JISTecS: Journal of Information Systems, Technology and Security
ISSN 3125-1099 (online)
Vol. 1 Iss. 2 Pg. 134-147
https://ejournal.scmdigi.id/index.php/jistecs

Enhancing student inquiry management through wordpress-based whatsapp rotator integration

Karno Ganjar Prasetyo[1*], **Ade Indra Saputra**[2]
[1]Universitas Pamulang, Tangerang Selatan, Banten, Indonesia
[2]Politeknik Bisnis Digital Indonesia, Bogor, Jawa Barat, Indonesia
*Correspondence author: karnogp@gmail.com
DOI: https://doi.org/10.65881/jistecs.v1i2.165

ARTICLE INFO

History:
Received: 07-22-2026
Revised: 07-26-2026
Accepted: 07-27-2026
Published: 07-30-2026

Keywords:
whatsapp rotator;
wordpress integration;
student inquiry management;
digital communication system;
higher education marketing.

ABSTRACT

Purpose: to develop and evaluate a wordpress-based whatsapp rotator integration that streamlines prospective student inquiry management, improves communication responsiveness, and supports balanced inquiry distribution among marketing personnel.
Method: this study employed an action research methodology consisting of five stages: diagnosing, action planning, action taking, evaluation, and learning. The research involved the design, implementation, and assessment of a whatsapp rotator integrated into the wordpress-based website of the Indonesian Digital Business Polytechnic. Data were collected through system observation, implementation testing, and evaluation of the developed communication workflow to assess the effectiveness of the proposed solution in managing prospective student inquiries.
Findings: the whatsapp rotator integration successfully automated inquiry distribution, centralized data management, and improved communication efficiency in student inquiry handling.
Implications: for higher education institutions by offering a scalable digital communication model to improve student inquiry management, marketing coordination, and service responsiveness.
Originality: lies in integrating a WordPress-based WhatsApp Rotator system specifically for higher education inquiry management, combining automated message distribution, website integration, and centralized data management within a single communication framework.

Introduction

The rapid advancement of digital technologies has fundamentally transformed the way organizations communicate with their customers and stakeholders. In today's highly competitive environment, organizations that fail to adopt technology-driven communication strategies risk losing their competitiveness and sustainability (Shehata & Montash, 2019; Tajpour et al., 2022). Effective business communication has therefore

become a strategic capability that supports organizational performance, customer engagement, and long-term growth (Oloba et al., 2024). As emphasized by Anđelić et al. (2025), business communication consists of both verbal and non-verbal interactions designed to achieve organizational objectives. Consequently, organizations across various sectors, including higher education, are increasingly integrating digital communication platforms to improve service quality and strengthen relationships with their customers.

The higher education sector is experiencing increasingly intense competition, requiring institutions not only to offer high-quality academic programs but also to deliver excellent services throughout the student recruitment process. Digital communication has become one of the most influential factors affecting prospective students' perceptions when selecting an educational institution (Al-Abdallah & Ababakr, 2025). Fast, responsive, and personalized communication enhances trust and satisfaction, whereas delayed responses often result in negative impressions and missed recruitment opportunities (Kumar et al., 2020; Sabu et al., 2021). The widespread adoption of whatsapp as the dominant communication platform has encouraged educational institutions to utilize the application as their primary channel for handling inquiries from prospective students. This trend creates new challenges in managing high volumes of customer interactions efficiently while maintaining service consistency.

As a newly established institution in October 2023, the Indonesian Digital Business Polytechnic has experienced a rapid increase in inquiries submitted through its official website and whatsapp channels. The growing number of prospective students has generated significant operational challenges for the marketing division. Prior to this study, customer inquiries received through whatsapp were manually distributed among several marketing officers without an automated allocation mechanism. Consequently, several practical problems emerged, including inconsistent response times, unequal workload distribution among marketing staff, delayed responses outside business hours, and the possibility of overlooked or unanswered customer messages. These conditions not only reduced operational efficiency but also negatively influenced prospective students' experiences during the initial communication stage. Since responsiveness is one of the primary determinants of customer satisfaction and service quality in digital environments, improving inquiry management has become an organizational priority (Ghanshyambhai, 2025; Myers, 2026).

Various studies have demonstrated that digital technologies can significantly improve organizational communication and operational efficiency. Wordpress has become the most widely adopted content management system (CMS) because of its flexibility, extensive plugin ecosystem, and ease of integration with third-party applications (Carter, 2023; Khalil et al., 2024). Supporting technologies such as the jquery manager plugin enhance website compatibility and interactive performance by managing javascript dependencies effectively (Almeida & Sousa, 2026; Naik et al., 2024). Meanwhile, waformmaker facilitates seamless communication between website visitors and whatsapp by allowing inquiry forms to connect directly with whatsapp messaging services (Krupcała & Januszewski, 2020). Furthermore, collaborative digital systems have been shown to improve organizational coordination and resource utilization (Krishnan et al., 2021; Li et al., 2025), while advances in digital platforms continue to improve user experience and customer engagement (Bag et al., 2022; Mele & Spena, 2022; Syamala et al., 2025). These findings indicate that integrating web technologies with communication platforms has considerable potential for enhancing customer service performance.

Despite these technological developments, existing studies primarily focus on the usability of wordpress, website development, user interface optimization, digital marketing, or general customer communication systems (Harageones, 2022; Khalil et al., 2024; Vu et al., 2021). Research concerning whatsapp business generally discusses customer engagement and communication effectiveness without addressing intelligent inquiry distribution mechanisms across multiple customer service agents (Ghanshyambhai, 2025). Similarly, studies involving whatsapp integration in education mainly investigate teleconsultation or online learning communication rather than inquiry management for student recruitment (Sabu et al., 2021). Although the concept of a whatsapp rotator has emerged as an effective solution for automatically distributing incoming messages among multiple agents (Myers, 2026), empirical evidence regarding its implementation within higher education institutions, particularly through integration with wordpress-based admission websites, remains very limited. Moreover, previous studies rarely evaluate its organizational impacts, including workload balancing, response consistency, customer satisfaction, and marketing team collaboration simultaneously. This represents an important research gap in both educational technology implementation and digital communication management.

Accordingly, the novelty of this research lies in the development and implementation of a wordpress-based whatsapp rotator integration specifically designed to optimize prospective student inquiry management in higher education. Unlike previous studies that emphasize website usability, customer relationship management, or WhatsApp communication independently, this research integrates CMS technology, whatsapp automation, and workload distribution mechanisms into a unified communication framework. Furthermore, this study evaluates not only the technical integration process but also its organizational impacts on communication efficiency, workload equity, response quality, customer satisfaction, and collaboration among marketing personnel. These multidimensional evaluations provide a more comprehensive understanding of how digital communication technologies can improve student recruitment services.

Based on these considerations, the objective of this study is to design, implement, and evaluate the integration of a whatsapp rotator into the wordpress-based website of the Indonesian Digital Business Polytechnic. Specifically, the research aims to examine how automated inquiry distribution improves response speed, balances workloads among marketing staff, minimizes missed customer inquiries, and enhances overall communication effectiveness. The study also investigates whether the proposed system contributes to better customer experiences and supports more efficient marketing operations during periods of high inquiry volume. Both practical and theoretical considerations support the importance of conducting this research. From a practical perspective, educational institutions increasingly rely on digital communication channels as an essential component of student recruitment strategies. Improving inquiry management can directly influence prospective students' perceptions, institutional reputation, and enrollment performance. From a theoretical perspective, this research extends the application of digital communication management by integrating concepts from business communication (Anđelić et al., 2025), collaborative innovation (Krishnan et al., 2021), customer engagement through real-time communication (Ghanshyambhai, 2025; Myers, 2026), website usability (Vu et al., 2021), and wordpress-based web development (Khalil et al., 2024). These complementary perspectives provide the conceptual foundation for understanding how integrated communication systems contribute to organizational effectiveness.

Finally, this research is expected to contribute to both academic knowledge and professional practice. Academically, it enriches the literature on digital communication management, educational technology implementation, and customer relationship management by providing empirical evidence regarding the effectiveness of whatsapp rotator integration in higher education. Practically, the proposed integration model offers a scalable and cost-effective solution that other educational institutions and service-oriented organizations facing similar challenges in managing large volumes of customer inquiries can adopt. Ultimately, this research demonstrates how integrating WordPress with a whatsapp rotator can enhance communication efficiency, improve customer satisfaction, promote equitable workload distribution, and strengthen institutional competitiveness in an increasingly digital educational environment.

Method

This study adopted an action research (AR) methodology to design, implement, and evaluate the integration of a whatsapp rotator into the wordpress-based website of the Indonesian Digital Business Polytechnic. Action Research was selected because it enables researchers to address practical organizational problems while simultaneously generating theoretical and empirical knowledge through an iterative process of planning, implementation, evaluation, and reflection (Pregmark et al., 2023). Unlike conventional experimental approaches, action research emphasizes continuous improvement through collaboration between researchers and practitioners, making it particularly suitable for organizational digital transformation initiatives (Diglas & Nzembayie, 2026; Shani & Coghlan, 2021). The action research process follows a cyclical model consisting of five sequential stages: diagnosing, action planning, action taking, evaluating, and learning, as proposed by Susman and further discussed by Reitsma & Haug (2026). These stages continuously integrate managerial practice, research activities, theory development, and evaluation to facilitate systematic organizational improvement. The overall research procedure adopted in this study is illustrated in Figure 1.

The first stage involved diagnosing the existing communication management process used by the Indonesian Digital Business Polytechnic. The diagnosis focused on identifying operational issues encountered in managing prospective student inquiries submitted through the institution's official website (www.polbis.ac.id) and whatsapp communication channels. Data were collected through direct observation of the website, examination of the existing communication workflow, and discussions with the marketing team responsible for handling customer inquiries. The diagnostic process identified several critical problems, including inconsistent response times, unequal distribution of incoming inquiries among marketing personnel, delayed responses during non-working hours, and the possibility of unanswered or overlooked customer messages. These findings served as the basis for defining the system requirements and determining the technological solution to be implemented.

Based on the identified problems, the second stage focused on developing an action plan to improve the inquiry management process. This phase involved analyzing suitable technologies capable of addressing the communication challenges while remaining compatible with the institution's existing website infrastructure. The proposed solution consisted of integrating a whatsapp rotator into the wordpress content management system (CMS). Several supporting technologies were selected to facilitate the implementation, including waformmaker for connecting website inquiry forms to whatsapp and the jquery manager plugin to ensure compatibility and stability

of javascript components. During this phase, the researcher also designed the system architecture, determined the inquiry routing mechanism, and established evaluation indicators to measure system performance after implementation.

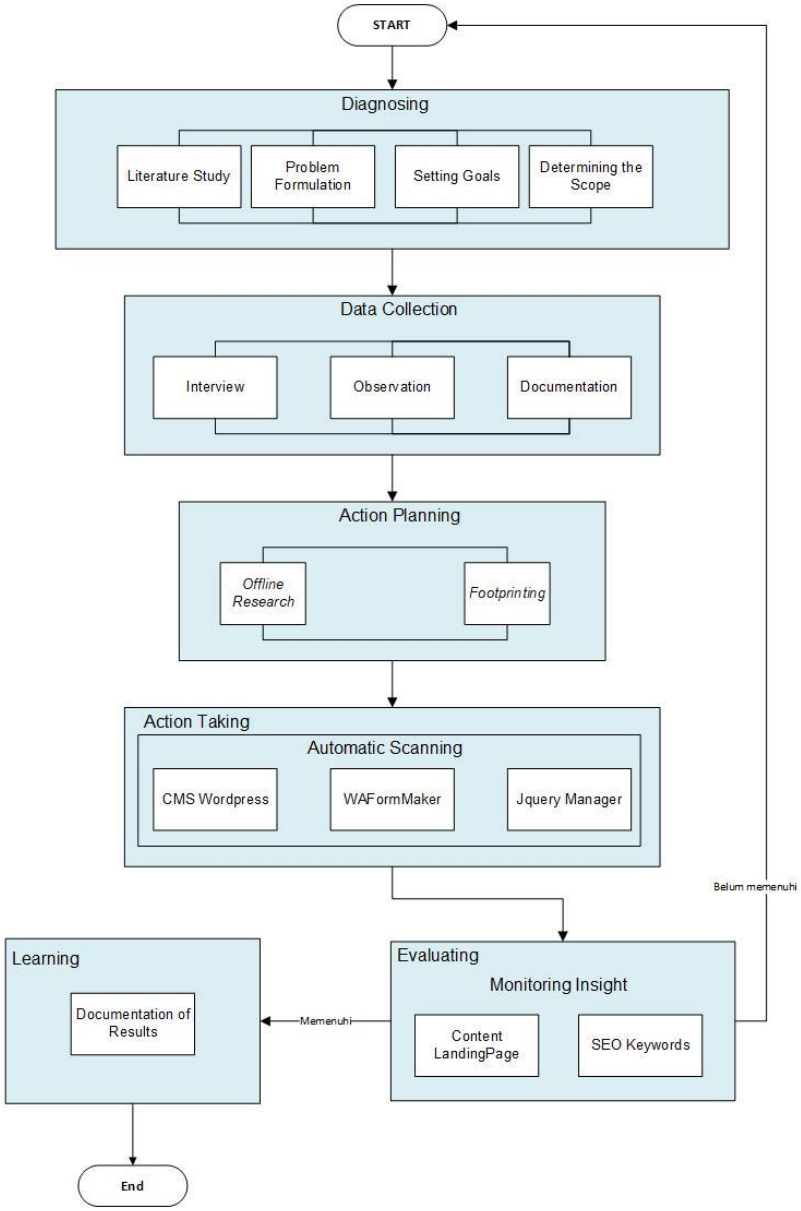

Figure 1 research flow

The third stage involved implementing the planned solution on the institution's website. The implementation process included configuring the wordpress environment, installing the required plugins, integrating the whatsapp rotator with the inquiry forms, and connecting multiple marketing officers' whatsapp accounts into an automated message distribution mechanism. Following the technical integration, functional testing was conducted to verify that customer inquiries submitted through the website were automatically redirected to different marketing staff according to the predefined routing configuration (Dicya & Tranggono, 2024). The implementation also ensured that the integrated system maintained website functionality without disrupting existing services.

Following implementation, the integrated system was evaluated to determine whether it successfully addressed the communication problems identified during the

diagnostic stage. The evaluation focused on assessing the operational performance of the whatsapp rotator integration using several indicators, including successful message routing, response consistency, workload distribution among marketing personnel, system functionality, and overall communication efficiency. System testing was conducted by simulating inquiry submissions through the website and observing the routing behavior of incoming whatsapp messages. The evaluation also included feedback from marketing staff regarding usability, workflow improvements, and perceived effectiveness of the implemented system. These findings were compared with the conditions observed before implementation to determine the extent of improvement achieved.

The final stage involved reflecting on the implementation outcomes to identify lessons learned and opportunities for future improvement (Semathong, 2023). This phase synthesized the evaluation results to determine the effectiveness of the proposed solution in enhancing student inquiry management. The reflection process considered both the technical performance of the integrated system and its organizational implications, including improvements in communication efficiency, customer service quality, and collaboration among marketing personnel. The findings from this stage provide recommendations for future enhancements and demonstrate how the proposed integration model can be adapted by other higher education institutions facing similar communication management challenges. Overall, the iterative action research process enabled continuous refinement throughout the study, ensuring that the developed solution effectively addressed practical organizational needs while contributing empirical evidence regarding the implementation of wordpress-based whatsapp rotator integration in higher education.

Results and discussion

The first stage of the implementation focused on developing a whatsapp inquiry form that would function as the primary communication interface between prospective students and the marketing team. The form was designed using HTML to ensure compatibility with the WordPress environment and to provide flexibility for future customization. As shown in Figure 2, the form consists of several input fields, including the prospective student's name, email address, class selection, and inquiry message. The class selection field allows users to choose between the regular class and executive class, enabling the institution to categorize incoming inquiries by selected academic program. The form layout was intentionally designed to be simple and intuitive so that users could complete the submission process with minimal effort. The successful development of this form established the foundation for the subsequent integration process by providing a standardized mechanism for collecting prospective student information before the inquiry was forwarded through whatsapp.

```
Hi, Politeknik Bisnis Digital Indonesia
Name: *{{ fa fa-user|nama : Nama }}*
Email: *{{ fa fa-address-card|email : Email }}*
Class Options: *[[ fa fa-book|jenis-website : Class Options: Regular Class, Executive Class ]]*
Your Question: {{ fa fa-address-card|your-question : Your Question }}*
```

Figure 2 HTML code of the whatsapp inquiry form

After the inquiry form was completed, it was saved in the wordpress system under the name registration info. The system automatically generated two shortcode formats that could be used to display the form on different sections of the website. As

illustrated in Figure 3, the first shortcode embeds the form directly into a webpage, while the second shortcode displays the same form as a pop-up window. These two display options provide greater flexibility for website administrators when designing landing pages or promotional pages intended for student recruitment. The availability of multiple shortcode formats allows the institution to implement different user interaction strategies without modifying the form itself.

No.	Form Name	Shortcode	Form Shortcode
1	Info Pendaftaran	[wafm id="1" title="Info Pendaftaran"]	[wafm_form id="1" title="Info Pendaftaran"]

Figure 3 generated shortcode for the inquiry form

The next implementation stage involved configuring the whatsapp rotator by registering the whatsapp numbers of the marketing team that would receive incoming inquiries. As presented in Figure 4, multiple marketing contact numbers were added to the whatsapp rotator configuration panel. Each number was registered using the Indonesian international dialing code (+62) to ensure successful message routing. The registered numbers represent different marketing officers who are responsible for handling prospective student inquiries. Once the configuration was completed, the whatsapp rotator became capable of automatically directing each new inquiry to one of the registered marketing representatives according to the predefined routing mechanism.

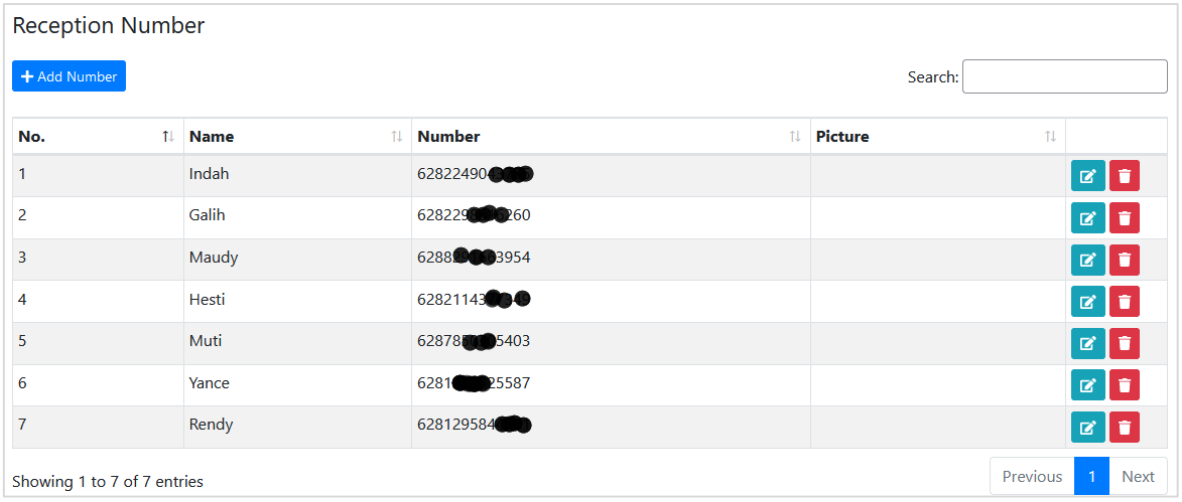

Figure 4 marketing team whatsapp number configuration

The inquiry form was subsequently integrated into the official website of the Indonesian Digital Business Polytechnic using the elementor page builder. The shortcode generated in the previous stage was inserted into the designated webpage, enabling visitors to access the form directly from the institution's website. As shown in Figure 5, the shortcode was successfully embedded into the wordpress page through elementor. After insertion, the layout was adjusted to match the overall website design, ensuring visual consistency and maintaining a user-friendly interface. Following the integration process, functional testing confirmed that the inquiry form operated correctly within the website environment. All input fields were successfully displayed, and submitted information was processed without errors.

Figure 5 embedding the inquiry form shortcode into wordpress

After successful integration, the whatsapp inquiry form became fully operational on the institution's website. As illustrated in Figure 6, website visitors can complete the inquiry form by entering their personal information, selecting the desired class category, and submitting their questions. Once the form is submitted, the system automatically forwards the inquiry to the whatsapp rotator for message distribution. The implementation provides prospective students with a single communication interface while allowing the internal message routing process to operate automatically in the background.

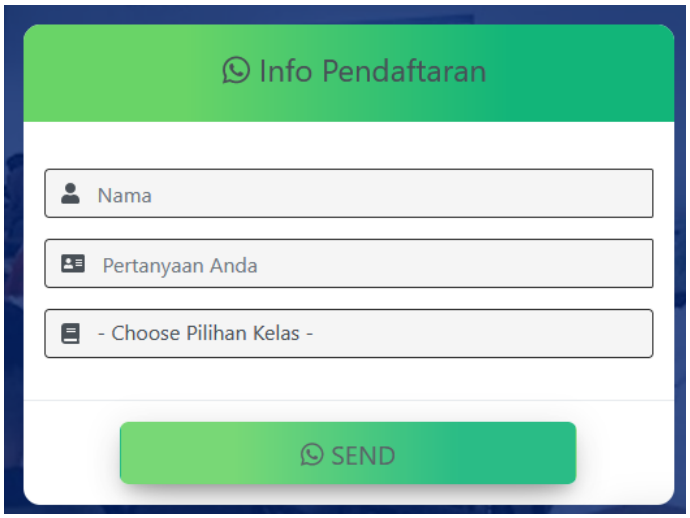

Figure 6 whatsapp rotator inquiry form displayed on the website

Each inquiry submitted through the website is recorded by the system before being forwarded to the assigned marketing representative. The stored information includes the prospective student's name, email address, selected class category, inquiry message, submission time, and routing destination. As shown in Figure 7, the collected data are organized systematically within the administration panel, allowing the marketing team to monitor incoming inquiries and maintain complete communication records. The centralized recording mechanism enables administrators to review inquiry history, monitor submission activity, and verify that each inquiry has been successfully processed.

The implementation process successfully integrated the whatsapp rotator into the wordpress-based website of the Indonesian Digital Business Polytechnic, resulting in a unified communication workflow that combines an HTML-based inquiry form, shortcode generation, wordpress integration, marketing team whatsapp configuration,

automated message routing, and centralized data recording. The integrated system enables prospective students to submit inquiries directly through the institution's website using a structured and user-friendly interface. Once a submission is completed, the inquiry is automatically routed to one of the registered marketing representatives based on the configured whatsapp rotator mechanism, thereby eliminating the need for manual message distribution. At the same time, all inquiry data are systematically recorded within the system, allowing administrators to monitor submissions, maintain communication records, and manage customer interactions more efficiently. Overall, the implementation confirms that all major system components functioned as intended and were successfully integrated into the existing website infrastructure, providing a reliable platform for managing prospective student inquiries.

No.	Field	Value
1	nama,pertanyaan-anda,nama	Agus,Bisa konversi dr lain prodi?,Kelas Eksekutif
2	nama,pertanyaan-anda,nama	Ahmad,pertanyaan-andaKelas Reguler
3	nama,pertanyaan-anda,nama	Aida salma,kelas karyawan jurusan bisnis digital,Kelas Eksekutif
4	nama,pertanyaan-anda,nama	Aida salma,kelas karyawan jurusan bisnis digital,Kelas Eksekutif
5	nama,pertanyaan-anda,nama	Arief,Akreditasi polbis apa ya,Kelas Reguler
6	nama,pertanyaan-anda,nama	Arief,Biaya Kelas Karyawan Jurusan Bisnis Digital,Kelas Eksekutif
7	nama,pertanyaan-anda,nama	Arya Aryatna,Boleh kah saya meminta brosur lengkap biaya kuliah PolBis?,Kelas Eksekutif
8	nama,pertanyaan-anda,nama	Ayu,Apakah ada kelas karyawan?,Kelas Reguler
9	nama,pertanyaan-anda,nama	azis test,coba,Kelas Eksekutif
10	nama,pertanyaan-anda,nama	Azis,pertanyaan-andaKelas Reguler

Showing 1 to 10 of 104 entries

Previous 1 2 3 4 5 ... 11 Next

Figure 7 data collected from the whatsapp rotator inquiry form

The findings of this study demonstrate that adopting an integrated digital communication system should be viewed not merely as a technological enhancement but as an organizational communication strategy. Business communication theory suggests that organizational effectiveness depends not only on the availability of communication channels but also on the quality, timeliness, and consistency of information exchange among stakeholders (Anđelić et al., 2025). In the context of higher education, prospective students often evaluate an institution based on their first interaction during the admission process. Therefore, communication systems that facilitate immediate and well-organized responses contribute to building institutional credibility and trust. The implementation examined in this study illustrates how communication technology can support these objectives by establishing a standardized mechanism for managing inquiries systematically rather than individually (Suwarno et al., 2021). Such standardization minimizes communication inconsistencies and creates a service process that is more transparent and controllable from an organizational perspective.

From an organizational management perspective, the implemented communication model reflects the principles of collaborative resource utilization. Rather than concentrating communication responsibilities on individual staff members, the integration encourages a more balanced allocation of organizational resources. Krishnan et al. (2021) argue that collaborative innovation emerges when digital technologies facilitate coordination among organizational members and optimize the utilization of available resources. This theoretical perspective explains why communication efficiency

is not solely determined by faster technology but also by the organization's ability to distribute responsibilities appropriately. Similarly, the action research framework adopted in this study emphasizes continuous organizational improvement through iterative interventions that directly address operational problems (Reitsma & Haug, 2026; Shani & Coghlan, 2021). The present research demonstrates that technological interventions become more sustainable when they are embedded within existing organizational workflows rather than functioning as isolated technological solutions.

Another important implication concerns the strategic role of website integration in supporting digital communication management. Previous studies have primarily discussed wordpress from the perspective of website development, usability, and content management capabilities (Harageones, 2022; Khalil et al., 2024). However, the present study indicates that the value of wordpress extends beyond website administration, serving as an integration platform that connects institutional websites with external communication services. This finding broadens the practical application of content management systems by demonstrating that CMS platforms can function as communication hubs rather than simply repositories of digital content. Moreover, the successful integration through modular plugins supports the argument that digital transformation does not necessarily require sophisticated or proprietary systems; instead, significant organizational improvements can be achieved by strategically integrating existing technologies according to institutional needs.

The discussion also highlights the importance of user-centered communication design in improving service quality. User experience theory emphasizes that digital interfaces should minimize cognitive effort while enabling users to accomplish their objectives efficiently (Vu et al., 2021). Likewise, Syamala et al. (2025) argue that interface simplicity, clarity of information, and intuitive interaction significantly influence users' perceptions of digital services. In educational institutions, where prospective students may possess diverse technological backgrounds, communication interfaces should reduce barriers that might discourage interaction. The communication model proposed in this study supports these theoretical principles by emphasizing structured information collection before communication begins. Rather than increasing procedural complexity, structured inquiry management enables service providers to understand customer needs better and deliver more relevant responses. Consequently, interface design should be interpreted not only as a usability issue but also as an essential component of organizational communication quality.

An equally significant contribution of this research lies in demonstrating the strategic value of communication data as an organizational asset. Modern digital marketing increasingly relies on customer-generated data to support evidence-based decision-making and service personalization. Ye & Zheng (2026) explain that educational institutions can improve recruitment effectiveness by using interaction data to understand prospective students' preferences and expectations better. Similarly, Kusumo et al. (2026) emphasize that organizational information systems become substantially more valuable when operational data are transformed into managerial knowledge for decision support. The communication model examined in this study aligns with these perspectives by illustrating how inquiry management can simultaneously function as a customer engagement mechanism and a source of institutional intelligence. Consequently, communication systems should be evaluated not only on their ability to facilitate conversations but also on their capacity to generate reliable information that supports strategic planning and continuous organizational improvement.

Compared with previous studies, this research contributes a more comprehensive perspective on digital communication management in higher education. Existing literature has generally examined website usability (Vu et al., 2021), wordpress implementation (Khalil et al., 2024), whatsapp business utilization (Ghanshyambhai, 2025; Myers, 2026), or educational digital communication (Biswas et al., 2022; Sabu et al., 2021) as independent research domains. Few studies have investigated how these technologies can be integrated into a unified communication ecosystem that simultaneously addresses operational efficiency, workload management, customer interaction, and organizational knowledge generation. Accordingly, this study extends previous research by demonstrating that communication effectiveness is achieved not through isolated technological adoption but through the integration of complementary digital tools within organizational processes. This integrated perspective provides both theoretical enrichment for digital communication management and a practical implementation model that can be adapted by other higher education institutions seeking to improve student recruitment services through cost-effective and scalable technological innovation.

Conclusions

This study successfully designed, implemented, and evaluated the integration of a whatsapp rotator into the wordpress-based website of the Indonesian Digital Business Polytechnic to improve the management of prospective student inquiries. The integrated system established an automated communication workflow by combining an HTML-based inquiry form, wordpress integration, shortcode implementation, whatsapp message routing, and centralized inquiry recording. The implementation enabled prospective students to submit inquiries through a structured interface while automatically distributing incoming messages among multiple marketing representatives. Consequently, the proposed system enhanced inquiry management efficiency, supported more balanced workload distribution, improved communication consistency, and provided a centralized repository for monitoring customer interactions. These findings demonstrate that integrating readily available web technologies can significantly strengthen digital communication management in higher education without requiring complex or expensive information systems.

This research contributes both theoretically and practically. Theoretically, it extends the literature on digital communication management by integrating business communication, WordPress-based web technologies, and whatsapp automation into a unified communication framework for higher education institutions. It also provides empirical evidence that effective communication management depends not only on communication platforms but also on integrating digital technologies that support organizational coordination and information management. Practically, the proposed implementation offers a scalable and cost-effective model that can be adopted by universities and other service-oriented organizations seeking to improve inquiry handling and customer engagement. Nevertheless, this study has several limitations. The implementation was conducted within a single higher education institution, limiting the generalizability of the findings. In addition, the evaluation primarily focused on system implementation and functional performance without quantitatively measuring user satisfaction, response time improvements, inquiry conversion rates, or long-term organizational impacts.

Future research should address these limitations by conducting comparative studies across multiple educational institutions with different organizational

characteristics to evaluate the broader applicability of the proposed communication model. Subsequent studies may also incorporate quantitative performance indicators, such as response time, customer satisfaction, workload distribution metrics, inquiry-to-enrollment conversion rates, and marketing effectiveness, to provide a more comprehensive assessment of system performance. Furthermore, future research could explore integrating artificial intelligence technologies, including intelligent chatbots, predictive inquiry classification, customer relationship management (CRM) platforms, and learning analytics, to develop more adaptive, personalized, and data-driven communication systems that further enhance student recruitment and institutional service quality.

References

Al-Abdallah, G., & Ababakr, K. (2025). Exploring the Mediating Effect of Digital Versus Traditional Marketing Communication on Students' Selection of Higher Education Institutions in Developing Countries. *Human Behavior and Emerging Technologies*, *2025*(1). https://doi.org/10.1155/hbe2/5510524

Almeida, F., & Sousa, C. (2026). Security Risks in Responsive Web Design Frameworks. *Digital*, *6*(1), 26. https://doi.org/10.3390/digital6010026

Anđelić, S., Milutinović, O., Fiser, M., & Bauder, J. (2025). Effects Of Verbal And Non-Verbal Communication On The Business Success Of The Company. *Social Informatics Journal*, *4*(1), 01–12. https://doi.org/10.58898/sij.v4i1.01-12

Bag, S., Srivastava, G., Bashir, M. M. Al, Kumari, S., Giannakis, M., & Chowdhury, A. H. (2022). Journey of customers in this digital era: Understanding the role of artificial intelligence technologies in user engagement and conversion. *Benchmarking: An International Journal*, *29*(7), 2074–2098. https://doi.org/10.1108/BIJ-07-2021-0415

Biswas, S. S., Biswas, S., Awal, S. S., & Goyal, H. (2022). Current Status of Radiology Education Online: a Comprehensive Update. *SN Comprehensive Clinical Medicine*, *4*(1), 182. https://doi.org/10.1007/s42399-022-01269-z

Carter, D. (2023). Constructing Structured Content on WordPress: Emerging Paradigms in Web Content Management. *Communication Design Quarterly*, *11*(1), 42–52. https://doi.org/10.1145/3563890.3563894

Dicya, B. P., & Tranggono, T. (2024). Usability Testing of Industrial Engineering UPNVJT Website Using Eye Tracking and System Usability Scale. *Sinkron*, *8*(3), 1480–1494. https://doi.org/10.33395/sinkron.v8i3.13765

Diglas, S., & Nzembayie, K. F. (2026). Action Design Research for Actionable Knowledge Production: A Metareflexive Methodology for Digital Transformation and Innovation Studies. *Creativity and Innovation Management*, *35*(2), 317–336. https://doi.org/10.1111/caim.70029

Ghanshyambhai, R. N. (2025). Impact of WhatsApp Business API on Business Communication and Customer Engagement: An Examination of Pinggo's Implementation. *International Journal of Science, Architecture, Technology and Environment*, *3*(7), 182–190. https://doi.org/10.63680/ijsate1025015.018

Harageones, S. (2022). *UX/UI Research-Applied Strategies for Building a Custom WordPress Theme Using Underscores and Elementor* [Lindenwood University]. https://digitalcommons.lindenwood.edu/theses/304/

Khalil, M. M., Ghazi, H. M., Habib, M. I., Shahzad, F., & Elahi, A. I. (2024). Guideline for Selecting the Right Content Management System (RCMS) for Web Development: A Comprehensive Approach. *Journal of Computing & Biomedical Informatics*, 1–10.

https://jcbi.org/index.php/Main/article/view/353

Krishnan, R., Yen, P., Agarwal, R., Arshinder, K., & Bajada, C. (2021). Collaborative innovation and sustainability in the food supply chain- evidence from farmer producer organisations. *Resources, Conservation and Recycling*, *168*, 105253. https://doi.org/10.1016/j.resconrec.2020.105253

Krupcała, K., & Januszewski, A. (2020). Website and e-shop Development as an e business Teaching Programme Innovation in Management Education. *Procedia Computer Science*, *176*, 2476–2486. https://doi.org/10.1016/j.procs.2020.09.329

Kumar, S., Kumar, A., Kumar, M., Kumar, A., Arora, R., & Sehrawat, R. (2020). Feasibility of telemedicine in maintaining follow-up of orthopaedic patients and their satisfaction: A preliminary study. *Journal of Clinical Orthopaedics and Trauma*, *11*, S704–S710. https://doi.org/10.1016/j.jcot.2020.07.026

Kusumo, A., Setiawan, R., & Fitria, D. (2026). Integrating business intelligence into executive information systems for advanced decision support. *JISTecS: Journal of Information Systems, Technology and Security*, *1*(1), 66–84. https://doi.org/10.65881/jistecs.v1i1.51

Li, Q., Tian, W., & Zhang, H. (2025). Digital Transformation for Sustainability in Industry 4.0: Alleviating the Corporate Digital Divide and Enhancing Supply Chain Collaboration. *Systems*, *13*(2), 123. https://doi.org/10.3390/systems13020123

Mele, C., & Spena, T. R. (2022). The architecture of the phygital customer journey: a dynamic interplay between systems of insights and systems of engagement. *European Journal of Marketing*, *56*(1), 72–91. https://doi.org/10.1108/EJM-04-2019-0308

Myers, M. (2026). *Analyzing how personalized services, loyalty programs, and real-time communication can enhance customer satisfaction and retention*. https://www.researchgate.net/publication/403952459

Naik, P. G., Thorat, R. T., & Naik, G. R. (2024). *Honing jQuery Skills for Elevating Dynamic and Interactive Web Experience (Includes Comparison Between JavaScript and jQuery)*. Shashwat Publication. https://www.researchgate.net/publication/385531071

Oloba, B. L., Olola, T. M., & Ijiga, A. C. (2024). Powering reputation: Employee communication as the key to boosting resilience and growth in the U.S. Service Industry. *World Journal of Advanced Research and Reviews*, *23*(3), 2020–2040. https://doi.org/10.30574/wjarr.2024.23.3.2689

Pregmark, J. E., Fredberg, T., Berggren, R., & Frössevi, B. (2023). Learning From Collaborative Action Research in Three Organizations: How Purpose Activates Change Agency. *The Journal of Applied Behavioral Science*, *59*(4), 617–646. https://doi.org/10.1177/00218863231195909

Reitsma, E., & Haug, A. (2026). Action research in operations management: methodological weaknesses and four improvement strategies. *Production Planning & Control*, *37*(10), 1079–1092. https://doi.org/10.1080/09537287.2026.2618127

Sabu, D., Rathod, V., Phadnis, A., & Bansal, S. S. (2021). Telehealth for consultation and shoulder rehabilitation: a preliminary study on the perspectives of 30 patients during the COVID-19 lockdown. *Clinics in Shoulder and Elbow*, *24*(3), 156–165. https://doi.org/10.5397/cise.2021.00248

Semathong, S. (2023). Participatory Action Research to Develop the Teachers on Classroom Action Research. *Shanlax International Journal of Education*, *11*(3), 29–36. https://doi.org/10.34293/education.v11i3.6118

Shani, A. B. (Rami), & Coghlan, D. (2021). Action research in business and management: A reflective review. *Action Research*, *19*(3), 518–541. https://doi.org/10.1177/1476750319852147

Shehata, G. M., & Montash, M. A. (2019). Driving the internet and e-business technologies to generate a competitive advantage in emerging markets. *Information Technology & People*, *33*(2), 389–423. https://doi.org/10.1108/ITP-10-2017-0360

Suwarno, I., Ma'arif, A., Maharani Raharja, N., Nurjanah, A., Ikhsan, J., & Mutiarin, D. (2021). IoT-based Lava Flood Early Warning System with Rainfall Intensity Monitoring and Disaster Communication Technology. *Emerging Science Journal*, *4*, 154–166. https://doi.org/10.28991/esj-2021-SP1-011

Syamala, S., Shrivastava, A., & Karmakar, S. (2025). Enhancing User Experience in Digital Design Learning Environments Through User Interface Improvements: A Comprehensive Approach. *IEEE Access*, *13*, 182960–182976. https://doi.org/10.1109/ACCESS.2025.3624267

Tajpour, M., Hosseini, E., Mohammadi, M., & Bahman-Zangi, B. (2022). The Effect of Knowledge Management on the Sustainability of Technology-Driven Businesses in Emerging Markets: The Mediating Role of Social Media. *Sustainability*, *14*(14), 8602. https://doi.org/10.3390/su14148602

Vu, K. L., Proctor, R. W., & Hung, Y. (2021). Website Design And Evaluation. In *Handbook Of Human Factors And Ergonomics* (pp. 1016–1036). Wiley. https://doi.org/10.1002/9781119636113.ch39

Ye, T., & Zheng, Z. (2026). Data-Driven Digital Marketing in Education Agencies: Implications for Personalized Educational Services. *Journal of Qualitative Research in Education*, *46*, 35–47. https://doi.org/10.54963/jqre.i46.2103