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AUTOMATION AND SCALING OF THE MANICURE BUSINESS

Summary. *This study examines the automation and scaling of manicure salon businesses through the implementation of AI-driven personalized customer service systems. With the advancement of information and communication technologies (ICT) and artificial intelligence (AI), decision-making processes have undergone significant transformation, enabling companies to enhance operational efficiency, service quality, and customer engagement. The objective of this study is to explore how AI-based personalization can improve customer satisfaction and support the growth of manicure salons, particularly in emerging markets where this approach remains underexplored.*

The methodology combines a literature review, case studies, quantitative data collection, and algorithmic modeling. The findings indicate that AI facilitates the automation of routine tasks, improves customer relationship management (CRM), and provides individualized recommendations, thereby enhancing sales and customer retention. AI also plays a crucial role in predictive analytics, enabling the delivery of personalized services and promotions based on individual preferences. This fosters stronger emotional connections between customers and brands, contributing to long-term loyalty.

The results demonstrate that AI-driven personalization is a powerful tool for optimizing operations, increasing customer satisfaction, and strengthening loyalty. Manicure salons should invest in AI systems to analyze customer data and tailor service offerings. Future research should focus on refining these

algorithms to adapt to evolving consumer behavior. The integration of AI is expected to enhance customer satisfaction, loyalty, and sustainable business growth in the long term.

Key words: *artificial intelligence, customer personalization, manicure business, automation, customer loyalty, digitalization, service industry.*

Introduction. With the advancement of information and communication technologies (ICT) and artificial intelligence (AI), decision-making processes have undergone significant transformations. Unlike traditional approaches, where information technology was primarily used to support human decision-making through data processing, modern algorithms now enable the analysis of large volumes of data, the extraction of knowledge, and the execution of decisions at speeds unattainable by manual methods. These transformations are driven by AI's ability to mimic human cognitive functions, such as learning and problem-solving, creating new opportunities across various industries, including the manicure salon business [1].

The objective of this study is to explore the automation and scaling of manicure salon businesses through the implementation of AI-driven personalized customer service systems. Given the significant shifts in consumer behavior, personalized interactions that align with each client's unique preferences are becoming increasingly important [2]. While AI-based personalization in marketing has already demonstrated promising results, this aspect remains underexplored within the nail industry, particularly in emerging markets [3].

The novelty of this research lies in its focus on automating and scaling manicure salon businesses using AI-powered personalized services. The study provides valuable insights into how AI can enhance operational efficiency, improve customer service quality, and support business expansion by enabling scalable service personalization.

This article will be useful for researchers and practitioners in the fields of artificial intelligence, digital marketing, and service automation. It will also benefit business owners and managers in the manicure salon industry who seek to leverage automation and AI to optimize operations, increase customer satisfaction, and effectively scale their businesses.

Materials and Methodology. The study is based on an extensive set of scientific articles and case studies. Foundational research on AI integration into CRM systems [1] and big data management [2] provided insights into the technical and organizational prerequisites for effective AI implementation. Additionally, studies on AI-driven personalization in interactive marketing [3] and the application of machine learning-based analytical tools in digital marketing [4] contributed to the conceptual framework.

Further materials, including market analyses from Gartner [5], evidence on the impact of AI chatbots on customer retention [6], and research on search engine optimization [7], consumer self-interpretation of AI experiences [8], and recommendation system analysis [9], were utilized to contextualize consumer behavior and emerging trends. Industry sources such as Forbes [10] also helped align academic findings with practical business applications in the manicure salon sector.

The methodological approach includes a systematic literature review, case study analysis, quantitative data collection, and algorithmic modeling. This integrated approach allows for a comprehensive evaluation of how AI-based personalization can automate and scale business operations in the manicure salon industry.

Results and Discussion. The implementation of AI enables companies to automate routine functions and significantly enhance sales efficiency by improving customer orientation and service quality [2]. AI-powered advanced analytics facilitates the creation of personalized offers, supports virtual customer interactions, and provides solutions to potential issues [4]. These developments

are particularly relevant in industries where customer interaction is a key factor, such as the manicure business, where the integration of digital tools can optimize operations and enhance the delivery of personalized services.

Consumer behavior has also evolved, with buyers increasingly relying on digital channels for information gathering and establishing purchasing criteria. A significant portion of customers now progresses substantially through the purchasing process before directly engaging with sales representatives. This trend necessitates marketing strategies that support the entire customer journey, ensuring that each touchpoint delivers relevant and personalized information [5].

Across various industries, including the manicure business, the adoption of AI-driven personalization and marketing automation has shown promising results in generating higher-quality leads, improving conversion rates, and increasing overall return on investment [5]. Although interactive marketing has advanced significantly due to AI, the aspect of personalization remains underexplored, particularly in emerging markets.

At the awareness stage, predictive analytics identifies key product characteristics and generates individualized recommendations, while at the consideration stage, data integration across multiple platforms facilitates comparative analysis and informed decision-making. During the purchase stage, AI algorithms recognize individual purchasing patterns to provide personalized recommendations, and in post-purchase support, continuous behavioral analysis enables companies to detect dissatisfaction at early stages and take corrective measures through two-way communication.

Personalization is a concept rooted in traditional sales methods and significantly enhanced by digital technologies [6]. It refers to a company's ability to recognize individual consumers and deliver targeted promotions such as customized advertising, personalized offers, or tailored digital content aimed at improving customer experience and strengthening loyalty. Although personalization practices existed before the advent of the Internet, digital tools

now enable a more sophisticated, context-aware approach. A notable example is search engines, which adjust results based on a user's browsing history [7]. In the context of the manicure business, AI-driven personalization methods can be applied to optimize service recommendations, streamline customer interactions, and improve client retention by aligning digital strategies with consumer expectations.

The interaction between consumers and AI has been further examined through frameworks that clarify the empirical aspects of algorithmic mediation [8]. In the AI consumer experience framework proposed by S. Loureiro, AI's technical capabilities are divided into four core functions, illustrated in Figure 1: listening, predicting, producing, and communicating. "Listening" refers to the collection of consumer data through various input devices; "predicting" is reflected in AI's ability to classify data and offer personalized recommendations; "producing" involves delegating tasks to AI systems; and "communicating" encompasses social interactions based on data obtained from these technologies. Classification experiences also play a significant role in shaping consumer perception—accurate predictions can generate a sense of understanding and value, whereas inaccurate classifications can lead to feelings of detachment.

Fig. 1. Main functions of technical capabilities of AI

Source: compiled by the author based on [8]

This phenomenon can be examined through the example of music streaming services, where personalization is implemented using complex recommendation systems that rely on implicit feedback. User interactions, such as song play frequency, skips, reposts, and playlist additions, are continuously tracked and analyzed. Contextual factors, including listening time, geographic

location, and device type, are incorporated into algorithmic models to capture nuances in consumer behavior, such as mood and situational preferences [9]. Despite the effectiveness of these systems in curating personalized content, they have been criticized for the potential commercialization of culture. Critics argue that by tailoring recommendations to what the audience is statistically more likely to prefer, these systems may encourage the production of content that favors mainstream, popular artists over innovative or less-known creators, thereby reinforcing existing cultural inequalities [4].

The implications of these findings extend beyond the music industry. In service sectors such as the manicure business, similar AI-driven personalization strategies can be employed to enhance customer engagement and optimize service delivery. By leveraging historical and real-time client data, manicure service providers can develop personalized treatment recommendations, customize promotional offers, and proactively address customer concerns. This not only improves overall customer service quality but also strengthens brand loyalty. Similar to music streaming services, the adaptation of AI systems ensures that personalization efforts align with shifting consumer preferences, creating a dynamic feedback loop that enhances service quality over time.

Analysis indicates [7] that experiential brand loyalty, driven by algorithm-based personalization, unfolds in three key stages. At the initial stage, when algorithmic services function as intended, consumers experience a strong sense of being recognized and understood by the brand. This early reaction is characterized by positive emotions such as excitement and gratitude. When a consumer feels that a service accurately reflects their tastes—similar to a carefully curated playlist that matches their personal musical preferences—it establishes a foundation of trust and paves the way for deeper engagement.

In the subsequent stage, consumers actively interact with the system to refine its recommendations. Motivated by their initial positive experience, they provide additional data either implicitly (through usage patterns) or explicitly

(through feedback), thereby "training" the algorithm to better align with their preferences. This process of personalization not only reinforces the consumer's identity [5] but also fosters a sense of validation and self-affirmation, a phenomenon well-documented in existing literature.

The final stage is marked by a cycle in which continuous personalized interactions further strengthen the emotional bond between the consumer and the brand, culminating in a robust form of experiential brand loyalty. This cycle is sustained by ongoing exchanges that reinforce both the functional and symbolic dimensions of the consumer-brand relationship. Conversely, if the algorithm fails to accurately capture consumer preferences, a process of depersonalization may occur, potentially leading to brand switching or even consumer activism against perceived inadequacies.

In the manicure business, AI-driven personalization can transform customer interactions by tailoring service recommendations and appointment scheduling to each client's unique preferences and historical behavior. When a manicure salon utilizes algorithms to analyze data such as preferred nail styles, color palettes, and service frequency, it can create a highly individualized offering that mirrors the positive effects observed in music streaming services. Clients who feel their preferences are consistently recognized are more likely to develop a strong emotional connection with the salon. Furthermore, by leveraging real-time data, these businesses can proactively adjust their offerings to meet evolving customer needs, ensuring that personalization remains relevant and reinforcing the cycle of experiential loyalty.

It can be stated that the success of algorithmic personalization depends on a delicate balance between accurately identifying consumer preferences and maintaining a continuous, responsive dialogue. Achieving this balance not only fosters a deep sense of understanding but also creates a strong relational connection that underpins experiential brand loyalty.

In the manicure business, algorithmic personalization strategies can be implemented to strengthen customer relationships. By utilizing data such as preferred nail art styles, color palettes, visit histories, and seasonal trends, a manicure salon can provide highly individualized service recommendations and promotional offers. When a client receives suggestions that precisely reflect their unique aesthetic preferences and lifestyle, much like a perfectly curated playlist, it creates an emotional bond that enhances brand loyalty. Over time, consistent and personalized interactions can transform a routine salon visit into an experiential engagement that reinforces the client's identity and attachment to the brand. However, if the personalization system fails to capture the nuances of a client's tastes, for example, by offering repetitive or generic design options, it may lead to a similar process of depersonalization, where frustration prompts customers to seek alternatives.

The success of such personalization depends on the algorithm's ability to continuously learn from consumer feedback and adapt its recommendations to evolving individual preferences. The benefits and risks of algorithmic personalization are presented in Table 1.

Table 1

Benefits and risks of algorithmic personalization

Advantages of algorithmic personalization	Risks of algorithmic personalization
Enhanced Customer Satisfaction – Personalized recommendations and offers align with unique customer preferences, creating a deeper emotional connection with the brand.	Depersonalization – Misconfigured algorithms may lead to customer frustration and decreased loyalty if they do not accurately reflect user preferences.
Increased Loyalty – Personalized interactions foster long-term relationships between the customer and the brand, increasing the likelihood of repeat purchases and brand allegiance.	Over-Predictability – Constantly offering similar recommendations may be perceived as unoriginal, leading to customer disengagement.

Advantages of algorithmic personalization	Risks of algorithmic personalization
Improved Service Quality – AI enables the prediction of customer needs and the tailoring of offers, improving both the quality and speed of service.	Negative Emotions from Incorrect Recommendations – Algorithmic errors can trigger dissatisfaction, feelings of misunderstanding, and, consequently, depersonalization.
Optimized Marketing – Personalization allows for the creation of precise and relevant marketing strategies, enhancing effectiveness and ROI.	Excessive Commercialization – AI may exacerbate cultural inequality, for instance, by promoting popular but non-innovative products or content.
Increased Sales Efficiency – Personalized offers and recommendations can lead to higher conversion rates and sales.	Loss of Customer Connection – When the algorithm fails to learn from user feedback, it may result in deteriorating personalization and a loss of customer trust.
Process Automation – AI enables the automation of many routine tasks, boosting organizational efficiency and reducing labor costs.	Failed Predictions – Incorrect recommendations or algorithmic errors may lead to customer frustration, weakening their attachment to the brand and causing them to switch to competitors.

Source: compiled by the author

The implementation of a personalized customer service system can be examined step by step through the example of a manicure salon. The salon decides to integrate an AI-driven personalization system to enhance service quality and strengthen customer loyalty. The schematic representation of the algorithmic personalization/depersonalization loop is shown in Figure 2.
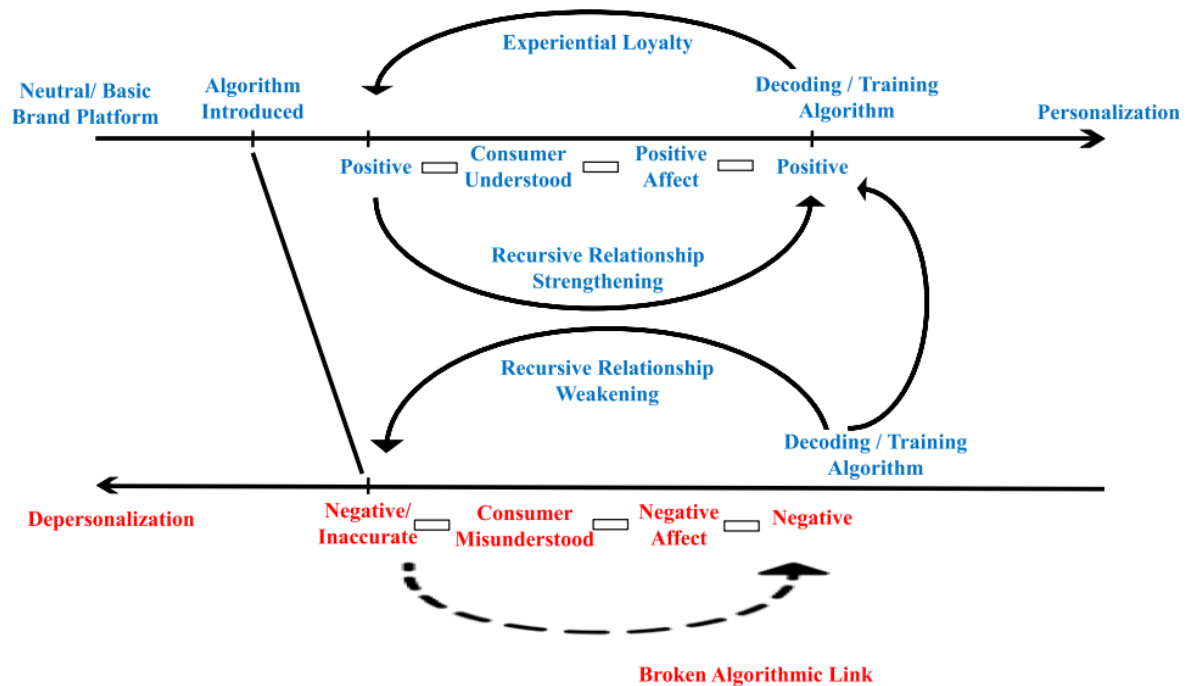
Fig. 2. Algorithmic personalization/depersonalization loop

Source: compiled by the author

Neutral/Base Brand Platform. At the initial stage, a manicure salon offers basic services such as standard manicures and pedicures. Clients can choose from a few general categories of nail designs or colors, and the service does not differ from standard industry practices. At this point, no algorithm is used, and the service remains universal, without considering individual client preferences.

Implemented Algorithm. To enhance the customer experience, the salon introduces an algorithm that collects data on client visits. The algorithm tracks which nail designs or polish colors clients prefer, how much time they spend making selections, what additional services (such as hand care) they request, and how frequently they visit the salon. This stage involves data collection and analysis to establish initial personalization. For example, if a client frequently selects dark shades of nail polish or prefers matte textures, the algorithm records this preference.

Personalization. Once the algorithm is operational, it begins generating personalized recommendations for each client. For instance, if a client

consistently chooses a particular nail style, the algorithm may suggest new designs based on past selections, factoring in seasonal trends. Additionally, if the algorithm detects that a client prefers quick sessions, it may recommend expedited procedures or special offers tailored to such clients, increasing the likelihood of customer satisfaction and repeat visits.

Algorithm Decoding/Learning. Over time, the system learns and refines its recommendations. If the algorithm notices that a client has stopped requesting certain services, such as hand care, it may send reminders about their availability or offer discounts to rekindle interest. It is crucial for the algorithm to adapt to shifts in client behavior—if preferences change, the system must adjust its recommendations accordingly.

Positive and Negative Consumer Reactions. When the algorithm accurately predicts a client's preferences, the client feels understood, leading to a positive brand perception and increased loyalty. For example, if a client visits the salon during the winter season and receives a recommendation for a new winter-themed design, this will leave a strong impression and enhance trust in the salon. However, if the algorithm makes a mistake, such as suggesting bright summer designs during winter, the client may feel that the salon does not understand their current needs. This could trigger negative emotions and reduce loyalty.

Strengthening or Weakening Relationships. When the system processes data effectively and interacts well with the client, it strengthens the relationship. For example, if the algorithm provides timely discounts on services or suggests a new nail design before a significant event (such as a birthday or holiday), the client will feel they are receiving exactly what they need, reinforcing their loyalty. However, if the algorithm continues to make errors—such as recommending outdated services or failing to recognize evolving preferences—the relationship weakens, reducing the likelihood of the client returning.

Depersonalization. If the algorithm starts losing accuracy in predicting client needs, such as continuously recommending outdated designs without

considering new trends or individual preferences, this may lead to frustration and depersonalization of interactions. For instance, if a client prefers natural nail care products and avoids harsh chemicals, but the algorithm persistently recommends polishes with aggressive ingredients, the client may feel misunderstood.

Broken Algorithmic Connection. When the algorithm frequently makes mistakes or fails to offer relevant services, the connection with the client is completely severed. For example, if the system repeatedly suggests the same designs regardless of the season (offering summer styles in winter and vice versa), the client may stop visiting the salon, perceiving the system as unreliable. This results in customer loss and signals the breakdown of the algorithmic connection, where the system is no longer considered a dependable assistant in service selection.

Understanding the process of algorithmic personalization provides valuable insights into the mechanisms through which experiential loyalty is either reinforced or diminished.

Conclusion. The study of AI-driven personalized customer service systems in the manicure salon industry leads to the conclusion that automation and scaling through these technologies significantly enhance service quality and customer loyalty. The findings confirm that AI-based personalization, by adapting services to individual client preferences, improves customer experience and strengthens emotional connections with the brand. These results support the hypothesis that AI-driven personalization can serve as a powerful tool for optimizing service operations and increasing customer satisfaction.

Based on the study's findings, it is recommended that manicure salons invest in AI-based systems for customer data analysis and service personalization. These systems can optimize scheduling, tailor promotional offers, and improve customer retention by anticipating client needs. Future research should focus on refining these algorithms to ensure they remain adaptive to evolving consumer behavior and preferences.

In the long term, the widespread adoption of AI in the manicure salon industry is expected to lead to increased customer satisfaction, higher loyalty rates, and sustainable business growth. The integration of AI-driven personalization in other service sectors may follow similar trends, demonstrating the broader applicability of these findings.

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