Communication Transformation: The Role of AI in Digital Public Relations Across Industries

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Abstract
Artificial Intelligence (AI) in the world of Digital Public Relations (PR) is revolutionizing communication strategies across a variety of industries, including manufacturing, healthcare, and finance, offering more personalized and efficient methods of communication. This research aims to explore the transformative potential of AI in the world of Public Relations (PR), focusing on its impact on communication strategies, audience engagement, and content creation. This research uses the diffusion of innovation theory to analyze the adoption and utilization of AI technology in various sectors. Using a qualitative approach, the study adopts a literature review and library research methods to analyze existing studies, reports, and practice case examples to provide in-depth insights into the application of AI in communication practice. The findings of this study show that AI improves data analysis capabilities, enables more targeted communication strategies, improves customer experience by providing personalized communication and 24/7 support through chatbots and virtual assistants and improves operational efficiency. The study highlights the importance of ethical use of AI and the development of digital skills to be able to fully harness the potential of AI in PR. The study contributes by offering a comprehensive understanding of AI's role in transforming PR practices, providing insights for practitioners and policymakers on integrating AI into communication strategies. The integration of AI in PR highlights the transformative potential of AI in digital PR and the need to create rules and guidelines to ensure AI is used ethically and responsibly in PR. Also, there is a need for further research on exploring the impact of AI on communication ethics and developing a framework to ensure effective integration of AI in PR.

Keywords*:* Artificial intelligence, Digital Public Relations, Cross-Industry Communication, Audience Engagement, Ethical AI Integration

INTRODUCTION

The digital era has revolutionized communication across individual, organizational, and industrial levels. Technological advancements have introduced new platforms and tools that enable faster, more agile, accessible, and participatory communication (Baecker, 2019). These developments are particularly influential in transforming how businesses operate, how healthcare information is distributed, and how financial institutions interact with stakeholders. This communication shift

has redefined strategies across sectors—reshaping relationships, decision-making processes, and audience engagement.

In business and marketing, digital communication platforms such as messaging apps and video conferencing have replaced many traditional practices, leading to improved collaboration and cost efficiency (Cetulean & Stoian, 2024). Targeted engagement via social media, search engines, and digital campaigns has also diminished the reliance on conventional marketing approaches (Nesterenko et al., 2023).

Sector-specific transformations are particularly evident in industries like healthcare, manufacturing, and finance. In healthcare, digital communication tools enhance access to credible health information, improve adherence to medical advice, and facilitate patient engagement with health records (Song et al., 2024). In manufacturing, communication transformation has enhanced value creation and operational transparency, bridging communication gaps through visual tools and metrics (Anderson et al., 2023). In finance, digital platforms have expanded transaction capacity, reduced costs, and supported financial inclusion efforts (Alekseyenko et al., 2023; Oladele, 2024).

Beyond efficiency, these transformations also influence language use and content style. Digital media has shifted communication from formal text-based discourse toward multimodal formats that integrate images and video, raising concerns about declining language precision (Han, 2024). Amid these changes, one of the most transformative technologies influencing modern communication strategies is Artificial Intelligence (AI).

One of the most significant innovations in existing communication transformation is the presence of artificial intelligence (AI). According to a report by Allied Market Research, the global artificial intelligence market value in the world of marketing in 2024 is estimated to reach $20,447.1 million and is expected to grow at a CAGR (compound annual growth rate) of 25.0% from 2025 to 2030. The presence of AI has been involved in various aspects, including in the world of Public Relations. The emergence of AI technology and its use in PR such as the implementation of AI in media monitoring, transforming traditional PR into digital PR, the use of AI in public relations can be called digital public relations (Mardhika, 2023).

Digital Public Relations aims to build, maintain and improve the positive image of an organization, company or institution, increase brand awareness, attract public attention to make product purchases, increase the visibility and identity of the company in cyberspace, obtain quality and credible backlinks, increase publications

on online platforms, get organic reviews from targeted audiences, and manage crises and negative issues. Bibliometric analysis of PR from 2018 to 2023 shows a significant increase in research and publications on AI in PR, with more than 2000 articles published in 2021, China and the US lead in output, China has prolific authors and the US leads in overall production. (Kaleel & Alomari, 2024). This analysis shows an increasing trend of research results related to the integration of AI in PR and media, as well as increasing interest and activity in the field of digital PR.

In this context, it is essential for public relations (PR) practitioners to adopt technologies that support data filtering and analysis—specifically, Artificial Intelligence (AI). Recent studies indicate that an increasing number of PR practitioners and journalists in Indonesia have begun integrating AI into their professional workflows (Yunus et al., 2024). According to Yunus et al. (2024), the rapid advancement of AI is a major catalyst in the ongoing transformation of the communication industry.

AI technology has significantly enhanced data analysis capabilities, enabling organizations to process and interpret large volumes of information with greater speed and accuracy. This advancement contributes to more informed and strategic decision-making, both in routine operations and during crisis situations. Moreover, the integration of AI into communication strategies facilitates more targeted and personalized customer engagement, thereby increasing the effectiveness of marketing campaigns and overall PR communication strategies.

The role of Artificial Intelligence (AI) in digital public relations (PR) is becoming increasingly significant, as it enables organizations to adapt to rapid technological advancements while effectively building and maintaining their reputations in an increasingly interconnected world. AI-driven communication transformation is primarily fueled by AI's capacity to automate complex tasks, including the analysis of large-scale data sets and the delivery of real-time insights and solutions. This capability is reshaping traditional communication paradigms, allowing PR practitioners to operate with greater speed, accuracy, and strategic depth.

The proliferation of digital platforms such as WhatsApp, Instagram, and Facebook exemplifies this communication transformation. These platforms have fundamentally altered the nature of traditional interpersonal and organizational communication by creating new spaces for the exchange of information and public discourse. Additionally, they have contributed to the emergence of digital personas, curated online representations of individuals and organizations, which now play a vital role in public image management (Alfiansyah & Anshori, 2024).

Through AI-based analytics tools, PR professionals are now able to conduct more sophisticated analyses of social media activity, monitor trending topics in real time, and respond proactively to public sentiment. This enhances an organization's ability to manage its public image dynamically and maintain relevance in a fast-evolving digital landscape.

Nowadays AI tools have revolutionized PR communication strategies by automating repetitive tasks, allowing PR practitioners to focus on work related to strategic decision-making and work that requires creativity (Vanel, 2023). The use of AI in PR communication strategies is such as the use of chatbots and virtual assistants, providing personalized communication and 24/7 support (Perangin Angin & Mukhlisiana, 2024; Jeong & Park, 2023). All of these things will certainly improve the customer experience by offering timely assistance and relevant information. So it is very important to master the use of AI for Public Relations (PR) practitioners in various industrial sectors.

AI has been involved in PR communication strategies in various industry sectors. In the manufacturing sector, AI has a role such as providing real-time updates and future insights through its analytical capabilities. This plays a role in improving the supply chain and transparency of operational activities (Gupta et al., 2024). All of these things are of course very important so that the Public Relations (PR) strategy can run effectively. Until finally the goal of the organization or company to always be able to maintain the trust of stakeholders can be achieved.

In the healthcare sector, AI plays a role in healthcare PR, focusing on improving the quality of communication to patients and increasing the number of public health information messages disseminated (Rashid & Kausik, 2024; Weng et al., 2024).

For the financial sector, the influence of AI especially in the banking sector is enormous, as data presented by the Allied Market Research (AMR) and Grand View Research (GVR) reports, that in 2020 the value of the global AI industry in banking was worth $3.88 billion, and it is estimated that by 2030 it will reach $64.03 billion, and there is a growth at a CAGR of 32.6% from 2021 to 2030. This shows that there is great potential for the banking sector to be able to expand digital PR efforts using AI technology.

The use of AI in operational processes leads to increased efficiency, reduced administrative burden and streamlined service delivery in various sectors, including the public sector. For example, the use of AI-powered chatbots has reduced processing time by 30-40% in the registration process to obtain health or social security benefits (Kommidi & Chennuri, 2024). The use of AI systems in Indonesia

has also reduced manual processing time by 60%, increasing overall productivity and efficiency in the provision of public services (Saprudin, 2024). In addition, AI also improves efficiency and personalizes communication (Bell et al., 2024). This is an important factor to be able to adapt to dynamic and situational external factors, as well as to be able to build relationships with the public in various industries (Sreekala et al., 2023).

To analyze how AI is adopted by PRs in various sectors in the health, finance and manufacturing sectors, innovation diffusion theory will be used. A theory that explains how to understand how a new idea, practice or product spreads into society. So the innovation diffusion theory here is used to analyze the role of AI in digital PR across industries in order to understand how AI technology is adopted and integrated into digital PR practices. This theory helps in identifying factors that help in integrating AI or that hinder the AI adoption process, so that insights can be gained about the transformation of digital PR strategies. Through innovation diffusion theory, researchers and practitioners will also be able to better understand the stages of AI integration, the role of communication channels, and the influence of social systems in its application.

However, the presence of AI also brings its own challenges, such as the challenge of gaps in technical understanding among PR practitioners and skills gaps in the use of AI. There are still many PR professionals in the field who are not equipped with the necessary skills to effectively implement and manage AI technology, of course this can hinder the ability of practitioners and professionals to be able to take full advantage of AI (Mustikaningsih & Fahrudin, 2024).

There are indeed challenges in the use of AI in digital Public Relations, but it turns out that the benefits of using AI in digital Public Relations across industries such as the health, finance and manufacturing sectors are more significant because they can provide many new opportunities and positive impacts in various aspects. So it is important to analyze how AI has transformed communication in the context of digital PR across industries, namely the financial, manufacturing and healthcare sectors. By exploring how digital PR uses AI in each industry, it will also answer the question of how AI can change PR practices across industries, what role AI has in improving the effectiveness of PR communication and how innovation diffusion theory can explain the adoption of AI by PR practitioners in PR communication strategies.

Previous research related to the use of AI in PR has not shed light on the use of AI in digital public relations across industries. The research by Adriantini et al. (2024) focuses on the benefits and risks of using AI in PR in general, but does not describe specifically the use of AI in digital PR in various industry sectors, while Soegiarto's

research (2024) only examines how to optimize the digital PR function in companies in Indonesia in general, while this research focuses on the transformation of the role of AI in digital public relations not in general but in more specific areas, namely in the health, financial, and manufacturing sectors.

In line with the main goal of this research, which is to find out the role of AI in digital PR in various industries, namely in the health, finance and manufacturing sectors. So through this research, it can be known the transformative process and role of AI in various industrial sectors. This is useful for providing PR professionals with insights on how to integrate AI into their communication strategies. It also helps PRs in the health, manufacturing and finance industry sectors to make optimal use of AI, as well as help PRs overcome related challenges that may arise. This research is important to be able to encourage sustainable innovation in digital PR in various industrial sectors, increase productivity in various industrial sectors, increase the efficiency of budget use, and this research is useful to ensure a more ethical and responsible use of AI in the future.

METHODOLOGY

This study uses a qualitative approach to find out more about the role of Artificial Intelligence (AI) in digital public relations across industries, namely in the manufacturing, health and financial sectors. General qualitative research designs include case studies, ethnography, and phenomenological studies, which can be tailored to explore a specific context or phenomenon (Tsang, 2023). Qualitative research is highly effective in thoroughly analyzing complex phenomena, exploring how AI can improve services, operating outcomes and budget efficiency, and can provide practitioners and policymakers with insights into integrating AI into their communication strategies. The inductive nature of qualitative research allows researchers to derive theories from data, improving the understanding of complex phenomena (Haki et al., 2024). This approach also provides a more detailed explanation of how AI is used in PR strategies in the digital age and the impact of AI engagement in various industry sectors, where quantitative data may not fully represent the complexity of AI implementation in PR digital strategies and the use of AI applications in communication practices.

This research is categorized as a case study because it examines the use of Artificial Intelligence (AI) by Public Relations in various industrial sectors such as manufacturing, health and finance. The study focuses on the use of AI in transforming PR practices in the manufacturing, healthcare and financial industry sectors, providing rich contextual insights into digital PR strategies in those industry sectors as well as providing insights for practitioners and policymakers on integrating AI into their communication strategies. A literature review in case

studies allows researchers to access a broad spectrum of cases, providing a rich secondary data source (Badhotiya et al., 2024) (Brito et al., 2003). The case study design allows for a thorough analysis of each industry sector, facilitating a deeper understanding of the strategies, barriers, and effectiveness of AI use in providing insights into the communication transformation that is taking place regarding the role of AI in digital public relations across industries.

The primary data sources for this study include secondary data obtained through a comprehensive review of the existing literature and secondary data sources such as cross-industry publications, reports, case studies and scientific articles. The study analyzes the current literature and empirical evidence and data related to digital PR communication strategies and the use of AI, with a focus on the health, financial and manufacturing industry sectors. Furthermore, qualitative data will be obtained from related case studies and examples of organizations or companies in the health, manufacturing and finance industry sectors. These additional data sources or secondary data provide an important basis for understanding broader trends and patterns in the use of AI by PR in communication strategies in the digital age.

In the next stage, primary data collection will be carried out through semi-structured interviews with key stakeholders involved in PR activities. The interviews will provide valuable insights into the strategies used by PR practitioners in various industry sectors and the obstacles they encounter in implementing these strategies.

1. Data Collection Techniques

Comprehensive Literature Review: A thorough literature review of the collected literature will be conducted to collect secondary data from scientific journals, books, reports, and publications in various industry sectors through google scholar and DOAJ (Directory of Open Access Journals). This effort aims to clarify existing knowledge gaps and establish a theoretical framework for research.

In addition to the literature review, this study employed semi-structured interviews to gather in-depth qualitative insights from practitioners. Interviews were conducted with one representative from the Public Relations division in each of the three targeted industry sectors: health, finance, and manufacturing. The healthcare sector participant was a PR officer from a government hospital in Surabaya. The finance sector participant represented a national bank operating in Surabaya. The manufacturing sector participant came from the PR team of a national retail company.

The use of semi-structured interviews allowed for both consistency in the questions posed and flexibility in exploring context-specific insights. This method was chosen to supplement and deepen the understanding gained from the literature review, enabling the researcher to explore real-world experiences, strategies, and challenges related to the adoption of AI in digital public relations.

Document Analysis: Additional secondary data will be collected through the analysis of relevant documents such as digital PR communication strategy plans. This effort will generate important contextual information and improve the understanding gained from the findings during the interview.

2. Data Analysis Methods

In this study, the data analysis will adhere to the thematic analysis methodology. Thematic analysis is a method often used to qualitatively evaluate, which includes the identification, analysis, and systematic presentation of a recurring pattern or theme in a dataset (Braun & Clarke, 2021).

Interpretation and Reporting: In the end, the results will be conveyed by answering the questions in the research, namely what are the roles of AI in digital PR in various industries, namely in the health, finance and manufacturing sectors. The analysis will juxtapose digital communication strategies by PR professionals in various industry sectors, both financial, health and financial sectors, highlighting the diverse roles of AI in each sector.

RESULTS AND DISCUSSION

1. Adoption of AI in Digital PR in the Healthcare Sector

An analysis of the Role of AI in Digital Public Relations (PR) in the healthcare sector reveals some key insights regarding the effectiveness, challenges, and opportunities presented by AI in PR strategies. Drawing data from various data sources through a literature review and a semi-structured interview with one of the PR teams of government institutions engaged in the health sector, this section presents a synthesis of findings. The process of adopting AI technology is in accordance with the theory of innovation diffusion starting from the acquisition of knowledge about the many benefits obtained when applying AI in digital PR, then directed to the integration of AI in digital PR.

One of the results of this study is that AI has been used in PR communication strategies in the health sector, one of which is to analyze patient data, where the

results can be used to adjust PR practitioners' communication strategies in the health sector. Make the messages conveyed by the PRs relevant and have an impact. AI is also used in managing public health crises as well as promoting health awareness campaigns.

The study also reveals collaboration information on AI tools, digital platforms and common software commonly used in digital PR in the healthcare sector including social media, content management systems (CMS), google analytics, social media analytics platforms, email, search engine optimization (SEO) tools such as SEMrush or Ahrefs, crisis management tools and collaboration tools within teams and project management. Social media such as Instagram and Youtube are social media that are often used to reach a wider audience. CMS is also used to assist in creating, managing, and modifying content without the need for special or specific knowledge. Systems like CMS help PR make it easier for organizations to have a consistent presence in the virtual world without having to spend a lot of time and energy.

As for the task of measuring the level of public engagement, tools such as google analytics or other social media analysis platforms can be used. Google analytics or other social media analytics platforms can also be used to quantify the effectiveness of digital PR campaigns that have been created by providing measurement results in the form of how wide the reach has been achieved. Communication tools in the form of email are also still used, because they are still considered effective as a tool for direct communication, other tasks such as managing digital PR campaigns, software such as Mailchimp or Constant Contact are used. Digital PR is never separated from the task of creating content and to increase the visibility of digital content that has been created on search engines, search engine optimization (SEO) tools are used. Some of the usual AI tools used by PR teams to increase their work effectiveness are using the Slack app to communicate with the team more efficiently, the Trello app that helps PR manage projects, or Asana, a platform for performance management and project management. These AI tools can help PR teams, automate workflows, organize communication and facilitate team communication and collaboration to be more effective and efficient.

The results of a study from Intani and Annisa (2024) emphasize the importance of privacy of patients' personal data in integrating AI in the health sector. Based on literature studies and interview results, it is known that the health sector industry has made efforts to maintain the privacy of patient data by requesting prior consent to the use of patient data in the application used or through an approval form sheet (Mulyasari et al., 2023). Then the AI system used will also be verified first, this serves so that AI is used responsibly. Such as verifying in advance the AI system used, it is indeed reliable and can prevent potential harm to patients, especially in critical

areas such as disease diagnosis and treatment recommendations (Armansyah, 2024). This verification is very important in the healthcare sector because it helps protect sensitive patients' personal information data while addressing patient concerns about data protection and privacy (Intani & Annisa, 2024). The next ethical standard for the use of AI that has been implemented by the health sector is to ensure that the AI used can create equal access for all patients who have various social statuses (Nyawambi & Muchiri, 2024). That every patient can receive the same benefits when it comes to AI-based healthcare. But these findings identify that there is still no standard ethical standard for all healthcare industries regarding privacy and accountability in the use of AI.

In addition to automating routine tasks of PR teams such as scheduling posts on social media, based on the results of the study, it was also found that AI in the health sector is used to respond to common questions such as service schedules, health information, registration, illnesses, medications, and early care services from the public and also monitor online conversations that are taking place in the AI-based in-app chat feature (Setiawan et al., 2023). According to research by Setiawan et al, in 2023, based on the results of tests conducted on 251 questions, it is known that answers from chatbots produce a high level of accuracy, with an average correct answer ratio of 93.1%.

These things help PR professionals in the health sector to be able to focus more on improving the overall efficiency of activities. As for understanding public preferences and behavior, PR teams use AI algorithms. AI algorithms function to analyze patient data that has large volumes. The results of the analysis of hospital patient data by AI help identify patterns and trends, inform public health strategies and interventions (Putri et al., 2024). The results of the analysis were in the form of preferences of each community group and the tendency of people's attitudes or behaviors.

AI algorithms allow PR teams to create more personalized content according to the goals of their programs while being able to resonate with various groups of people who of course have different preferences, needs and characteristics. Based on the results of the interviews, it is known that all of these things can increase public involvement in the digital PR programs that are carried out.

Based on a study on the use of AI by health workers by Armansyah (2024), this study found that the use of AI in the health sector provides significant benefits not only to external parties but also to health workers. According to research by Ardan et al. (2024), the learning process facilitated by AI to health workers such as midwives can help health workers to always get best practice training and have an impact on

improving the quality of services provided to patients. From the literature study, it is known that the competence of health workers is influenced by two things, namely a person's personal characteristics and also the information system they use.

The integration of AI in the healthcare sector has led to an improvement in the ability of health workers to access and interpret a wide range of medical information. This development is particularly significant, as it enhances the quality of healthcare services, the accuracy and clarity of information delivered to patients, and supports more comprehensive and patient-centered care. When patients perceive that they are receiving high-quality and attentive service, it fosters greater patient satisfaction and loyalty, ultimately strengthening the organization's public image.

These findings suggest that the integration of AI can directly contribute to the development of human resource competencies in the healthcare sector. Consequently, AI should be considered an essential component of an organization's internal public relations strategy, as its strategic use can positively influence external perceptions and reinforce the institution's reputation.

In the healthcare sector, timely and accurate communication has become crucial especially during crises such as pandemics (Wahjuningrum et al., 2022). To be able to communicate responsively, on time with accurate information, based on the results of the interview, information was found that AI tools can help make this happen. AI can even help find potential problems to hinder programs to be run by quickly analyzing social media trends and sentiment. In the health sector, AI systems are used to analyze historical data, monitor social media platforms, news outlets, other online sources of information 24/7. This is useful to provide information if there is a potential crisis and its impact.

In addition, in the health sector, AI is also used to provide predictive insights into the future through the ability of AI to analyze trends and sentiments in real-time (Putri et al., 2024). This allows the PR team to respond faster and prepare risk mitigation in the form of emergency plans. In an emergency plan, the PR team can create a plan with the allocation of various resources they have with the most effective plan. So indirectly, if a crisis arises, AI has helped minimize the losses that may be caused. From various sides, AI helps PR communication strategies to be more effective, especially in managing the organization's reputation.

The findings of this study also show that AI is also used in the form of chatbots and virtual assistants that provide 24/7 support to patients and the public, AI can answer questions and provide information more accurately (Setiawan et al., 2023).

This system not only increases engagement but also improves the organization's image in the eyes of the public, as a responsive and accessible organization.

Based on the results of an interview with the PR team of one of the government institutions engaged in the health sector, the current significant challenge in digital PR is in crisis management on social media, due to the rapid spread of information, including misinformation or fake news. This can lead to crises that require a quick and effective response to clarify the situation and prevent the spread of false or false information. AI can be a solution, PR teams during crises, can use chatboxes and virtual assistants that will be very useful in handling a large number of queries, providing consistent and accurate information to the public. This will also have an impact on reducing the workload of the PR team and can allow the PR team to focus more on more complex tasks.

The study also saw that digital PR that has used AI can analyze public sentiment faster when there is a crisis. AI technology is used to increase the effectiveness of the crisis communication strategies implemented, ensuring that information is disseminated effectively to the public (Nurjanah et al., 2021). The use of AI by companies also helps companies understand how crises are felt by different people with different backgrounds. These insights can help organizations adjust their communication strategies to address issues and rebuild trust with stakeholders in times of crisis.

In crisis situations, the ability of AI to generate data-based information is important and very useful in directing decision-making (Dirgantara et al., 2024). Another AI capability that can be used in times of crisis by PR teams is the ability of AI to analyze various data points, AI is able to identify the most effective communication and message channels to use. Such as the use of various machine learning models, including Support Vector Machine (SVM), Logistic Regression, and Naïve Bayes, which are used to classify public sentiment at the time of COVID-19 in Indonesia.

SVM and Logistic Regression resulted in a high accuracy rate of 99% in the classification of public sentiment, making it a fairly effective AI tool for understanding public sentiment during the pandemic (Dirgantara et al., 2024). AI helps PR teams to provide accurate, fast and precise responses. PR teams in the health sector also use AI as a platform to facilitate better coordination between teams and departments during crises (Adamidi et al.,2021).

By playing a role in improving PR strategies by providing real-time monitoring, predictive analytics, automated responses, sentiment analysis, data-driven decision-making and improved coordination between teams, AI capabilities can

enable organizations to respond to crises more effectively and minimize impacts and can help organizations maintain trust with the public.

Algorithmic bias and data privacy concerns pose significant challenges to the consistency and reliability of AI-generated content across digital platforms (Anshu & Sharma, 2024). One of the key challenges in leveraging AI for digital public relations is ensuring message consistency across various social media channels. While content must be adapted to suit the unique features and audience expectations of each platform, it is essential that the core message and institutional values remain coherent and aligned.

In this context, managing an organization's reputation on social media becomes increasingly critical. In the digital era, social media presence is not only a tool for communication but also serves as a reflection of the institution's identity and public image. Inconsistent messaging or poorly managed content can lead to reputational risks, emphasizing the importance of strategic oversight in the use of AI for digital PR activities.

AI can therefore be a solution by utilizing AI capabilities for social media data analysis, in order to monitor and evaluate the performance of an organization's social media content (Aggarwal et al., 2024). Then comes the next challenge, which is about how to effectively utilize the data generated by AI to maximize the content produced. Therefore, there needs to be a strong system and strategy to be able to overcome these challenges effectively. Not only that, but there is a concern that AI does not have a human touch side in treating patients. This emphasizes the need for a balanced approach that can combine AI with human empathy.

Many public relations (PR) practitioners in Indonesia possess a foundational understanding of digital PR; however, they often lack advanced digital competencies, particularly in analyzing data from social media and other online platforms (Zachlod et al., 2022). This gap in digital skills presents a significant challenge, especially for PR professionals in the healthcare sector.

As highlighted by Sebastián (2024), the healthcare industry encounters unique obstacles in adopting AI technologies, primarily due to stringent regulatory requirements. Furthermore, a study by Intani and Annisa (2024) indicates that the sector also suffers from a shortage of skilled personnel capable of developing and implementing AI-driven solutions. These limitations hinder the effective integration of AI in digital PR practices within healthcare institutions, thereby slowing progress in innovation and strategic communication..

These findings show that the necessary solution is to improve the competence of PR practitioners and also to improve digital education and community media literacy to prepare every individual in society to face a complex new environment due to the ongoing evolution of digital interactions. So in this ever-evolving era of digital communication, it is important to be able to address issues such as lack of digital skills, trust from users, privacy, and the adoption of rules for the ethical use of technology to ensure the benefits of communication transformation can be realized.

2. Adoption of AI in Digital PR in the Financial Sector

Based on the results of semi-structured interviews with the banking Public Relations (PR) team, as well as secondary data sources from various scientific data sources, this section presents a synthesis of findings regarding the results of the analysis of the Role of AI in Digital Public Relations in the financial sector taken through a sample of the banking industry. Present insights on the effectiveness, challenges, and opportunities presented by Artificial Intelligence (AI) in digital PR strategies. According to the National Business Research Institute and Narrative Science, in 2020 as many as 32% of banks in the world have integrated AI technology.

The findings of this study reveal that the transformation of communication to digital that occurs in the banking industry is based on customer needs for the provision of digital services or often referred to as "digital banking". The process of integrating AI technology in the banking sector can be seen through the lens of innovation diffusion theory, AI adoption starts from the acquisition of knowledge about the many benefits of AI in digital PR, then is directed to the integration of AI in digital PR.

The study found that the use of AI in the banking sector focuses on AI capabilities in predictive analytics and AI capabilities in voice recognition. This is in line with research by Mogaji et al. (2022) which revealed that AI has the ability to predict, one of which is predicting interest from customers. So AI in the banking sector is used to help PR in terms of predicting customer demand and adjusting the communication strategy used to suit customer preferences. The demands of digital-savvy customers will be very dynamic, so in order to continue to adapt and innovate, the banking sector takes advantage of AI capabilities.

From this study, it was found that there is the use of chatbots and virtual assistants supported by Natural Language Processing (NLP) to provide real-time support to customers and the use of AI in speech recognition systems. This voice identifier allows customers to make banking transactions and ask questions using voice

commands. This technology simplifies the user experience by enabling hands-free operation. A feature that is useful for customers, especially for customers who need other alternatives to face-to-face or face-to-face meeting procedures.

This study also found that in the financial sector, especially banking, AI tools are used in customer credit scoring systems. This is also in line with research by Ala'raj and Abbod (2016) that to reduce the risk of loan default by AI, it is necessary to involve AI in PR strategies related to credit risk management. This AI-based system can analyze large amounts of customer data to provide a faster and more accurate assessment of a customer's credit risk when compared to human assessments. This helps the banking sector to decide more precisely to whom credit loans are worth granting. The right decision will reduce the risk of loan default from customers.

The use of AI in digital PR in the banking sector has several challenges, the main challenges of this AI adoption are limited internet access and inadequate infrastructure especially in low-income countries, which lead to a digital divide and hinder the adoption of AI. Then the outdated system. This can of course hinder the application of AI technology in digital PR. The next challenge is the financial sector is identical with the existence of fairly strict and rigid rules, especially related to customer data privacy.

As a result, there is a need for a standard regulation that can be applied effectively and can ensure data protection and can adapt to AI advancements. The shortage of qualified professionals or said to be proficient in working with AI technology is the next challenge. The emergence of the skills gap is a factor that hinders the integration of AI into digital PR strategies.

Despite the challenges involved in integrating Artificial Intelligence (AI) into the financial sector, AI remains a powerful enabler that offers substantial benefits across various functions traditionally performed by humans. Numerous studies support this view, including research by Agustiawan (2024), which highlights the transformative impact of AI in the banking industry. According to Agustiawan, the incorporation of AI into digital public relations (PR) has significantly enhanced operational efficiency, accelerated decision-making processes—particularly in assessing customer creditworthiness—and improved responsiveness during crisis situations. These findings demonstrate that AI serves not only as a technological innovation but also as a strategic asset in advancing the effectiveness and agility of digital PR in the financial sector.

Through the integration of AI into the financial sector PR digital framework that emphasizes on optimizing the management of relationships with external and

internal parties, increasing employee work productivity and increasing operational cost efficiency. Therefore, the financial industry has a great opportunity to be able to provide customer service that feels closer and familiar to customers and is also more effective. AI also has the ability to provide information faster, making customers less likely to wait for a response from the service provider. All of these things will certainly increase customer satisfaction, so customer loyalty will definitely increase. This increase in customer satisfaction is expected to have the effect of increasing the organization's positive reputation (Udeh et al., 2024).

3. Adoption of AI in Digital PR in the Manufacturing Sector

This section describes the findings of the analysis of the role of AI in the digital realm of Public Relations in the manufacturing industry. The results of this research were obtained from the results of a literature analysis coupled with insights obtained from semi-structured interviews with the PR team of one of the leading companies that already have various retail stores in Indonesia. This research produces information on how AI is applied in digital PR practices in the manufacturing sector. Innovation diffusion theory is used to understand how the AI adoption process in digital PR strategies works.

The theory of innovation diffusion explains that the adoption of a new innovation such as AI starts from the awareness stage, the stage of awareness or awareness of the benefits of a technology or innovation (Guo & Huang, 2024). After that, an innovation or technology that is spreading will be evaluated again both regarding the benefits and risks of its use. If an entity feels that this innovation or technology such as AI brings more benefits, then the technology or innovation will be adopted. This happens in the manufacturing sector. The manufacturing sector sees a lot of benefits that will be obtained if you apply AI in PR communication strategies (Ramalingam et al., 2024).

The results of this research study reveal that artificial intelligence or AI is used in the optimization and automation of various tasks that tend to be repetitive in digital PR tasks (Arief & Gustomo, 2020) (Nikolova, 2024). As is known, digital PR tasks are related to creating content for product campaigns, making press releases, posting on various social media related to product promotion, and other communication materials (putr et al., 2024). These tasks that used to be done manually by PR teams are no longer automated, they can be automated and optimized for planning, editing, and executing using AI.

In addition to its broad applications, AI plays a crucial role in data analysis, particularly in understanding consumer behavior and market trends (Soegiarto et al., 2024). According to Soegiarto's 2024 study, AI algorithms can identify consumer preferences and guide companies in tailoring their products and promotional strategies accordingly. For instance, AI-driven advertising systems enable manufacturing companies to reach potential customers more effectively by targeting individuals actively searching for specific products. This precision enhances the impact of public relations (PR) campaigns, making them more targeted and relevant.

Another key advantage of AI lies in its capacity for real-time data analysis (Arief & Gustomo, 2020), which significantly improves the efficiency of PR operations. Research by Judijanto et al. (2024) supports this, emphasizing that AI adoption in manufacturing PR activities can reduce time and costs typically associated with digital PR initiatives. As a result, PR teams are afforded more time and resources to focus on high-priority tasks such as strategic planning, crisis communication, and the development of creative product campaigns.

This study also underscores AI’s strategic function in enhancing customer relationship management, particularly within the manufacturing sector (Soegiarto et al., 2024). Given the often-quoted adage “the customer is king,” sustaining positive and responsive relationships with customers is essential. One way this is being achieved is through the use of AI-powered chatbots. These chatbots operate 24/7 without fatigue and are capable of handling a wide range of customer inquiries and complaints (Ahmed, 2024). Their ability to deliver quick, accurate, and consistent responses not only supports the work of PR teams but also contributes to improved customer engagement and satisfaction (Soegiarto et al., 2024; Chen, 2023).

If comfort and customer satisfaction have been obtained, of course customer loyalty will also increase. Small things in the form of a quick response to every chat from customers turn out to have a significant impact on the organization's image (Dayan, 2023). By demonstrating technological and operational advancements to customers, the use of AI not only improves customer satisfaction but also positively influences the organization's image.

In addition to identifying the benefits of using AI in the manufacturing sector, the study also found concerns around data security and privacy (Alammal & Mubarak, 2023). An implementation of AI that can provide market trends and consumer behavior inevitably involves analyzing customer data. And the data owned by manufacturing companies is more than the health and financial sectors, which makes the information owned by the manufacturing sector more vulnerable to

cybercrime attacks. Based on the results of the interviews, to maintain data privacy and prevent breaches, the company implements cyber security measures, such as using antivirus, firewall and multi-factor authentication.

In addition to strengthening system protection, it is also important for organizations to ensure that all personnel involved in AI implementation comply with applicable regulations to protect customers' personal information (Alammal & Mubarak, 2023). Companies in the manufacturing sector must also be able to ensure proper management and regulatory compliance to reduce the risk of customer privacy violations.

4. Comparison of AI Adoption in All Three Sectors

The adoption of Artificial Intelligence (AI) in digital public relations (PR) demonstrates similar trends across the manufacturing, finance, and healthcare sectors. While each industry adapts AI tools according to its specific operational needs, organizational characteristics, and regulatory challenges, several commonalities can be identified in how AI is utilized to enhance communication strategies, improve efficiency, and support decision-making. These shared roles of AI in digital PR reflect a broader pattern of technological integration that transcends sectoral boundaries.

The following table outlines the key similarities in the role of AI across these three industry sectors:

Table 1. Equation table of the role of AI in cross-industry digital PR

No.	Equation of the Role of AI	Sector		
		Health	**Finance**	**Manufacturing**
1	Automation and Efficiency	Patient data management in healthcare	Process automation in banking	Predict when maintenance should be performed
2	Data Analysis	Patient diagnosis and treatment planning	Credit risk management and market prediction	Supply chain optimization
3	Customer Experience	Personalized patient care	Financial services through virtual assistants and personalized services	Improve customer interaction through product recommendation descriptions

The study also found that although AI adoption in various industry sectors shares the same common goal, there are still differences in the role of AI in digital PR across industries, which are divided into 3 different aspects ranging from AI implementation, regulatory environment to the pace of adoption and investment. The following table outlines the key differences in the role of AI in digital PR across these industries.

Table 2. Key differences in the role of AI in digital PR across industries

No.	Differences in AI Roles	Sector		
		Health	**Finance**	**Manufacturing**
1	AI Implementation	Focus on the use of diagnostic tools and patient monitoring systems	Focus on predictive analytics and voice recognition to gain a competitive advantage	On robotics and automation in the production line
2	Regulatory and ethical considerations	There are strict regulations regarding patient data privacy, which affects the implementation of AI	Focus on regulatory compliance, especially in data security and financial transactions	Have fewer regulations, making it more flexible in AI adoption
3	Adoption and Investment Rates	The speed and scale of investment vary based on the need for technology and financial resources	AI adoption is fast, with significant investment	The speed and scale of investment vary based on the need for technology and financial resources

In addition to similarities and differences regarding the role of AI in digital PR across industries, the study also found factors that have influenced the adoption of AI in digital PR in all three industry sectors, namely infrastructure availability, technology availability, data availability, regulations and ethical standards related to data privacy and security, organizational financial resources, workforce digital skills, consumer trust and consumer acceptance. Skepticism from consumers, especially regarding data privacy and AI-based services, can hinder AI adoption.

CONCLUSION

The role of AI in digital PR across industries, namely in the manufacturing, finance and healthcare sectors, has similarities in terms of automating repetitive tasks and in improving operational efficiency. The success of any AI integration effort into the public relations digital strategy in each sector depends on the availability of data, the availability of infrastructure, the availability of technology, regulations and ethical standards related to data privacy and security, the financial resources of the organization, the digital skills of the workforce, consumer trust and consumer acceptance. Organizations that have invested in platforms with powerful data will get the most out of the use of AI. With AI technology, all industrial sectors can collect data from various sources, ensure the quality of information and services provided and can provide easy accessibility for various AI-based applications. In various industry sectors, both health, finance and manufacturing sectors that continue to grow, the ability to adapt and innovate in utilizing generative AI will be a determining factor for the success of PR communication strategies in improving the company's image. Meanwhile, to address the challenges present in the implementation of AI in digital PR, it is necessary to create rules and guidelines to ensure AI is used ethically and responsibly. Also, there is a need for further research on the impact of AI on communication ethics and developing a framework to ensure effective integration of AI in PR.

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