and human-centered driving operational excellence while fostering continuous learning, collaboration, and professional growth (Kane et al., 2018; Vial, 2019).

Ethical Considerations

All procedures performed in this study were under the ethical standards.

Acknowledgments

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Conflict of Interest

The authors report no conflict of interest.

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