

Digitalization Adoption and Service Quality in the Registrar's Office of Selected State Universities and Colleges in Metro Manila: Basis for a Proposed Seamless, Modern, Accessible, Responsive, and Transparent Registrar Services Program

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ABSTRACT

This study assessed digitalization adoption and service quality in the Registrar's Offices of selected State Universities and Colleges (SUCs) in Metro Manila and used the findings as the basis for a proposed Seamless, Modern, Accessible, Responsive, and Transparent (S.M.A.R.T.) Registrar Services Program. A quantitative descriptive-correlational and descriptive-comparative design was employed. The respondents consisted of 697 stakeholders: 3 administrators, 41 registrar staff, 464 students, and 189 alumni clients from Eulogio "Amang" Rodriguez Institute of Science and Technology, Rizal Technological University, and Technological University of the Philippines. Data were gathered through a validated researcher-made five-point Likert survey and analyzed using percentages, weighted means, one-way analysis of variance, Tukey's HSD,

Pearson product-moment correlation, and Slovin's formula, with Jamovi used for statistical analysis. Digitalization adoption was rated highly evident overall (composite weighted mean = 4.33), with usefulness and user/staff acceptance receiving the highest ratings, while training and digital literacy received the lowest. Service quality was likewise highly evident (composite weighted mean = 4.47). The comparative analysis reported no significant differences across most dimensions, except user/staff acceptance. Digitalization adoption was significantly related to assurance/competence, empathy, tangibles/physical and digital facilities, accessibility and convenience, and security and confidentiality. Challenges in digitalization adoption (2.18) and service quality (2.13) were least encountered. The S.M.A.R.T. Registrar intervention was rated highly acceptable (4.53). The findings indicate that sustained digital transformation in registrar services should prioritize training, infrastructure, process integration, management support, and secure, accessible client-centered systems.

Keywords: *digitalization adoption, registrar services, service quality, state universities and colleges, digital transformation, public administration*

INTRODUCTION

Digitalization has become central to the modernization of higher education administration because digital technologies can reduce dependence on manual workflows, improve information availability, and support faster and more consistent service delivery. Digital transformation is not merely the acquisition of technology; it involves changes in processes, organizational routines, and stakeholder interactions that reshape how institutions create and deliver value (Alenezi, 2021; Vial, 2019; Verhoef et al., 2021). In university settings, administrative units are

therefore expected to combine technological capacity with process redesign and user-oriented service improvement.

Registrar offices are particularly important in this transition because they manage enrollment information, academic records, certifications, transcripts, and other high-stakes transactions. Their services require accuracy, timeliness, accessibility, security, and clear communication. A digital registrar system can improve the speed and consistency of transactions, yet service quality also depends on staff competence, user experience, and the ability of the system to respond to the needs of different stakeholders. Customer Experience Theory emphasizes that users evaluate services across multiple touchpoints and that their cumulative interactions influence satisfaction and continued use (Lemon & Verhoef, 2016).

In the Philippine higher education context, institutions have increasingly automated student registration, records management, and administrative processes. Studies have shown that digitized academic-record systems can improve accessibility and convenience, while successful records-management transformation requires adequate infrastructure, technical support, and clear transition plans (Purcia & Velarde, 2022; Wagan et al., 2025). However, institutions differ in technological readiness, resources, staff capabilities, and the maturity of their digital processes. These differences can shape both adoption and the quality of services experienced by users.

Technology adoption in registrar operations is also influenced by organizational and behavioral factors. Management support, compatibility with existing workflows, perceived usefulness, ease of use, training, digital literacy, and social influence can determine whether systems are accepted and used consistently. Hashim et al. (2022) emphasized the strategic role of leadership and resource allocation in higher education digital transformation, while Fearnley and Amora (2020) showed that user perceptions influence behavioral intention and actual technology use. Digital literacy and competence similarly depend on access to training and institutional support (Ballano et al., 2022).

Service quality must be examined alongside adoption because a technically implemented platform does not automatically guarantee a satisfactory service experience. Users judge registrar services through reliability, responsiveness, assurance, empathy, physical and digital facilities, accessibility, transparency, security, error handling, and overall satisfaction. Studies of higher education services indicate that convenience, responsiveness, staff competence, and clear communication influence stakeholder satisfaction (Dugenio-Nadela et al., 2023; Osalia & Celis, 2025). The quality of digital registrar services therefore emerges from the interaction between technology, organizational support, and client experience.

Despite the growing literature on digital transformation and higher education service quality, fewer studies have examined digitalization adoption and multidimensional service quality together across administrators, registrar staff, students, and alumni clients within public higher education institutions in Metro Manila. This study addressed that gap by assessing digitalization adoption and service quality in the Registrar's Offices of EARIST, RTU, and TUP; determining differences in stakeholder assessments; examining the relationship between digitalization adoption and service quality; identifying challenges; and developing and assessing the acceptability of the S.M.A.R.T. Registrar Services Program. The study was intended to provide a practical basis for strengthening registrar operations while supporting broader goals of efficient, accessible, and responsive public service.

Literature Review

Digital transformation and technology adoption in higher education

Digital transformation in higher education involves coordinated changes in technology, institutional structures, and service processes. Vial (2019) conceptualized digital transformation as organizational change triggered by digital technologies, while Verhoef et al. (2021) emphasized that transformation requires alignment among technology, strategy, organizational structures, and user value. In higher education, Alenezi (2021) similarly described digital transformation as the use of digital technologies to improve institutional processes, efficiency, and performance, including administrative services such as records management and student transactions.

The study was theoretically anchored on the Triple Logic Framework of Zhu et al. (2025), which views university digital transformation through value logic, technological logic, and practical logic. Applied to registrar services, value logic concerns the improvement of stakeholder outcomes; technological logic concerns the systems, infrastructure, and digital capabilities needed to deliver services; and practical logic concerns how technology is integrated into institutional processes. This perspective supports a balanced interpretation of digitalization because the presence of technology must be accompanied by workable processes and demonstrable service value.

Digital transformation also depends on the institution's capacity to integrate new systems with existing operations. Saghafian et al. (2021) noted that compatibility with organizational processes affects the adoption and use of technology, while Wagan et al. (2025) highlighted the importance of transition planning, data accuracy, security, and appropriate technological support in higher education records management. These studies suggest that registrar digitalization should be evaluated not only by the presence of online systems but also by their fit with established workflows and their ability to produce reliable operational improvements.

Organizational readiness, infrastructure, training, and user acceptance

Institutional readiness is a major condition for sustainable digitalization. Hashim et al. (2022) argued that leadership commitment, strategic planning, investment, and management support are required for successful digital transformation in higher education. Infrastructure is equally important: reliable networks, updated hardware, backup systems, and responsive technical support enable digital services to remain available and usable. Dwivedi et al. (2021) likewise emphasized the organizational implications of emerging technologies and the need for institutions to address technical, managerial, and implementation challenges rather than treating technology as an isolated solution.

Human capability shapes whether available systems are actually used effectively. Ballano et al. (2022) emphasized the importance of digital literacy and competence among tertiary educators, particularly where online and technology-supported work requires confidence and continuous skill development. In registrar settings, training can help staff and users navigate portals, troubleshoot common problems, and adapt to changes in procedures. When training is irregular or uneven, technically capable systems may still be underused or inconsistently applied.

User acceptance also reflects perceived usefulness, ease of use, confidence, and social influence. Fearnley and Amora (2020) found that technology acceptance in higher education is associated with users' perceptions and behavioral intention, while Garcia (2021) reported that social influence and the digital environment can affect students' acceptance of e-learning technologies. These findings are relevant to registrar services because sustained adoption depends on whether administrators, staff, students, and alumni perceive digital systems as useful, understandable, trustworthy, and compatible with their routine transactions.

Security, privacy, and trustworthy digital registrar systems

Registrar offices manage personal, academic, and institutional records, making security and privacy fundamental to digital service adoption. Ambali Parambil et al. (2024) observed that increasing reliance on online systems in higher education expands concerns about data breaches, unauthorized access, and misuse of information. Trust in a digital registrar system therefore depends on the institution's ability to protect confidentiality, authenticate users, control access, and communicate privacy practices clearly.

Security must also be integrated into organizational procedures rather than treated solely as a technical feature. Effective digital operations require governance mechanisms that preserve the integrity and availability of records while supporting authorized access. Where security controls are unclear or users are uncertain about how personal data are handled, acceptance may weaken even when a system is otherwise efficient. Conversely, well-designed protection mechanisms can strengthen confidence in online transactions and reduce resistance to digital adoption.

Because security and usability can sometimes appear to compete, registrar systems must balance protection with accessible processes. Secure authentication, reliable backups, clear permissions, and responsive technical

support should protect records without making transactions unnecessarily difficult. In this study, perceived security and privacy were therefore treated as a dimension of digitalization adoption, while security and confidentiality were also assessed as a dimension of service quality, allowing the analysis to consider trust from both technological and service perspectives.

Service quality and stakeholder experience in registrar operations

Service quality in higher education administrative offices is multidimensional. Dugenio-Nadela et al. (2023) linked student satisfaction with accessible and convenient higher education services, while Osalia and Celis (2025) emphasized the importance of reliability, responsiveness, assurance, and empathy in registrar transactions. These dimensions are especially relevant to offices that manage time-sensitive and accuracy-dependent academic records, where delayed responses or errors can have direct consequences for students and alumni.

Customer Experience Theory provides an additional basis for evaluating registrar services because stakeholders interact with the office through both human and digital touchpoints (Lemon & Verhoef, 2016). Users may begin with an online portal, communicate with staff, submit documents, receive status updates, and obtain a final record or certification. Satisfaction therefore depends on the consistency of the entire service journey rather than on a single interaction. Digitalization can improve that journey when it reduces waiting time, provides clear information, and makes services available beyond conventional office transactions.

Philippine studies of records and registrar services similarly underscore the importance of digital systems and institutional support. Purcia and Velarde (2022) identified the need for digitized academic records to improve accessibility and convenience, while Garcia (2025) reported that technology infrastructure, staff learning, resource allocation, and clear policies contribute to registrar operational efficiency and service quality. These findings support the present study's combined assessment of digital adoption and service outcomes among multiple stakeholder groups.

Digitalization adoption and service quality: synthesis and research gap

The literature indicates that digitalization can improve service quality when systems are useful, accessible, compatible with work processes, and supported by adequate infrastructure and management. Alenezi (2021), Vial (2019), and Verhoef et al. (2021) consistently link digital transformation with process improvement and organizational value. In registrar operations, the practical benefits of digitalization are expected to appear through more accurate records, faster processing, easier access, stronger communication, and improved user satisfaction.

However, digital transformation can also produce uneven outcomes. Users differ in digital competence and acceptance; institutions differ in infrastructure and resources; and service improvements may be stronger in some dimensions than in others. Wagan et al. (2025) showed that digital records transformation involves both benefits and implementation challenges, while Ambali Parambil et al. (2024) highlighted the need to maintain security and trust as systems become more digital. These findings suggest that the relationship between digitalization and service quality should be tested by dimension rather than assumed to be uniform.

The present study addressed this need by combining assessments of ten digitalization-adoption dimensions with ten service-quality dimensions across four stakeholder groups in three selected Metro Manila SUCs. It also examined challenges and used the empirical findings to develop the S.M.A.R.T. Registrar Services Program. In doing so, the study connected technology adoption, organizational readiness, client experience, and practical intervention design within the specific context of public higher education registrar services.

METHODS

Research Design

The study employed a quantitative descriptive-correlational and descriptive-comparative research design. The descriptive component measured the perceived level of digitalization adoption and the extent of service quality in the Registrar's Offices of the selected SUCs. The comparative component examined differences in the assessments of administrators, registrar staff, students, and alumni clients, while the correlational component examined whether digitalization adoption was associated with service quality. The design did not manipulate variables and did not interpret the observed relationships as causal. The use of quantitative procedures was consistent with the study's objective of describing stakeholder assessments and testing relationships among measured constructs (Creswell & Creswell, 2018).

Research Locale

The study was conducted in the Registrar's Offices of three State Universities and Colleges in Metro Manila: Eulogio "Amang" Rodriguez Institute of Science and Technology (EARIST), Rizal Technological University (RTU), and Technological University of the Philippines (TUP). These institutions were selected because their registrar offices directly manage student records and academic-service transactions and use digital systems to support administrative processes. The study period covered October 2025 to May 2026.

Participants and Sampling Technique

A total of 697 respondents participated: 3 administrators, 41 registrar staff, 464 students, and 189 alumni clients. All administrators and registrar staff in the identified registrar offices participated, representing 100% of those groups. For students, proportionate sampling was used across the three SUCs, and Slovin's formula was applied to determine an adequately representative student sample. Alumni clients, specifically graduates from 2021 to 2025 who were available during data collection, were selected through convenience sampling. The use of convenience sampling for accessible alumni respondents was consistent with the approach described by Etikan et al. (2016).

Research Instrument

Data were collected using a researcher-made survey questionnaire that underwent face and content validation. Expert comments, corrections, and recommendations were incorporated to improve clarity, relevance, validity, and overall effectiveness before distribution. The instrument had five parts: respondent profile; digitalization adoption; service quality; challenges encountered; and acceptability of the proposed intervention strategy. Digitalization adoption covered usefulness, ease of use, facilitating conditions/infrastructure, management support, training and digital literacy, compatibility with work processes, perceived security and privacy, relative advantage/efficiency gains, user/staff acceptance, and external pressure/social influence. Service quality covered reliability/accuracy, responsiveness/timeliness, assurance/competence, empathy, tangibles/physical and digital facilities, accessibility and convenience, transparency and communication, security and confidentiality, error handling and complaint resolution, and overall satisfaction and behavioral intent.

Data Gathering Procedure

Before data collection, the researcher secured an ethics compliance certificate and formal permission from the selected SUCs. After institutional approval, the survey was distributed through Google Forms and printed questionnaires via the Registrar's Offices. Participation was voluntary. Retrieved questionnaires were checked for completeness and accuracy, after which the data were tabulated, analyzed, and interpreted with the assistance of a statistician. These procedures were intended to ensure orderly data collection and consistent handling of responses.

Data Analysis

The data were analyzed using Jamovi. Percentages summarized respondent classifications, while weighted means described digitalization adoption, service quality, challenges, and intervention acceptability. One-way analysis of variance (ANOVA) was used to compare the assessments of the four respondent groups, with Tukey's Honestly Significant Difference (HSD) test intended for post hoc comparisons when significant differences were reported. Pearson product-moment correlation was used to determine the relationship between digitalization adoption and service-quality dimensions. The statistical procedures followed standard approaches for group comparison and correlation analysis (Field, 2018; Gravetter & Wallnau, 2021; Hair et al., 2020). A five-point Likert scale was interpreted as follows for digitalization adoption and service quality: 4.20–5.00, highly evident; 3.40–4.19, evident; 2.60–3.39, moderately evident; 1.80–2.59, least evident; and 1.00–1.79, not evident. The challenge and acceptability scales used corresponding five-level verbal interpretations provided in the thesis.

Ethical Consideration

The study was conducted only after ethics compliance and institutional permissions were secured. Respondents were informed of the study's purpose and participated voluntarily. The survey instructions indicated that participation would not affect their institutional status, and the data were handled with attention to confidentiality and appropriate research standards. The procedures were designed to protect participants' rights while allowing administrators, staff, students, and alumni clients to provide their assessments of registrar services.

RESULTS AND DISCUSSION

Digitalization adoption in the Registrar's Office

Digitalization adoption was rated highly evident overall, with a composite weighted mean of 4.33. As summarized in Table 1, usefulness received the highest composite mean (4.56), followed by user/staff acceptance (4.49), relative advantage/efficiency gains (4.45), and perceived security and privacy (4.40). The lowest-rated dimension was training and digital literacy (3.97), interpreted as evident rather than highly evident. Facilitating conditions/infrastructure (4.20) and management support (4.21) were also comparatively lower than the leading dimensions.

Table 1. *Summary of Digitalization Adoption*

Dimension	Composite WM	Interpretation	Rank
Usefulness	4.56	Highly Evident	1
Ease of Use	4.32	Highly Evident	7
Facilitating Conditions/Infrastructure	4.20	Highly Evident	9
Management Support	4.21	Highly Evident	8
Training and Digital Literacy	3.97	Evident	10
Compatibility with Work Processes	4.34	Highly Evident	5.5
Perceived Security and Privacy	4.40	Highly Evident	4
Relative Advantage/Efficiency Gains	4.45	Highly Evident	3
User/Staff Acceptance	4.49	Highly Evident	2
External Pressure/Social Influence	4.34	Highly Evident	5.5
Overall	4.33	Highly Evident	

Note. WM = weighted mean. Values are reproduced from the thesis summary table.

The strong ratings for usefulness and user/staff acceptance indicate that stakeholders generally recognized practical benefits from digital registrar systems and were willing to use them. This is consistent with Alenezi (2021), who linked digital transformation in higher education with improved processes and performance, and with Fearnley and Amora (2020), who emphasized the role of perceived usefulness and acceptance in continued

technology use. The relatively high rating for security and privacy also suggests that trust is an important part of adoption, consistent with the security concerns identified by Ambali Parambil et al. (2024).

At the same time, training and digital literacy emerged as the clearest area for improvement. The result is aligned with Ballano et al. (2022), who emphasized that digital competence depends on training and institutional support. The comparatively lower ratings for infrastructure and management support also reinforce the importance of sustained investment, technical support, and leadership commitment described by Hashim et al. (2022) and Wagan et al. (2025). Thus, the findings show that adoption was already strong, but its sustainability depended on strengthening the human and organizational conditions surrounding the technology.

Differences in stakeholder assessments

The thesis reported that assessments across the four stakeholder groups were generally similar across most digitalization dimensions. User/staff acceptance was the principal exception, with a reported F-value of 17.4095 and a significant decision. The remaining reported F-values were below the stated critical value of 3.24 and were interpreted as not significant. Table 2 condenses the original ANOVA findings by reproducing the reported F-values and statistical decisions without recalculating the source statistics.

Table 2. Reported One-Way ANOVA Results Across Respondent Groups

Dimension	F-value	Reported Decision
Usefulness	1.9260	Not Significant
Ease of Use	2.5883	Not Significant
Facilitating Conditions/Infrastructure	0.3524	Not Significant
Management Support	1.8822	Not Significant
Training and Digital Literacy	0.6215	Not Significant
Compatibility with Work Processes	1.8964	Not Significant
Perceived Security and Privacy	1.7400	Not Significant
Relative Advantage/Efficiency Gains	2.6078	Not Significant
User/Staff Acceptance	17.4095	Significant
External Pressure/Social Influence	0.7256	Not Significant

Note. The original thesis table reports a critical value of 3.24 at the .05 level. F-values and decisions are reproduced as reported; no recalculation was performed in this conversion.

The distinctive result for user/staff acceptance indicates that stakeholders may share similar views about the presence and benefits of digitalization while differing in their behavioral intention or actual use. This distinction is plausible because acceptance is shaped by role-specific experience: administrators, registrar staff, students, and alumni interact with systems for different purposes and at different frequencies. The result is consistent with technology-acceptance research showing that behavioral intention and actual use depend on users' perceptions and experience with the system (Fearnley & Amora, 2020; Garcia, 2021).

Extent of service quality

Service quality in the selected registrar offices was rated highly evident across all ten dimensions, with an overall composite weighted mean of 4.47. Empathy received the highest composite mean (4.58), followed by security and confidentiality (4.56), overall satisfaction and behavioral intent (4.55), and transparency and communication (4.50). Assurance/competence received the lowest composite mean (4.34), followed by reliability/accuracy (4.37), although both remained within the highly evident range.

Table 3. Summary of the Extent of Service Quality

Dimension	Composite WM	Interpretation	Rank
Reliability/Accuracy	4.37	Highly Evident	9
Responsiveness/Timeliness	4.47	Highly Evident	5
Assurance/Competence	4.34	Highly Evident	10
Empathy	4.58	Highly Evident	1

Tangibles/Physical and Digital Facilities	4.41	Highly Evident	8
Accessibility and Convenience	4.45	Highly Evident	6
Transparency and Communication	4.50	Highly Evident	4
Security and Confidentiality	4.56	Highly Evident	2
Error Handling and Complaint Resolution	4.42	Highly Evident	7
Overall Satisfaction and Behavioral Intent	4.55	Highly Evident	3
Overall	4.47	Highly Evident	

Note. WM = weighted mean. Values are reproduced from the thesis summary table.

The high service-quality ratings indicate that stakeholders generally experienced the registrar offices as responsive, secure, transparent, and client-oriented. The strong rating for empathy is consistent with literature emphasizing personalized attention and responsiveness in higher education services, while the high security rating reflects the importance of confidentiality in records-based transactions (Dugenio-Nadela et al., 2023; Osalia & Celis, 2025). The overall satisfaction result also supports Customer Experience Theory, which proposes that cumulative interactions across service touchpoints shape user evaluations and behavioral responses (Lemon & Verhoef, 2016).

Although all dimensions were highly evident, the comparatively lower ratings for assurance/competence and reliability/accuracy show that service improvement should continue to emphasize accurate information, consistent processing, and staff capability. This interpretation is also consistent with Garcia (2025), who identified technology infrastructure and staff learning as important contributors to registrar operational efficiency and service quality. Digitalization therefore appears most valuable when it supports both dependable records management and competent human service.

Relationship between digitalization adoption and service quality

The relationship analysis showed that digitalization adoption was not uniformly associated with every service-quality dimension. Significant positive relationships were reported for assurance/competence ($r = 0.948$, $p = 0.014$), empathy ($r = 0.886$, $p = 0.045$), tangibles/physical and digital facilities ($r = 0.986$, $p = 0.002$), accessibility and convenience ($r = 0.986$, $p = 0.002$), and security and confidentiality ($r = 0.954$, $p = 0.011$). Other dimensions showed non-significant relationships in the source analysis.

Table 4. Correlation Between Digitalization Adoption and Service Quality

Service-Quality Dimension	r	p	Decision
Reliability/Accuracy	0.200	0.750	Not Significant
Responsiveness/Timeliness	0.397	0.500	Not Significant
Assurance/Competence	0.948	0.014	Significant
Empathy	0.886	0.045	Significant
Tangibles/Physical and Digital Facilities	0.986	0.002	Significant
Accessibility and Convenience	0.986	0.002	Significant
Transparency and Communication	0.521	0.360	Not Significant
Security and Confidentiality	0.954	0.011	Significant
Error Handling and Complaint Resolution	0.291	0.630	Not Significant
Overall Satisfaction and Behavioral Intent	0.295	0.630	Not Significant

Note. Correlation coefficients, p-values, and significance decisions are reproduced from the thesis manuscript.

These findings suggest that the strongest observable link between digitalization and service quality occurred in dimensions directly connected to system capability, access, security, and the perceived competence of service delivery. This is consistent with the broader digital-transformation literature, which argues that digital technologies create value when they improve operational processes and stakeholder access rather than merely replacing manual tools (Vial, 2019; Verhoef et al., 2021). The significant association with physical and digital facilities also reinforces the role of infrastructure in supporting service outcomes, as emphasized by Wagan et al. (2025).

The non-significant relationships in reliability, responsiveness, transparency, error handling, and overall satisfaction indicate that some aspects of service quality may depend on factors beyond digitalization alone. Human interaction, institutional procedures, policy implementation, transaction complexity, and workload can shape user experience independently of technology. The findings therefore support a multidimensional approach in which digital systems are treated as one important component of service quality rather than as a complete substitute for competent staff and effective organizational processes.

Challenges encountered in digitalization adoption and service quality

Challenges related to digitalization adoption were least encountered overall (2.18), as were challenges related to service quality (2.13). Within digitalization, the highest-rated challenge was limited budget allocation for upgrades, maintenance, and innovation (2.54), followed by data security and privacy concerns (2.39). Within service quality, the highest items were high client volume and limited staff availability, both with composite means of 2.20. These values remained within the least-encountered range, indicating that the identified constraints were present but not dominant in the respondents' experience.

Table 5. *Selected Challenges in Digitalization Adoption and Service Quality*

Challenge/Domain	Composite WM	Interpretation
Digitalization adoption - overall challenges	2.18	Least Encountered
Digitalization - limited budget allocation	2.54	Least Encountered
Digitalization - data security/privacy concerns	2.39	Least Encountered
Service quality - overall challenges	2.13	Least Encountered
Service quality - high volume of clients	2.20	Least Encountered
Service quality - limited staff availability	2.20	Least Encountered

Note. Selected highest-rated challenges and overall domain means are reproduced from the thesis challenge tables.

Even when challenges are rated low, the pattern of results points to issues that can affect long-term sustainability. Budget constraints can delay upgrades, while security concerns can undermine trust if not addressed proactively. Infrastructure, technical support, and cybersecurity remain important in digital higher education environments (Ambali Parambil et al., 2024; Dwivedi et al., 2021). Likewise, service pressure during high-volume periods can affect responsiveness even when routine service quality is strong. Continuous monitoring is therefore necessary to prevent minor operational constraints from becoming barriers as demand for digital services expands.

Proposed S.M.A.R.T. Registrar Services Program and acceptability

Based on the empirical findings, the study developed the S.M.A.R.T. REGISTRAR: Seamless, Modern, Accessible, Responsive, and Transparent Registrar Services Program. The intervention was designed to address comparatively weaker areas in training and digital literacy, infrastructure, ease of use among administrators, process integration, and management support. Its focus was to strengthen digital literacy, improve technical infrastructure, standardize workflows, reinforce management support, and respond to the needs of administrators, registrar staff, students, and alumni clients.

Table 6. *Acceptability of the Proposed Intervention Strategy*

Indicator	Composite WM	Interpretation	Rank
Clear and understandable objectives	4.50	Highly Acceptable	2.5
Adequate and explicit information	4.47	Highly Acceptable	5
Sufficient, organized, and grammatically sound content	4.49	Highly Acceptable	4
Readable and recognizable texts and symbols	4.50	Highly Acceptable	2.5
Visual appeal through appropriate graphics and formatting	4.69	Highly Acceptable	1
Overall	4.53	Highly Acceptable	

Note. The overall composite weighted mean of 4.53 was interpreted in the thesis as Highly Acceptable.

The program received an overall composite weighted mean of 4.53, interpreted as highly acceptable. Visual appeal was the highest-rated indicator (4.69), while the adequacy and explicitness of information received the lowest mean (4.47), which still fell within the highly acceptable range. The positive assessment indicates that stakeholders found the proposed intervention clear, organized, readable, and appropriate for strengthening registrar operations.

The intervention reflects the value, technological, and practical considerations emphasized in the Triple Logic Framework (Zhu et al., 2025). It also responds to the customer-experience perspective by seeking to improve the quality of both digital and human service touchpoints (Lemon & Verhoef, 2016). Because the study identified strong adoption and service quality but comparatively weaker training and infrastructure conditions, the intervention is best understood as a continuous-improvement framework rather than a response to systemic service failure.

CONCLUSION

Digitalization adoption in the Registrar's Offices of the selected SUCs was highly evident, demonstrating that administrators, registrar staff, students, and alumni clients generally recognized the usefulness, efficiency, security, and acceptance of digital registrar systems. The strongest areas were usefulness and user/staff acceptance, while training and digital literacy, infrastructure, and management support remained comparatively weaker and therefore represent priority areas for sustained improvement.

Service quality was likewise highly evident, particularly in empathy, security and confidentiality, transparency, and overall satisfaction. The relationship analysis showed that digitalization adoption was strongly associated with selected service-quality dimensions, especially assurance/competence, empathy, physical and digital facilities, accessibility, and security. The absence of significant relationships in other dimensions indicates that service quality is not determined by technology alone and continues to depend on effective processes, capable personnel, and consistent institutional practices.

The study contributes a stakeholder-based assessment of digital registrar operations in selected Metro Manila SUCs and translates the findings into the S.M.A.R.T. Registrar Services Program. The program offers a practical framework for strengthening digital literacy, infrastructure, process alignment, management support, security, accessibility, and client-centered service. Its high acceptability indicates that stakeholders viewed the proposed intervention as an appropriate basis for continuous improvement in registrar service delivery.

Recommendation

1. Registrar heads and process owners should consider adopting the S.M.A.R.T. Registrar Services Program and use workflow mapping and process standardization to improve the integration of digital and manual registrar procedures.
2. Registrar heads, ICT coordinators, and system developers should continue upgrading digital tools to improve processing speed, data accuracy, system usability, and decision-support functions. Simplified navigation guides and user support should be provided, particularly for first-time student and alumni users.
3. University administrators and ICT units should prioritize reliable internet connectivity, adequate hardware capacity, backup mechanisms, and responsive technical support. Funding for maintenance, security, system upgrades, and innovation should be sustained through regular planning and monitoring.
4. Human resource offices and training coordinators should institutionalize recurring digital-literacy and system-use training for registrar staff and relevant users. Training should include navigation, troubleshooting, data privacy, security practices, and adaptation to new system features.
5. Registrar offices should continue strengthening reliability, staff competence, communication, complaint handling, and peak-period service management. Digitalization should complement rather than replace clear procedures and responsive human assistance.
6. Future researchers may replicate the study in other SUCs, private higher education institutions, or regions and may use longitudinal, mixed-methods, or system-performance data to examine how digitalization changes

service quality over time and how specific interventions affect transaction speed, accuracy, user satisfaction, and operational efficiency.

References

- Alenezi, M. (2021). Deep dive into digital transformation in higher education institutions. *Education Sciences*, 11(12), 770. <https://doi.org/10.3390/educsci11120770>
- Ambali Parambil, M. M., Rustamov, J., Ahmed, S. G., Rustamov, Z., Awad, A. I., Zaki, N., & Alnajjar, F. (2024). Integrating AI-based and conventional cybersecurity measures into online higher education settings: Challenges, opportunities, and prospects. *Computers and Education: Artificial Intelligence*, 5, 100327. <https://doi.org/10.1016/j.caeai.2024.100327>
- Ballano, V. O., Mallari, N. T., & Sebastian, R. R. (2022). Understanding digital literacy, digital competence, and pedagogical digital competence: Implementing online teaching for Filipino tertiary educators during COVID-19. In L. Tomczyk & L. Fedeli (Eds.), *Digital literacy for teachers*. Springer.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.
- Dugenio-Nadela, C., et al. (2023). Service quality and student's satisfaction in higher education institution. *Journal of Human Resource and Sustainability Studies*, 11, 858–870. <https://doi.org/10.4236/jhrss.2023.114047>
- Dwivedi, Y. K., Hughes, L., Rana, N. P., Slade, E. L., Wastell, D., Papagiannidis, S., Zampetti, A., et al. (2021). Artificial intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management*, 57, 101994. <https://doi.org/10.1016/j.ijinfomgt.2019.08.002>
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1–4. <https://doi.org/10.11648/j.ajtas.20160501.11>
- Fearnley, M. R., & Amora, J. T. (2020). Learning management system adoption in higher education using the extended technology acceptance model. *IAFOR Journal of Education: Technology in Education*, 8(2), 89–106. <https://doi.org/10.22492/ije.8.2.05>
- Field, A. (2018). *Discovering statistics using IBM SPSS statistics* (5th ed.). SAGE Publications.
- Garcia, F. R. (2025). The role of Registrar's Office in delivering of services in one state university. *International Journal for Multidisciplinary Research*, 7(3).
- Garcia, M. B. (2021). E-learning technology adoption in the Philippines: An investigation of factors affecting Filipino college students' acceptance of learning management systems. *International Journal of E-Learning and Educational Technologies in the Digital Media*.
- Gravetter, F. J., & Wallnau, L. B. (2021). *Statistics for the behavioral sciences* (11th ed.). Cengage Learning.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2020). *Multivariate data analysis* (8th ed.). Cengage Learning.
- Hashim, M. A. M., Tlemsani, I., & Matthews, R. (2022). Higher education strategy in digital transformation. *Education and Information Technologies*, 27, 3171–3195.
- Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. *Journal of Marketing*, 80(6), 69–96. <https://doi.org/10.1509/jmkg.80.6.69>
- Osalia, J. C., & Celis, L. C. (2025). Service quality of the Registrar's Office of a select higher educational institution. *Journal of Interdisciplinary Perspectives*, 3(12), 341–357. <https://doi.org/10.69569/jip.2025.731>
- Purcia, E., & Velarde, A. (2022). Student registration and records management services of the three private universities in the Philippines: Basis for academic records digitization. *American Journal of Multidisciplinary Research and Innovation*, 1(4), 1–10.
- Saghafian, M., Laumann, K., & Skogstad, M. R. (2021). Stagewise overview of issues influencing organizational technology adoption and use. *Frontiers in Psychology*, 12, 630145. <https://doi.org/10.3389/fpsyg.2021.630145>
- Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, 122, 889–901. <https://doi.org/10.1016/j.jbusres.2019.09.022>
- Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, 28(2), 118–144. <https://doi.org/10.1016/j.jsis.2019.01.003>
- Wagan, M. A. A., Briones, J., Baldovino, F. P., & Refozar, R. F. G. (2025). Digital transformation in the records management of a private higher education institution in the Philippines. *International Journal of Marketing and Digital Creative*, 3(1), 18–33. <https://doi.org/10.31098/ijmadic.v3i1.2878>

Zhu, Q., et al. (2025). Digital transformation in higher education: Logical framework, practical dilemmas, and implementation approaches. *Frontiers in Psychology*, 16. <https://doi.org/10.3389/fpsyg.2025.1565591>