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Digital Communication Transformation with Omni Communication Assistant (OCA): Case Study of Omnichannel and CRM Integration in Education and MSME Sector

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ABSTRACT

Omni Communication Assistant (OCA) is an omnichannel-based technology developed by Telkom Indonesia to enhance digital communication across various sectors, including education and small and medium enterprises (SMEs). This study aims to analyze the implementation of OCA in digital communication, focusing on user interactivity, CRM integration, as well as challenges and optimization strategies within educational institutions and SMEs. This research employs a post-positivist paradigm with a qualitative case study approach. Data were collected through semi-structured interviews with three key informants and document analysis from various academic sources and official reports. The findings indicate that OCA improves digital communication efficiency by integrating multiple communication channels into a CRM-based system. However, challenges were identified in optimizing AI-powered chatbots, personalizing CRM services, and ensuring user readiness in adopting this technology. Therefore, strategies such as strengthening predictive AI capabilities, integrating omnichannel communication with social media, and educating users on CRM utilization are essential to enhance the effectiveness of OCA in supporting digital communication within the education and SME sectors

Keywords: *Digital Communication, Omni Communication Assistant, Omnichannel, CRM, Chatbot AI, MSME*
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INTRODUCTION

The rapid development of digital communication technologies has significantly transformed communication systems across various sectors, including education and Micro, Small, and Medium Enterprises (MSMEs). One notable innovation in this field is the Omni Communication Assistant (OCA), developed by PT Telkom Indonesia Tbk. OCA is an omnichannel, technology-based solution designed to integrate multiple communication channels into a single, more efficient, and responsive platform (Telkom Indonesia, 2023).

In the education sector, academic institutions face significant challenges related to the fragmented distribution of information and ineffective communication processes. Critical information such as academic calendars, policy updates, and administrative announcements is often disseminated across various platforms—WhatsApp, email, SMS, and internal portals—without proper integration (Batra, 2018). This disorganization leads to difficulties for students, faculty, and parents in accessing accurate and timely information (Anny, 2022). Moreover, limited administrative personnel often struggle to handle repetitive queries, resulting in delayed responses and dissatisfaction with academic services (Ghosh, Ness, & Salunkhe, 2024). OCA addresses these issues by enabling educational institutions to centralize

and streamline communications through an integrated, interconnected system (Moreira et al., 2023). Nonetheless, the implementation of OCA still faces several challenges, particularly in optimizing its interactivity features, such as AI chatbot integration and personalized services tailored to institutional needs.

Similarly, MSMEs also experience communication-related challenges that hinder the development of sustainable customer relationships. In today's digital era, customer loyalty is critical to business continuity, yet many MSMEs still rely on conventional communication methods that lack documentation and scalability (Frasquet et al., 2023). Resource limitations and a lack of familiarity with CRM technologies often prevent MSMEs from delivering quick, personalized responses to customers (Kalisetty, 2024). OCA's Interaction Lite feature offers a solution by allowing MSMEs to manage customer communications through a single dashboard that integrates various platforms—such as Facebook Messenger, WhatsApp, Instagram comments, and direct messages (Jain et al., 2023). However, the successful adoption of this technology remains limited due to the need for greater user education, especially among MSME operators unfamiliar with AI-driven CRM systems (Dutta, 2024). This highlights the need for further research into how OCA can support MSMEs in enhancing customer experience and optimizing digital communication strategies.

A key advantage of OCA lies in its integration of AI-powered chatbots, which enable educational institutions and MSMEs to provide real-time, automated responses to user inquiries. In educational settings, chatbots can answer frequently asked questions related to admission processes, academic schedules, and institutional services, thereby reducing the workload of administrative staff and improving information accessibility for students and parents (Shaharkar, Kondekar, & Shaik, 2025; Bennett & El Azhari, 2015). For MSMEs, AI chatbots can efficiently handle inquiries about products, delivery processes, and return policies, significantly enhancing customer service operations (Lee & Leonas, 2018). However, one of the ongoing challenges in chatbot implementation is their limited ability to understand the nuanced context of user questions, which often results in generic, impersonal responses (Smidovich, Kulik, & Momot, 2024). To overcome this, further optimization is essential to ensure that OCA's chatbot features deliver a more interactive, personalized, and context-aware communication experience for users.

Although the adoption of omnichannel technology is growing across various sectors, there remains a significant research gap regarding its effectiveness in education services and MSMEs. Most existing studies have concentrated on the use of Customer Relationship Management (CRM) systems and chatbot technologies to enhance customer experiences. However, few have explored how these technologies can be integrated across multiple communication channels simultaneously (Jain et al., 2021). Furthermore, research on the application of omnichannel systems in educational settings is still limited, leaving a lack of insights into how such technology can support academic institutions in enhancing both internal and external communication (Gerea & Herskovic, 2022). In the MSME sector, although studies have emphasized the importance of digital transformation, they have yet to address how the integration of omnichannel communication within a single platform can improve overall customer communication efficiency (Rana, Singh, & Chandel, 2025).

To address this gap, the current study conducts a case study on the implementation of Omnichannel Communication Architecture (OCA) at Telkom Indonesia. This aims to offer comprehensive insights into how OCA-based communication solutions can be optimized to enhance service quality in the education and MSME sectors.

The theoretical foundation of this study is based on Rafaeli & Sudweeks' (1997) Media Interactivity Theory, which posits that the higher the level of interactivity within a communication system, the greater the user's involvement in digital communication (Khan & Iqbal, 2020). High interactivity fosters stronger user engagement and enables more flexible, adaptive communication tailored to diverse customer needs (Saghiri & Mirzabeiki, 2021).

Therefore, this theory will serve as the conceptual framework for evaluating how OCA can be effectively utilized to strengthen omnichannel communication systems.

Based on the description above, this study seeks to explore the implementation and optimization of Omnichannel Communication Architecture (OCA) within the context of digital communication in both the education and Micro, Small, and Medium Enterprises (MSME) sectors. Firstly, it investigates how OCA is applied in facilitating seamless digital communication across multiple platforms in these sectors, focusing on how educational institutions and MSMEs utilize integrated channels to enhance engagement and outreach. Secondly, the study aims to examine how the interactivity features of OCA can be optimized to improve communication quality, user responsiveness, and message personalization. Finally, it delves into the role of omnichannel integration and Customer Relationship Management (CRM) systems in OCA, evaluating how these elements contribute to enriching user experience by enabling consistent, data-driven, and user-centric communication across various digital touchpoints. Through these inquiries, the study endeavors to provide strategic insights into leveraging OCA to drive more effective and meaningful digital interactions in education and MSME environments.

METHOD

This study adopts a post-positivist paradigm, which facilitates an in-depth exploration of digital technology-based communication within educational institutions and the MSME sector. The post-positivist perspective acknowledges that social reality is inherently complex and can be understood through a systematic, evidence-based approach, even though such understanding may not be absolute (Guba & Lincoln, 1994: 105). Within this framework, the study seeks to examine how the Omni Communication Assistant (OCA) is implemented as an omnichannel communication solution, and how the optimization of its features can enhance user experience in academic settings and small-to-medium business environments. This approach not only aims to uncover the structure and function of OCA-based communication but also to identify the challenges and opportunities associated with its practical implementation.

The research is grounded in the disciplines of media communication and marketing communication. From a media communication perspective, the study analyzes how OCA, as a digital communication platform, enables the delivery of information in a more structured, accessible, and efficient manner to its users—whether in educational institutions or MSMEs (McQuail, 2010: 122). Meanwhile, from a marketing communication standpoint, the focus is on how OCA's Interaction Lite can support MSMEs in building stronger customer relationships and fostering higher levels of engagement. By integrating both perspectives, this study aims to offer a comprehensive understanding of how OCA functions not only as a tool for consistent message delivery across multiple platforms, but also as a catalyst for deeper, more meaningful user interaction.

This study employs a qualitative research approach using a case study method, aiming to gain an in-depth understanding of the implementation of the Omni Communication Assistant (OCA) in real-world contexts. The case study approach is particularly suitable because it allows for a contextual and comprehensive analysis of user experiences and the challenges encountered in adopting omnichannel communication technology (Yin, 2018: 36). This method also enables the exploration of various factors that influence the success or limitations of OCA implementation, including how organizations like Telkom Indonesia strategize to optimize their digital communication services. As such, the case study approach is highly relevant for identifying the role of OCA in transforming digital communication in educational institutions and MSMEs.

The research focuses on three key informants: Komang Budi Aryasa, EVP Digital Business & Technology at Telkom Indonesia; Ahmad Fauzi from Almaka Education Institution; and Siti Rahmah, a seller on PaDi UMKM. These individuals were selected based on their direct involvement in the development and use of OCA. The objects of the study include the practical implementation of OCA in both the education and MSME sectors, particularly how this technology enhances communication effectiveness and the challenges that arise in its application.

Primary data were collected through semi-structured interviews, allowing for flexible yet focused discussions with informants. Secondary data were gathered from various sources, including official reports from Telkom Indonesia, academic publications, peer-reviewed journal articles, and relevant news coverage on the implementation of OCA.

The data were analyzed using thematic analysis, which aims to identify recurring themes and patterns within the qualitative data (Braun & Clarke, 2006: 79). The analytical process included data reduction, data display, and conclusion drawing (Miles & Huberman, 1994: 21). To ensure data validity and reliability, the study applied triangulation of sources and methods (Creswell, 2014: 88). Member checking was also conducted to confirm the accuracy of interpretations by validating the researchers' findings with the interviewees (Lincoln & Guba, 1985: 163). Through this rigorous approach, the study aims to produce findings that are valid, credible, and relevant to understanding the role of OCA in enhancing digital communication within the education and MSME sectors.

FINDINGS AND DISCUSSION

Implementation of OCA in Digital Communication

The Omni Communication Assistant (OCA) developed by PT Telkom Indonesia is a breakthrough in digital communication, offering a unified omnichannel technology solution designed to enhance the efficiency and integration of communication across multiple sectors. In educational institutions, communication challenges often arise in the dissemination of critical academic information—such as exam schedules, policy updates, and new student registration. These issues largely stem from the fragmentation of information across multiple, unintegrated platforms (Borole, 2024: 5). As a result, students and parents frequently encounter difficulties in accessing accurate and timely information. The implementation of OCA in the educational environment presents a promising solution by consolidating communication channels, thus improving the flow and accessibility of academic information.

In the Micro, Small, and Medium Enterprises (MSME) sector, OCA Interaction Lite provides a structured communication management tool for business owners. MSMEs commonly rely on various digital channels such as WhatsApp, Facebook Messenger, and Instagram to interact with customers (Nguyen & Mogaji, 2023: 31). However, using these platforms independently often hinders prompt responses and efficient customer engagement. By integrating all these channels into a single, centralized system, OCA helps MSMEs streamline their communication processes, reduce delays, and enhance overall customer service—overcoming one of the most persistent operational challenges in the sector.

In an interview with Komang Budi Aryasa, EVP Digital Business & Technology at Telkom Indonesia, it was revealed that OCA was developed with the vision of creating a more connected and responsive communication ecosystem. Prior to OCA, many educational institutions and MSMEs faced significant obstacles in managing dispersed communication systems, which led to delayed responses and reduced user satisfaction. With OCA, users—be they students, parents, or customers—can access accurate information quickly and seamlessly without switching between platforms. This centralized integration fosters a more efficient, equitable, and responsive communication environment. Therefore, OCA stands out as a

transformative solution for enhancing connectivity and communication quality in both education and MSME sectors.

In addition to insights from the developers, feedback from users of the Omni Communication Assistant (OCA) also highlights its practical benefits and ongoing challenges. Ahmad Fauzi, a representative from the Almaka Education Institute, shared that academic communication has become significantly more efficient since adopting OCA. Prior to its implementation, schools often encountered difficulties in conveying important information to students and parents. The lack of structured communication led to frequent delays in responding to parent inquiries. With OCA, communication has become more organized, and information—such as academic schedules and administrative updates—can be disseminated more swiftly and accurately. This has greatly supported the institution in managing its academic operations.

A similar sentiment was echoed by business users. In an interview, Siti Rahmah, a representative from PaDi UMKM Seller, emphasized that OCA has been instrumental in helping MSMEs manage customer communication in a more orderly and efficient manner. Before using OCA, many MSMEs struggled with high volumes of messages across multiple platforms like WhatsApp, Instagram, and Facebook. Without an integrated communication system, it was difficult to respond promptly to all customer inquiries. By centralizing these channels through OCA, MSMEs are now better able to streamline interactions and improve their overall customer service performance.

However, despite the advantages offered by OCA's AI-powered chatbot, certain limitations remain—particularly in understanding the nuanced context of user inquiries. Ahmad Fauzi noted that while the chatbot is effective in handling frequently asked questions, it often falls short when dealing with more complex or personalized queries from students or parents. In such cases, users still need to contact academic staff directly for detailed responses. This issue reflects a broader challenge in natural language processing, as also highlighted in the study by Damayanti & Sumayyah (2024: 9), which found that AI-based chatbots often struggle with language variation and contextual interpretation. These findings suggest that while OCA has brought substantial improvements in communication for both educational institutions and MSMEs, further refinement—especially in chatbot intelligence—is necessary to fully meet user expectations and handle complex interactions more effectively.

In a business context, Siti Rahmah from *Padi* Seller noted that while OCA chatbots are helpful for addressing basic inquiries—such as product pricing and stock availability—they still require significant improvement in terms of service personalization. When customers ask more specific or nuanced questions, the chatbot often responds with generic or less relevant answers. This observation aligns with Oncioiu (2023: 20), who stated that AI chatbots tend to struggle when confronted with queries that use language structures not aligned with the chatbot's pre-programmed database. As a result, the responses generated are often superficial and lack depth. This underscores the urgent need to enhance the intelligence and contextual understanding of OCA's chatbot system, especially within the MSME sector.

To address these challenges, several strategic feature enhancements can be implemented to strengthen OCA's effectiveness in supporting digital communication for both educational institutions and MSMEs. According to Komang Budi Aryasa, Telkom Indonesia is actively working on improving OCA to make it more adaptive and responsive to user needs. One of the key strategies involves integrating machine learning technology into the chatbot system. This advancement would enable chatbots to better grasp the context of conversations and deliver more accurate and personalized responses to users.

Moreover, enhancing the integration between OCA and Customer Relationship Management (CRM) systems can significantly support MSMEs in managing and analyzing customer interactions. This integration ensures that customer data and previous interactions are accessible, allowing businesses to deliver more personalized and consistent service.

In a follow-up interview with Komang Budi Aryasa, it was revealed that future developments of OCA will center on improving user experience through a more adaptive and intelligent system. One notable innovation includes the use of data analytics to track and understand user communication patterns. With this insight, chatbots will be able to tailor their responses based on individual user histories, enabling more relevant and context-aware interactions. In educational institutions, for instance, chatbots will be able to respond to student queries based on their academic records or previous communications, thereby enhancing service precision and satisfaction.

As omnichannel communication technology continues to gain traction, OCA is positioned to evolve into a more innovative and robust digital communication solution. Stakeholders in both the education and MSME sectors increasingly demand a centralized, responsive, and efficient communication system. OCA has the potential to meet these demands by bridging various communication platforms into a unified interface. Nevertheless, ongoing challenges remain—particularly in upgrading chatbot intelligence and promoting user readiness in adopting integrated CRM tools. With the implementation of the right development strategies, OCA can continue to grow into a cutting-edge solution that meets the dynamic needs of diverse sectors, ultimately advancing digital transformation in Indonesia's education and business landscapes.

Optimizing OCA Interactivity in Digital Communications

Interactivity in digital communication plays a vital role in shaping a more personal, responsive, and adaptive user experience. The Omni Communication Assistant (OCA), developed by PT Telkom Indonesia, offers an omnichannel-based communication solution designed not only to streamline information delivery but also to foster communication that aligns closely with user preferences. According to Rafaeli & Sudweeks (1997: 89) in their Theory of Media Interactivity, the higher the level of interactivity within a communication system, the greater the user's engagement in the digital communication process. In line with this theory, OCA is expected to enhance communication quality across the education and MSME sectors by integrating AI-powered chatbots, CRM systems, and customer interaction analytics.

Komang Budi Aryasa, EVP Digital Business & Technology at Telkom, emphasized that the development of interactive features remains a top priority for OCA. He highlighted that OCA is not merely a communication tool, but a comprehensive digital solution designed to enable users to access services more quickly and in ways that align with their individual needs and behaviors. Despite its strengths, the optimization of interactivity in OCA still encounters several technical and functional challenges. Ahmad Fauzi, a representative from Almaka Education Institution, shared that while OCA has significantly improved the speed of academic information delivery to students and parents—especially regarding exam schedules and academic policy changes—the chatbot still struggles to respond to more nuanced or specific queries. In such cases, students or parents often need to reach out to academic staff for clarification or further details.

This limitation is consistent with findings by Bhagyalakshmi & Begam (2024: 8), who state that AI-based chatbots currently lack the sophistication to fully understand the contextual nuances of user communications. As a result, chatbots often fall short in delivering personalized and contextually relevant responses, thereby reducing the overall interactivity and effectiveness of the system.

To address these challenges, continuous development is essential to enhance the contextual awareness and interactivity of chatbots, ensuring that Omni Communication Assistant (OCA) evolves into an intelligent, adaptive, and user-centric communication platform across various sectors.

In the MSME sector, one of the primary challenges in improving OCA's interactivity lies in delivering a more personalized communication experience for customers. Siti Rahmah, a representative from PaDi UMKM Seller, noted that OCA's integration with various digital platforms has enabled MSMEs to manage customer communication more efficiently. However, she pointed out that the chatbot's responses still tend to be too formal and less adaptable to the diverse communication styles of customers. Many MSME customers are more comfortable with casual, natural chat-based communication, but the existing OCA chatbots often provide rigid and generic replies. Supporting this, Nasladnikov (2024: 22) emphasized that customers are more satisfied with digital communication systems that offer a human-like experience, as opposed to chatbots that only deliver automated responses. This highlights the pressing need for enhanced chatbot personalization to elevate the customer experience when using OCA.

One key strategy to improve interactivity in OCA is through the advancement of Natural Language Processing (NLP). Gattupalli (2024: 10) explains that with more sophisticated NLP capabilities, OCA chatbots can better understand the context and nuance of conversations, enabling them to adapt their tone and style based on previous user interactions. Komang Budi Aryasa, EVP Digital Business & Technology at Telkom, has also affirmed that NLP integration will be a priority in OCA's development roadmap. With more accurate NLP, chatbots will be able to provide contextually relevant, natural-sounding responses, making interactions feel more intuitive and personalized. In addition to NLP, the implementation of Machine Learning (ML) is also crucial. As noted by Almeida (2025: 17), ML technology enables OCA to learn from users' communication patterns and continuously improve its responses over time. By leveraging ML, OCA chatbots can transition from being passive responders to becoming proactive and interactive assistants, capable of anticipating user needs and delivering more meaningful engagements.

Beyond AI advancements, enhancing OCA's interactivity also requires stronger CRM integration within its omnichannel communication system. A well-integrated CRM allows OCA to track and store user interaction history, enabling more consistent and personalized communication. Nasladnikov (2024: 22) supports this by stating that users are more satisfied with digital platforms that remember their previous interactions and tailor services accordingly. Siti Rahmah echoed this sentiment, explaining that CRM integration has helped MSMEs manage customer data more effectively. However, she also pointed out that many MSME actors are still unfamiliar with the full capabilities of CRM systems.

To address this gap, education and training programs for OCA users are essential. Empowering users with the knowledge to fully utilize CRM and AI features will significantly improve the effectiveness of OCA in supporting communication across the education and MSME sectors. In conclusion, by advancing AI technologies such as NLP and ML, strengthening CRM integration, and improving user readiness, OCA can transform into a truly intelligent and interactive communication system—capable of delivering faster, more relevant, and more human-like interactions in a variety of contexts.

To address the challenges in chatbot interactivity, the development of a Hybrid Live Chat feature presents a promising solution. With this feature, the OCA chatbot can automatically handle basic inquiries, but when more complex questions arise, the system can seamlessly transfer users to human customer service agents. Komang Budi Aryasa explained that the development of this hybrid feature aims to enhance user satisfaction by combining the efficiency of chatbots with the flexibility of human agents. Gattupalli (2024: 11) found that the use of a hybrid system, integrating both AI and human agents in customer service, can increase user satisfaction by up to 50%. This approach allows OCA to maintain the speed and efficiency of chatbot responses for routine queries, while providing users with the opportunity to engage with human agents when more detailed or context-specific answers are required.

Overall, optimizing interactivity in OCA requires a user-centric approach that prioritizes the development of adaptive AI technologies, enhanced CRM integration, and the incorporation of hybrid communication models. These models blend the benefits of automation with the personal touch of human interaction. Ahmad Fauzi from Almaka Education Institute emphasized that more interactive chatbots would significantly ease the burden on academic staff by automating the responses to frequently asked questions from students and parents. In the MSME sector, Siti Rahmah from *PaDi UMKM* Seller expressed her hope that OCA continues to evolve to better meet the dynamic communication needs of small-scale businesses.

These observations align with Benjamin's (2025: 15) research, which highlights that a more interactive digital communication system not only boosts efficiency in information delivery but also plays a crucial role in fostering long-term customer loyalty. Therefore, increasing interactivity in OCA should be a key focus in the development of omnichannel-based digital communication solutions, ensuring that this technology can deliver maximum benefits to users across diverse industries.

Omnichannel and CRM Integration in Improving User Experience

As digital communication technology continues to evolve, omnichannel strategies and Customer Relationship Management (CRM) have become essential components in enhancing customer and service user experiences. The Omni Communication Assistant (OCA), developed by PT Telkom Indonesia, adopts this approach to offer a more integrated and responsive communication system, catering to both the education and business sectors. The integration of various communication channels with the CRM system in OCA enables users to interact across multiple platforms without losing the continuity of information.

According to a study by Zhao & Kumar (2024: 39), the incorporation of AI in CRM systems can significantly improve communication efficiency by delivering a more personalized experience, where previous interactions are leveraged to tailor future services. In the case of OCA, CRM integration ensures that customer data, such as conversation history and communication preferences, is utilized to enhance the relevance and quality of interactions.

Komang Budi Aryasa, EVP of Digital Business & Technology at Telkom, emphasized that improving user experience through omnichannel communication and CRM integration is a key priority in the ongoing development of OCA. This approach not only streamlines communication but also provides users with a more efficient and customized service, fostering a more seamless and effective interaction experience.

CRM integration in OCA plays a crucial role in enhancing customer service efficiency, particularly in managing repetitive and large-scale inquiries. Ahmad Fauzi, a representative from Almaka Education Institution, explained that prior to the implementation of OCA, many academic inquiries had to be manually answered by school administration staff. With the high volume of similar questions coming in daily, academic staff often struggled to provide timely responses to students and parents. However, with the CRM system connected to OCA, frequently asked questions can now be automatically addressed by a chatbot, allowing staff to focus more on complex academic matters. Chatterjee & Sharma (2024: 18) support this observation, noting that a CRM system integrated with omnichannel communication can reduce service response time by up to 50%, improving customer satisfaction as interactions become more personalized and continuous.

In addition to benefiting the education sector, OCA also proves advantageous for MSMEs in improving customer interactions. Siti Rahmah, a representative from *PaDi UMKM* Seller, highlighted that CRM integration within OCA has helped MSMEs manage customer communications more efficiently. Before adopting OCA, MSMEs faced challenges in managing various communication channels like WhatsApp, Instagram, and Facebook

Messenger, which were often handled separately. Through OCA, MSMEs can now integrate all communications into one system, eliminating the need to switch between platforms to respond to customer inquiries. Benjamin (2025: 20) found that MSMEs using AI-based CRM experienced a 35% increase in customer loyalty, as communication became more responsive and focused.

Despite the numerous benefits brought by CRM integration, challenges remain in optimizing OCA-based services. One key challenge lies in the differences in communication patterns between the education sector and MSMEs. Ahmad Fauzi from Almaka Education Institute mentioned that while OCA facilitates the dissemination of academic information more efficiently, personalizing services for students and parents remains a hurdle. Many parents prefer a more personal and flexible communication approach, yet the chatbots in OCA still often provide overly general responses. Fahad & Kollwitz (2025: 33) found that CRM systems in the education sector face limitations in flexibility, as most CRM systems are designed for business use rather than academic needs. This highlights the need for further adaptation of CRM systems to meet the unique communication requirements of educational institutions.

On the other hand, MSMEs face challenges in managing customer data through CRM, especially among small business owners who are not yet familiar with digital systems. Siti Rahmah, from PaDi UMKM Seller, highlighted that many MSME owners still struggle to understand how to optimize the CRM features available in OCA. While OCA has helped streamline communication with customers, many MSME owners still require training to use CRM effectively, particularly in understanding customer behavior and improving marketing strategies. Sundararajan (2024: 27) noted that while AI-based chatbots can enhance efficiency in handling customer communications, there are still limitations in personalizing responses, especially for businesses offering a wide range of products or services. Consequently, the development of chatbots in OCA needs further refinement to be more flexible in understanding the broader context of conversations.

To address these challenges in personalizing services in both the education and MSME sectors, several development strategies should be implemented within the OCA system. One such strategy is the integration of predictive AI into CRM, where the system can learn users' communication patterns and automatically suggest the most relevant information based on previous conversation history (Zhao & Kumar, 2024: 41). This approach would enable educational institutions to offer a more personalized experience for students and parents, while MSMEs could better understand customer preferences to provide more tailored services. Komang Budi Aryasa emphasized that the development of predictive AI will be a priority in future OCA innovations, helping users enjoy a smarter, more intuitive communication experience.

Furthermore, enhancing the omnichannel integration feature with social media and instant messaging applications such as WhatsApp and Telegram can increase communication flexibility (Chatterjee & Sharma, 2024: 23). By incorporating these channels, users can select the most convenient communication platform for them, without losing the continuity of information. Komang Budi Aryasa stressed that this step will significantly improve the accessibility and responsiveness of digital communication in both the education and MSME sectors.

Another key step in optimizing the integration of omnichannel and CRM in OCA is the use of data analytics to gain a deeper understanding of customer communication patterns. Siti Rahmah, from PaDi UMKM Seller, highlighted that data analytics enables MSMEs to better understand customer communication trends and adjust their marketing strategies accordingly. In an interview, Komang Budi Aryasa shared that Telkom Indonesia is currently developing an analytics system that will allow both educational institutions and MSMEs to understand user communication patterns based on interaction data collected through CRM.

Fahad & Kollwitz (2025: 35) support this by emphasizing that the use of data analytics in CRM allows organizations to predict customer needs more accurately and provide proactive services.

In conclusion, the integration of omnichannel and CRM in OCA has delivered substantial benefits for educational institutions and MSMEs in improving communication efficiency and user experience. However, there are still challenges to overcome, particularly in personalizing AI-based services and tailoring CRM systems to meet the specific needs of each sector. By adopting strategies such as the development of prediction-based AI, enhancing integration with social media, and leveraging data analytics to understand customer communication patterns, OCA can evolve into a more flexible, adaptive, and innovative digital communication solution. This aligns with Sundararajan's research (2024: 29), which argues that the success of an omnichannel communication system in the digital era depends not only on the technology used but also on how well the system adapts to the unique needs of its users. Therefore, future development of OCA should prioritize increasing the flexibility and intelligence of the system, ensuring it provides a more seamless and relevant communication experience for users across various sectors.

Discussion

The results of this study indicate that the Omni Communication Assistant (OCA) has brought significant advancements in digital communication, particularly within the education and MSME sectors. By leveraging omnichannel technology and Customer Relationship Management (CRM), OCA has improved the efficiency of information delivery, accelerated response times to customer inquiries, and created a more personalized communication experience. In the education sector, OCA has streamlined the dissemination of academic information in a more structured manner. In the MSME sector, it has enabled small businesses to manage customer relationships more effectively. However, several challenges remain in its implementation, including limitations in the personality of AI chatbots, a lack of user understanding of CRM systems, and the need for greater flexibility in integrating communication channels.

Developed by PT Telkom Indonesia, OCA presents a communication solution based on omnichannel technology that enhances interaction efficiency in both the education and MSME sectors. By integrating multiple communication channels into a single system connected to CRM, OCA accelerates information delivery, reduces delays in responding to inquiries, and enhances user satisfaction. Nevertheless, this study reveals ongoing challenges in optimizing the system, especially in terms of interactivity. Key areas for improvement include AI chatbot functionality, CRM flexibility in personalizing services, and user readiness to fully utilize this technology. Therefore, although OCA has brought about positive changes in digital communication, further development is essential to provide an even more optimal experience for users in both sectors.

The implications of this study suggest that the development of omnichannel-based communication technology should go beyond merely integrating communication channels. It must also focus on addressing the specific experiences and needs of users. Ahmad Fauzi, from Almaka Education Institute, emphasized that enhancing chatbot interactivity and service personalization is crucial in the education sector to foster more effective communication between schools, students, and parents. Meanwhile, Siti Rahmah from PaDi UMKM Seller highlighted that education and training on utilizing CRM effectively remain significant challenges for MSME players in maximizing the potential of digital technology. Thus, the development of OCA should prioritize aspects of service personalization, increasing user understanding, and creating features that are more adaptable to the diverse needs of various industries.

To address these challenges, several strategies can be implemented, including the development of prediction-based AI within CRM, enhancing chatbot capabilities with Natural Language Processing (NLP) technology, and expanding omnichannel integration with social media and instant messaging applications. Komang Budi Aryasa, EVP of Digital Business & Technology at Telkom Indonesia, emphasized that the company is committed to continuously evolving OCA into a more responsive, innovative digital communication system that can adapt to the dynamic digital landscape in Indonesia. With these advancements, OCA is expected to develop further as a digital communication solution that not only facilitates interaction but also provides a more personalized and sustainable user experience.

Based on the findings of this study, several suggestions can be made for the future development of OCA. These include improving the intelligence of chatbots to respond more contextually to inquiries, strengthening data analytics to better understand user communication patterns, and increasing outreach and education about the benefits of omnichannel and CRM technology for both educational institutions and MSMEs. By adopting these strategies, OCA will not only become a more efficient communication tool but also evolve into a digital ecosystem that delivers added value by creating a more adaptive communication experience tailored to user needs.

CONCLUSIONS

This study explores the optimization of digital communication, focusing on user interactivity, CRM integration, and the challenges faced by educational institutions and MSMEs. Using a post-positivism paradigm with qualitative research through case studies, data was gathered from semi-structured interviews with three informants and documentation from academic sources and official reports. The findings reveal that OCA significantly enhances communication efficiency by integrating various communication channels into a single CRM-based system. However, challenges remain in optimizing AI-based chatbots, personalizing services within CRM, and ensuring users' readiness to adopt this technology. To address these issues, strategies such as enhancing prediction-based AI, expanding omnichannel integration with social media, and educating users on CRM benefits are essential to improve the effectiveness of OCA in supporting digital communication across both the education and MSME sectors.

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