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Navigating the Future: Exploring the Nexus between Robo-Advisor Service Quality and Customer Satisfaction

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Abstract: Despite the plethora of research studies conducted on service quality and customer satisfaction in the realm of artificial intelligence, there remains a significant gap in the literature when it comes to robo advisors. Robo advisors, automated platforms that provide algorithm-based financial advice and investment management, are gaining popularity as an alternative to traditional financial advisors. Numerous research studies have been conducted concerning service quality and customer satisfaction in the context of artificial intelligence, yet none have specifically addressed robo-advisors. This research aims to fill the gap and shed light on the crucial aspects of service quality and customer satisfaction within the context of robo advisors. The study will examine the key determinants of service quality offered by robo advisors, considering factors such as the accuracy of financial advice, user interface design, response time, transparency, and communication efficiency. Furthermore, the research seeks to investigate the factors influencing customer satisfaction in their interactions with robo advisors. It will explore the users' perception of robo advisors' reliability, trustworthiness, personalized experience, and the level of control they have over their investments. The outcomes of this research are expected to contribute valuable insights into understanding the strengths and weaknesses of robo-advisors concerning service quality and customer satisfaction. This study is expected to benefit financial service providers, policymakers, and investors by identifying the areas of improvement for robo advisors and enhancing the overall customer experience.

Keywords: *robo-advisor, investing platform, service quality, customer satisfaction, investors.*

1. Introduction and Background

In the rapidly evolving landscape of financial services, Robo-advisors have emerged as technologically advanced platforms that offer automated and personalized investment advice. The rise of robo-advisors has become a huge phenomenon in the financial sector, significantly altering the way people engage in investment activities and manage their portfolios (Ruslan et al., 2022). Without a doubt, the impact of robots and artificial intelligence (AI) is already seen in a variety of industries, including manufacturing, retail, and services (Belanche et al., 2019). According to (Wirtz et al., 2018), service robots differ from autonomous AI software in their ability to participate in complicated activities in both virtual and physical contexts, as well as their ability to learn and develop over time. In recent times, robo-advisors have been recognized as a significant innovation in the present era (Fisch et al., 2018). A multitude of scholarly investigations have explored the effects and importance of robo-advisors in contemporary finance (Brenner & Meyll, 2020; Seiler & Fanenbruck, 2021; Shanmuganathan, 2020;). The continuous progress in artificial intelligence (AI) and the constantly changing financial technology (fintech) environment are expected to contribute significantly to the increased acceptance and improvement of robo-advisory services in the foreseeable future. The study conducted by Kommers (2023) assessed the efficacy of robo-advisors in building investment portfolios. In the study, it utilized three robo-advisory platforms to examine the effectiveness issues of emerging advisory services. Additionally, the study concluded that different robo-advisors employ varying methodologies, investment philosophies, and risk management techniques, leading to differences in portfolio composition and risk/return profiles for investors with similar risk preferences. Shanmuganathan (2020) conducted a study to examine the policy implications of fintech and robo-advisors in the context of financial markets. In addition, the study conducted by How et al., (2020) encompassed a comprehensive global survey that aimed to investigate the extent to which artificial intelligence contributes to the advancement of financial inclusion.

The banking and finance sectors have been leading in the implementation of AI-driven automation processes, thereby emphasizing the increasing importance of robo-advisors within this domain. The study conducted by Shanmuganathan (2020) examined the influence of robo-advisors on the trading behavior of individual investors, providing insights into the behavioral dimensions associated with the utilization of these platforms. In addition, undertook a thorough examination of robo-advisors and examined potential future trajectories within the domain. The finance industry has undergone significant transformation in the past decade due to the emergence of financial technology. Scholars such as Flavián et al. (2022), Goldstein et al. (2019), and Huang & Rust (2021) have conducted studies to investigate the impact of fintech, particularly robo-advisors, on enhancing user value and firm revenues.

The Development of Robo-Advisor in Malaysia: In Malaysia, the rise of robo-advisors has also resulted in substantial financial breakthroughs. Malaysia, a lively and rapidly growing Southeast Asian economy, has seen a growth in the use of fintech solutions such as robo-advisors to fulfil its populace's diverse investing needs (Ruslan, Ibrahim, and Abd. Hamid, 2022). In recent years, a number of domestic and international robo-advisory platforms have launched operations in Malaysia, providing automated and algorithm-based financial services to ordinary people. These platforms frequently provide a user-friendly interface through which users can answer risk tolerance and financial goal-related questions, based on which the robo-advisor constructs and manages a diversified investment portfolio tailored to the individual's needs. The growing popularity of robo-advisors in Malaysia has introduced diverse platforms with varying features (see Table 1). As these features of each robo-advisor can significantly influence the quality of robo-advisory services, they may subsequently impact customer satisfaction levels. The growing presence of robo-advisors in Malaysia has focused emphasis on service quality and its impact on client satisfaction in the financial industry. As robo-advisory platforms gain popularity among investors, their ability to provide personalized financial advice while also providing a flawless user experience has become a crucial variables impacting client happiness.

The Malaysian Securities Commission (SC) has been proactive in fostering fintech innovation, including robo-advisory services, through its regulatory sandbox strategy. This strategy allows robo-advisory platforms to operate in a controlled environment, allowing them to test their services with a limited number of clients before obtaining full regulatory approval (Gan, Khan & Liu, 2021). This has benefited new entrants while also encouraging current financial institutions to enter the robo-adviser industry.

Table 1: List of Robo-Advisors Available in Malaysia

Platform	Year of Launched
Akru	2020
Best Invest	2020
MyTheo	2019
Raiz	2020
StashAway	2018
Wahed Invest	2019
KDI Invest	2022

The relevance of platform reliability, ease of use, and the accuracy of investment advice have been underlined in studies assessing service quality and customer satisfaction (Kundu & Datta, 2015). Numerous studies have concentrated on determining how successfully robo-advisors fit their recommendations with investors' risk preferences and financial goals, as this has a direct impact on client satisfaction with the service.

In Malaysia, robo-advisors are well-positioned to provide cost-effective investment solutions, making them appealing options for retail investors wanting professional guidance without the high fees associated with traditional wealth management services. As a result, client happiness has been inextricably tied to the perceived value and affordability of robo-advisory platforms (Rasiwala & Kohli, 2018).

There have also been studies that look at the impact of robo-advisory services on investment behavior and financial inclusion in Malaysia. Local academics and professionals have been investigating how robo-advisors have altered the investing scene and whether they have democratized access to investment options for a

broader segment of the public.

The Malaysian financial industry's regulatory sandbox strategy has also had a substantial impact on robo-advisory service quality. As platforms are tested and refined during the sandbox period, the emphasis shifts to improving user experience and filling potential service gaps (Gan et al., 2021). This iterative method enables robo-advisors to respond to consumer input and enhance service quality, resulting in increased levels of customer satisfaction. Policymakers, regulators, and market participants are keeping a close eye on Malaysia's robo-advisory business as it expands and evolves. The potential benefits of robo-advisors, such as cost-effectiveness, accessibility, and portfolio diversification, are being balanced against the risks and challenges that they bring, such as data security, regulatory compliance, and investor education (Gan et al., 2021).

Despite the numerous benefits that robo-advisors provide, consumer happiness is not only determined by technological solutions. For Malaysian investors, the availability of responsive customer assistance and effective communication channels for query resolution has emerged as an important part of service quality. According to studies, providing accessible customer support can favorably improve customer satisfaction and establish long-term client connections (Gan et al., 2021). Furthermore, robo-advisors are altering how Malaysians invest and manage their money. The incorporation of robo-advisory services into the Malaysian financial industry demonstrates the country's commitment to fostering fintech innovation and making the benefits of technological advances in finance available to a broader public. As the market matures, robo-advisors will play an increasingly crucial role in shaping Malaysia's financial environment, making customized investment solutions more accessible and simple for Malaysian investors.

Numerous research studies have been conducted concerning service quality and customer satisfaction in the context of artificial intelligence (Alsmadi, 2023). The introduction of robo-advisory services in Malaysia has added new dimensions to the financial industry's service quality and consumer happiness. As these platforms improve and incorporate user feedback, their capacity to provide personalized investment advice, dependability, and cost-effectiveness will become increasingly important in evaluating client satisfaction levels. Robo-advisory platforms may increase their market position and contribute to the general growth and development of Malaysia's fintech ecosystem by prioritizing service quality and investing in customer support.

A potential research gap in the area of service quality in robo-advisory services in Malaysia could be the investigation of the role of user interfaces and personalized communication in enhancing customer satisfaction. While existing studies have acknowledged the significance of service quality in customer satisfaction, there is a need to delve deeper into the specific elements of robo-advisory platforms that contribute to a positive user experience (Setiyawati & Bangkalang, 2022). Exploring how user-friendly interfaces and interactive communication channels impact investor engagement and satisfaction could provide valuable insights into optimizing service delivery. Understanding which design features and communication methods resonate most with investors, especially those with varying levels of financial literacy, can help robo-advisory platforms refine their offerings to cater to a broader user base.

Furthermore, examining how robo-advisors utilize client data to offer personalized investment recommendations and how investors perceive the level of personalization in their portfolio allocation could be a relevant research area. Investigating the extent to which investors feel that their unique financial goals and risk preferences are accurately reflected in the platform's investment strategy could shed light on the effectiveness of robo-advisory services in delivering personalized solutions. Addressing these research gaps would advance our understanding of the factors that contribute to service quality in robo-advisory platforms specifically in the Malaysian context. The findings could assist robo-advisory providers in optimizing their services and enhancing customer satisfaction, ultimately contributing to the growth and adoption of robo-advisory solutions in the Malaysian financial market.

2. Literature Review

User interface (UI) Usability: Usability relates to ease of use, learning, and user satisfaction which is one of the crucial attributes in designing a product. Alshira'h (2020) explains that usability has a positive role in

user satisfaction of e-government websites in Jordan. Besides having a positive effect on user satisfaction, usability such as simplicity and ease of use make the human-computer interaction more efficient for the gap between the human and the computer, and the software becomes closer with a good interface, making the use of application more effective (Setiyawati & Bangkalang, 2022). User interface usability refers to the ease of use and navigation of the robo-advisory platform. A well-designed and intuitive user interface enhances investors' experience, enabling them to efficiently access information, interact with the platform, and understand the investment recommendations. A user-friendly interface with clear and concise instructions can reduce user errors and frustrations, leading to higher levels of customer satisfaction (Setiyawati & Bangkalang, 2022).

Personalization: The personalization construct has been commonly identified as a major service quality dimension by some studies on m-shopping service quality, in which the construct's scale items have been largely adapted from SERVQUAL's empathy dimension (Zhang, Jun & Palacios (2023). The personalization attribute in m-shopping service quality is closely related to SERVQUAL's empathy. Personalization is concerned with the degree to which an m-retailer and individual employees attend to, understand and adapt to the specific needs of individual customers (Cameron et al., 2012; Parasuraman et al., 1988). Personalization is a critical aspect of service quality in robo-advisory services. It involves tailoring investment recommendations based on individual investors' unique financial goals, risk tolerance, and investment preferences. A platform that can effectively incorporate these personalized elements into its investment strategies is more likely to provide recommendations that align with the investors' specific needs and aspirations. Studies have shown that investors perceive personalized recommendations positively, leading to increased customer satisfaction and engagement.

Effective Communication: Preece and Ghozati (2001) have maintained that providing individual care and attention is a crucial ingredient in effective buyer–seller communication regardless of the medium used. Whereas traditional retailers could meet consumers' desire for personalization in interpersonal-based service encounters, online retailers would need data mining, modeling and sometimes great expenditure to deliver personalized customer service (Lee and Park, 2009). Huang and Zhou (2018) view personalization as an automated process including identifying consumers, collecting consumers' behavioral records, analyzing consumers' preferences and tailoring content and service for each consumer. Clearly, based on mobile technologies, many online retailers tend to provide personalized customer service (e.g. location-based services), which has become the key component in attaining a competitive edge in the marketplace (Ho, 2012; Xu et al., 2011; Zou and Huang, 2015). In other words, service personalization is expected to enhance customers' patronage and actual purchase intentions through venues featuring the service (Lee and Park, 2009). Effective communication is another dimension of service quality in robo-advisory services. Communication involves keeping investors informed about their portfolio performance, market updates, and changes in investment strategies. Timely notifications, alerts, and relevant updates help investors stay informed and maintain a sense of control over their investments. Moreover, personalized communication that addresses investors' concerns and questions can lead to greater satisfaction and confidence in the robo-advisor's services.

Data Security: Service quality refers to the extent to which a user perceives the overall quality of services for timely assisting users in solving problems from an information security and information technology (Ahn et al., 2007; Kim, Lee & Law, 2008). First, when users can acquire adequate and superior support services for users' information security and information technology usage, it will be perceived as useful among users (Lee, 2010). If financial services information security and information technology can provide users with high and satisfactory service quality, such high-quality services will likely lead to a high level of users' perceived usefulness (Rahi and Ghani, 2019). Next, users' perceptions of service quality of information security and information technology exceed their expectations, thus resulting in higher confirmation (Park, 2020). Finally, high service quality of the information security and information technology will be likely to make users get immersed in their usage and enjoy their usage intensely (Ahn et al., 2007; Cheng, 2023).

In general, marketing interactions embrace the central tenets of exchange (Bagozzi, 1975) and agree that the data collection and usage by robo-advisors follow the same idea. Given the risks incurred from personal information sharing, consumers' perceptions of fairness are critical to robo-advisor usage (Slepchuk et al.,

2022). To explain, consumers' information shared during robo-advisor usage constitutes an input of exchange. In return, they would expect outcomes such as better investment performance through robo-advisors. Thus, consumers' privacy and intrusiveness concerns will be considered in a fairness/justice judgment (Aw, Leong, Hew, Rana, Tan & Jee, 2023). In addition, data security is crucial in robo-advisory services, as these platforms collect and analyze sensitive personal and financial information from investors. A robust data security infrastructure, including encryption protocols, secure data storage, and protection against cyber threats, is essential to instill trust and confidence among investors. Research has shown that investors prioritize data security when choosing a robo-advisor and a platform with a strong focus on data protection can positively influence customer satisfaction.

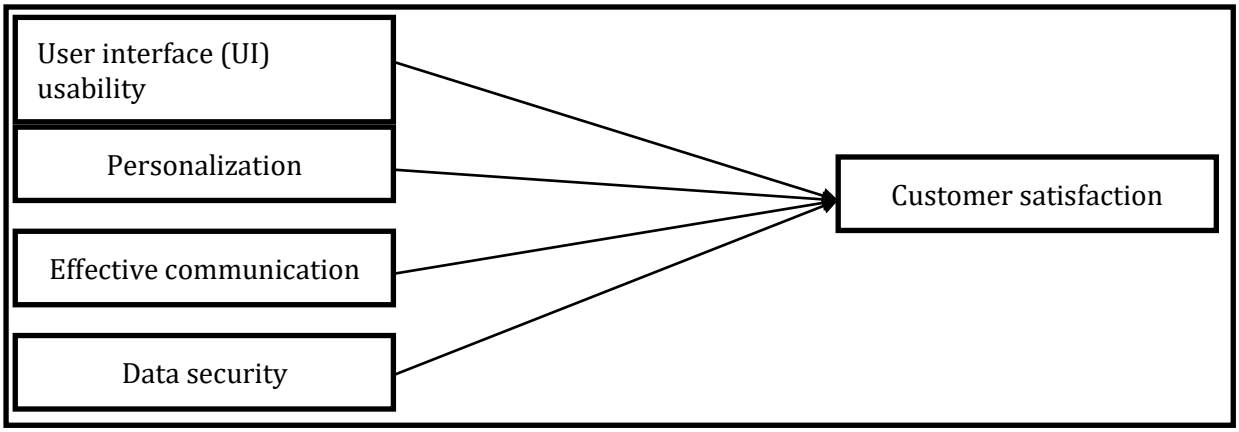
Customer satisfaction: According to Kotler and Keller (2006), customer satisfaction refers to an individual's assessment of their happiness or discontent with a product or service based on their expectations. Customer satisfaction is critical in the context of robo-advisory services since it directly influences long-term reactions such as buying behavior, spending patterns, and overall platform experience. Because robo-advisory services are technology-based and provide linked financial services, customer happiness becomes even more important, considerably determining the company's success or failure.

Oliver and Swan's (1989) disconfirmation theory of consumer expectations coincides with the concept of customer satisfaction in robo-advisory services. Satisfaction occurs when an investor's experience with a robo-advisor exceeds their initial expectations (positive disconfirmation). On the other hand, discontent occurs when the experience falls short of expectations (negative disconfirmation). Positive disconfirmation may occur in the context of robo-advisory services when investors discover personalized and high-performing investment advice that corresponds with their financial goals. Negative disconfirmation, on the other hand, could emerge from gaps between the platform's promises and actual performance.

Customer satisfaction for robo-advisors is defined by the delicate balance between investors' expectations and their actual experiences with the platform's products and services (Khazaei, Manjiri, Samiey & Najafi, 2014). Customer satisfaction is increased when user interface usability, personalization, communication, and data security meet or exceed investor expectations. A well-designed and user-friendly interface that provides personalized investing options based on investors' risk tolerance and financial goals might lead to better levels of satisfaction. Furthermore, excellent communication and comprehensive explanations of the platform's algorithms and investing strategies can create trust and confidence, which can lead to increased client satisfaction.

Customer happiness is critical in investors' decision-making and commitment to a specific platform as robo-advisory services continue to transform the financial landscape. Satisfied investors are more inclined to follow the platform's suggestions, repeat investments, and engage in word-of-mouth referrals, all of which contribute to the platform's growth and success. As a result, for robo-advisory providers aiming to prosper in the competitive fintech sector, encouraging customer happiness through consistent service quality and meeting investors' expectations becomes a strategic priority. Therefore, a conceptual framework is developed to determine the relationship between robo-advisor service quality and customer satisfaction (see Figure 1).

Figure 1: Conceptual Framework



3. Research Methodology

This study looks into the relationship between robo-advisor service quality and customer satisfaction. The study was carried out empirically, with data obtained from convenience sample participants in the Klang Valley area. An online questionnaire was used to collect the data, which was chosen for its ease of use in large population research (Saunders, Lewis, & Thornhill, 2009). The questionnaire sought to ascertain participants' knowledge, perceptions, and behaviors.

Likert scales with a strong disagreement anchor were employed in the survey, which is a frequently used and effective tool for examining attitudes and behaviors in organizational research (Sekaran & Bougie, 2016). The questionnaire was meticulously constructed based on available research and was in line with the overall goal of the study. A pre-test was undertaken with a small number of clients before its complete administration to ensure clarity and detect any potential biases (Sekaran & Bougie, 2016).

Furthermore, Structural Equation Modeling (SEM) was used in the data analysis, which included indicators, latent variables, and measurement errors. Because of its higher performance when compared to other methods, SmartPLS 4.8.4 was chosen as the ideal tool for analyzing Partial Least Squares (PLS) data. SEM facilitated the examination of correlations between latent variables, allowing for successful theory-data research. Given the limited sample size and the use of diverse indicator types, such as categorical, ordinal, interval, and ratio scales, the PLS approach was chosen most appropriate for ensuring the study's analytical validity.

4. Managerial Implications and Recommendations

The research emphasizes the significance of enhancing the quality of robo-advisor services. Firms must prioritize the optimization of user experience, guarantee the accuracy and reliability of guidance, and offer recommendations that are timely and relevant. Consistently monitoring and evaluating service quality by means of client feedback and data analytics can facilitate the identification of areas that require enhancement. Robo-advisor providers should prioritize improving their service quality to ensure higher customer satisfaction. This research highlights the significance of service quality dimensions such as efficiency, reliability, responsiveness, security, and personalized advice. Allocating resources and efforts to enhance these aspects will likely result in increased customer satisfaction and loyalty. Additionally, understanding the features that customers value the most can guide robo-advisor providers in aligning their offerings with customer needs. Analyzing customer preferences revealed in this research can inform the development of tailored features, leading to enhanced customer satisfaction.

5. Conclusion

In conclusion, this research is expected to study the nexus between robo-advisor service quality and customer satisfaction, shedding light on critical factors that influence investors' perceptions and experiences with these automated investment platforms. Through a comprehensive analysis of service quality dimensions, including efficiency, reliability, responsiveness, security, and personalized advice, we have gained valuable insights into the key drivers of customer satisfaction in the robo-advisor industry. In conclusion, the exploration of the nexus between robo-advisor service quality and customer satisfaction will provide valuable contributions to the understanding of investors' experiences. Service quality plays a pivotal role in shaping customer satisfaction levels. Robo-advisor providers must prioritize enhancing their service quality to meet customer expectations and foster long-term relationships with investors. An intuitive and user-friendly interface, combined with proactive customer support and transparent communication on data security and investment strategies, emerged as essential components in ensuring a positive user experience.

Moreover, personalization and customization might emerge as crucial elements in the satisfaction equation. Customers highly value robo-advisors that cater to their unique financial goals and risk preferences, underscoring the significance of leveraging technology to offer personalized recommendations and tailored investment solutions. The implications of this research extend beyond academic insights; and will offer actionable managerial strategies for robo-advisor providers. The managerial implications emphasize the

importance of continuous monitoring of service quality, streamlined user experiences, competitive benchmarking, and regular customer feedback collection to stay attuned to customer needs and preferences. As the robo-advisor industry in Malaysia continues to evolve, providers need to embrace these recommendations and adapt their strategies accordingly. Enhancing service quality and aligning features with customer needs will be instrumental in gaining a competitive edge and building lasting customer loyalty. In conclusion, the exploration of the nexus between robo-advisor service quality and customer satisfaction has illuminated critical dimensions that significantly impact investors' experiences. By embracing the managerial implications derived from this research, robo-advisor providers can enhance their service offerings, cater to customer preferences, and foster enduring relationships, thereby cementing their position in the competitive landscape of the Malaysian robo-advisor market.

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