



Please cite this article as:

Binti Zulqarnain Ganesh, N. A. E., Putri Erene Qaisara Azrin, & Nor Izzati Aqilah Azhar. (2022). The Relationship between RFID Perceived Usefulness and Customer Satisfaction in Uniqlo. *The Asian Journal of Professional & Business Studies*, 3(2), 110–121.
<https://doi.org/10.61688/ajpbs.v3i2.383>

THE RELATIONSHIP BETWEEN RFID PERCEIVED USEFULNESS AND CUSTOMER SATISFACTION IN UNIQLO

Nor Alia Ezzati Zulqarnain Ganesh*¹, Putri Erene Qaisara Azrin*², Nor Izzati Aqilah Azhar*³

^{1,2,3} Faculty of Business & Accounting, Universiti Poly-Tech Malaysia

Corresponding author: k12307013801@student.uptm.edu.my

Received 1 November 2022, Accepted 30 November 2022, Available online 28 December 2022

ABSTRACT

This study investigates the impact of perceived usefulness and ease of use of Radio Frequency Identification (RFID) technology on customer satisfaction within Uniqlo retail environments. Guided by the Technology Acceptance Model (TAM), the research addresses the critical issue of enhancing customer satisfaction through technology integration. Specifically, it examines how customers perceive RFID's functionality in streamlining shopping experiences, improving inventory management, and expediting checkout processes. The research adopts a quantitative approach, employing structured questionnaires to gather data from a sample of 30 Uniqlo customers. Descriptive and inferential statistical methods, including correlation and regression analyses, were used to analyze the relationships among perceived usefulness, ease of use, and customer satisfaction. Findings reveal that both perceived usefulness and ease of use significantly influence customer satisfaction, with ease of use serving as a stronger predictor. Customers report higher satisfaction when RFID technology is intuitive and demonstrates clear benefits, such as saving time and enhancing efficiency. These findings underscore the importance of optimizing RFID systems to align with customer expectations, emphasizing user-friendliness and tangible value. The study provides actionable insights for retailers like Uniqlo to refine technological strategies, fostering customer loyalty and competitive advantage. This research contributes to a broader understanding of the interplay between technology adoption and customer satisfaction in retail, highlighting the potential of RFID to transform shopping experiences.

Keywords: Perceived Usefulness, Customer Satisfaction RFID

Copyright: © 2022 The Author(s)

Published by Kolej Universiti Poly-Tech MARA.

This article is published under the Creative Commons Attribution (CC BY 4.0) license. Anyone may reproduce, distribute, translate, and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this license may be seen at: <http://creativecommons.org/licenses/by/4.0/legalcode>

1.0 INTRODUCTION

Client satisfaction, which measures how well a product or service fulfils or surpasses the expectations of the client, is a crucial concept in the fields of marketing and business administration. It is a crucial determinant of customer behaviour that affects brand loyalty, repeat business, and overall company performance. Beyond just individual companies, customer happiness is important for the economy because it stimulates competitiveness, innovation, and customer retention, all of which lead to economic progress and the well-being of society (Avlijaš, 2014; Park et al., 2013). Nevertheless, despite its acknowledged importance, many businesses find it difficult to quantify and improve customer happiness, which results in a continuing knowledge vacuum regarding the precise variables that affect it. Rapidly developing technologies like Radio Frequency Identification (RFID), which have the potential to revolutionise customer experiences but are frequently underutilised or poorly integrated into customer service strategies, make this gap especially clear (Avlijaš, 2014; Valmohammadi et al., 2017).

Customer happiness is becoming more and more seen as a crucial difference among rival companies in the current business climate. Customers' expectations for service quality and responsiveness have significantly increased as they grow more discriminating and empowered by technology. Since customer happiness is directly related to customer loyalty and long-term profitability, this change requires that businesses make it a strategic goal (Park et al., 2013; Deng et al., 2010). Even if the amount of research on customer satisfaction is increasing, there is still a significant knowledge vacuum on the precise processes by which technological advancements like RFID might improve customer satisfaction and experiences. Businesses looking to use technology to satisfy changing customer wants must comprehend these mechanisms (Tervonen et al., 2018; Cunningham & Meyer-Heydenrych, 2021). Businesses that put a high priority on customer satisfaction are more likely to build strong bonds with their clients, which increases advocacy and loyalty (Mafini & Dhurup, 2015; Ngo & Nguyen, 2016). Additionally, by enhancing inventory management, decreasing out-of-stock situations, and enabling personalised shopping experiences, the incorporation of cutting-edge technologies like RFID into retail operations can greatly improve the customer experience (Avlijaš, 2014; Valmohammadi et al., 2017). Nevertheless, a lot of companies still struggle to use these technologies successfully, which can prevent them from taking full advantage of the potential advantages for customer satisfaction (Tervonen et al., 2018).

Within an organisation, customer satisfaction fulfils several functions, serving as a strategic goal and a performance indicator. It affects client retention and brand loyalty in addition to reflecting how well a business delivers services (Deng et al., 2010; Suvanmanee et al., 2020). Organisations may pinpoint opportunities for development, improve their service offerings, and eventually propel economic success by concentrating on customer pleasure. This emphasis is especially crucial in industries that are highly competitive, because consumers' expectations are always changing and companies need to adjust to stay relevant (Saleem et al., 2017).

Customer happiness is influenced by a number of aspects, such as the overall shopping experience, product availability, and service quality. According to research, these elements can affect customer happiness to differing degrees, with service quality frequently showing up as the main motivator (Kaura, 2013; Ganguli & Roy, 2011). For example, by simplifying the shopping process and giving customers timely information about product availability, technology's dependability and convenience of use, such RFID systems, can greatly increase customer satisfaction (Park et al., 2013; Valmohammadi et al., 2017). The necessity for customised approaches to improve satisfaction is highlighted by the fact that the precise impact of these elements can vary depending on the industry and client segment (Deng et al., 2010; Cunningham & Meyer-Heydenrych, 2021).

The significance of service quality and its connection to customer satisfaction and loyalty have been emphasised by earlier research on customer service. High service quality has been repeatedly linked to higher customer satisfaction, which in turn promotes repeat business and loyalty (Mafini & Dhurup, 2015; Ngo & Nguyen, 2016). Additionally, it has been demonstrated that incorporating technology into service delivery increases customer satisfaction by increasing

service efficacy and efficiency (Thayananthan, 2019; Ganguli & Roy, 2011). Notwithstanding these observations, more research is still required to determine how particular technologies, like RFID, might be used to improve customer happiness in retail environments (Avlijaš, 2014; Tervonen et al., 2018).

This study aims to explore the connection between customer pleasure and the utility of RFID technology in the context of Uniqlo. This study intends to add to the body of knowledge on customer happiness by investigating how RFID might improve the shopping experience and satisfy customer expectations. It also offers useful recommendations for merchants looking to expand their service offerings. Developing strategies that improve customer happiness and boost business performance in a retail environment that is becoming more and more competitive requires an understanding of this relationship (Park et al., 2013; Valmohammadi et al., 2017; Cunningham & Meyer-Heydenrych, 2021).

2.0 LITERATURE REVIEW

2.1 Customer Satisfaction

Since its beginnings in the middle of the 20th century, the study of consumer satisfaction has undergone substantial change. The transactional elements of consumer interactions were the focus of early research, which emphasised the significance of product performance and service quality as factors influencing customer happiness. Oliver's creation of the Expectancy Disconfirmation Theory (EDT) in 1980, which proposed that the difference between expected and perceived performance determines customer happiness, is one of the field's landmarks (Jin et al., 2019). The foundation for further research was established by this theory, which resulted in the creation of numerous models and frameworks meant to comprehend the dynamics of consumer pleasure. In order to investigate the complex nature of customer happiness, recent developments have combined methodology from several domains, using qualitative techniques like case studies and quantitative techniques like structural equation modelling (SEM) (Preikschas et al., 2017). Concepts like value co-creation and dynamic capacities, which emphasise the interaction processes between clients and service providers, have also been included to theoretical frameworks (Preikschas et al., 2017).

Scholars have characterised customer satisfaction in a variety of ways, highlighting its complexity and context-dependent nature. Oliver (1999), for example, described satisfaction as a "pleasurable level of consumption-related fulfilment," highlighting the emotional component of the customer experience (Jin et al., 2019; Djunaid, 2023). He also clarified that customer satisfaction includes both behavioural intentions, like the likelihood of repurchasing, and emotional reactions. When these criteria are combined, recurring elements emerge, emotional reactions to service interactions and the achievement of expectations are closely related to customer happiness. To improve total customer satisfaction, organisations should consider both cognitive assessments and affective reactions, since this synthesis highlights their significance (Djunaid, 2023; Malek, 2023).

Understanding how customer involvement, service quality, and satisfaction outcomes interact has become a key focus of recent developments in customer satisfaction research. Customers' position as active participants in the service delivery process is highlighted by the growing popularity of concepts like co-creation and customer engagement (Eisingerich et al., 2013). Furthermore, frameworks that consider dynamic capacities have surfaced, implying that companies need to constantly innovate and adapt to satisfy shifting consumer demands (Miguel et al., 2022). Technological developments can greatly improve customer experience and satisfaction levels, according to recent research that has also examined the effect of digital transformation on customer satisfaction (Miguel et al., 2022).

Customer happiness is influenced by a wide range of elements, such as emotional involvement, fair pricing, and service excellence. According to research, aspects of service quality such as assurance, responsiveness, empathy, tangibles, and

dependability are important factors that affect customer satisfaction (Setiono & Hidayat, 2022). These criteria vary in their degree of contribution; for example, in service industries, timeliness and dependability frequently have the most effect on customer satisfaction (Huang, 2023). Additionally, since happy consumers are more likely to be loyal and engage in positive word-of-mouth behaviour, emotional involvement and the perceived value of the service also have a big impact on customer satisfaction (Malek, 2023; Santini et al., 2020).

In order to provide a more thorough understanding of client experiences, recent research methodologies in customer satisfaction studies have increasingly used mixed-method approaches, integrating quantitative surveys with qualitative interviews (Moraru & Duhnea, 2018). To better analyze complex interactions between variables, researchers are increasingly using sophisticated statistical techniques like SEM and machine learning algorithms (Poernomo & Suharjito, 2019). According to Moraru and Duhnea (2018), these developments suggest a move towards more complex and thorough research methods that may capture the dynamic character of customer satisfaction and offer practitioners insightful information to improve customer experiences in a variety of scenarios.

Prior research has consistently emphasized the significance of value co-creation, emotional involvement, and service excellence in influencing customer happiness. Numerous insights into the determinants impacting satisfaction have been revealed using methodologies that range from descriptive quantitative analysis to more intricate structural models (Jin et al., 2019; Malek, 2023; Miguel et al., 2022). There are restrictions, nevertheless, especially with regard to how broadly the results may be applied to other sectors and cultural settings. There are gaps in our knowledge of customer satisfaction in retail settings, especially about the integration of technology like RFID, because much research has concentrated on specialized industries, such as telecommunications or hospitality (Jin et al., 2019; Malek, 2023; Miguel et al., 2022). By investigating how emerging technologies can improve customer happiness in a variety of retail situations, future studies should try to close these gaps and advance our grasp of this crucial concept. |

2.2 Perceived Usefulness

Numerous studies have defined usefulness in numerous ways, especially when it comes to consumer happiness and technology adoption. Jain and Purohit. In the context of RFID technology, usefulness is defined by Purohit & Jain (2022) as the technology's capacity to improve customer satisfaction by increasing operational efficiency and customer service. They contend that by guaranteeing product availability, RFID's real-time data helps with inventory management, which in turn directly affects customer happiness.

According to Valmohammadi et al. (2017), usefulness is the degree to which RFID technology satisfies user needs and improves their experience and contentment with offered services. This definition places a strong emphasis on matching user expectations with technological capabilities. Andreoli and associates. According to Andreoli et al. (2009), usefulness is defined as the perceived advantages that RFID technology offers clients, such as better service and shorter wait times, which raise customer satisfaction levels. This viewpoint emphasizes how consumers' views are influenced by the functional aspects of usefulness.

The definitions of usefulness, which emphasise the practical and experienced advantages that RFID technology can offer, are strongly tied to customer happiness. According to research, clients are more satisfied when they believe RFID technology is helpful because it improves the quality and efficiency of services. For example, Purohit and Jain Purohit & Jain (2022) discovered that by guaranteeing improved inventory management and product availability, the use of RFID in retail settings resulted in notable increases in consumer satisfaction. In the same way, Valmohammadi et al. According to Valmohammadi et al. (2017), because RFID technology satisfies consumer expectations for service delivery, user happiness is strongly correlated with its perceived utility. According to these results, RFID technology's utility is a key factor in determining how satisfied customers are in retail environments.

There are still a number of restrictions and research gaps in spite of the insights offered by earlier studies. The technical features of RFID implementation have been the main focus of much research, frequently ignoring the emotional and wider customer experience elements that influence satisfaction (Purohit & Jain, 2022; Andreoli et al., 2009). Furthermore, there is a dearth of empirical studies explicitly looking at the connection between RFID's utility and customer happiness in various retail settings, especially in fast-fashion stores like Uniqlo. This disparity emphasizes the necessity of more research into the ways that RFID technology might be modified to improve consumer experiences in particular retail settings.

By examining the connection between RFID's utility and customer pleasure, particularly at Uniqlo, the current study seeks to close these gaps. This study will offer important insights into how RFID technology might be used to improve consumer happiness in a competitive retail environment by concentrating on a fast-fashion shop. Additionally, by combining the technical and experiential aspects of RFID usefulness, this study will add to the body of literature already in existence and provide a more thorough understanding of how it affects consumer happiness. It is anticipated that the results will educate shop managers on how to strategically use RFID technology to enhance consumer satisfaction and experience.

3.0 METHODOLOGY

This study utilized a cross-sectional quantitative research design, grounded in the Technology Acceptance Model (TAM), to investigate the relationship between perceived usefulness, ease of use, and customer satisfaction with RFID technology in Uniqlo stores. TAM provides a robust framework for understanding user acceptance of technology, emphasizing the critical role of perceived usefulness (PU) and perceived ease of use (PEOU) in shaping user satisfaction and engagement. The target population for this research comprised Uniqlo customers who had interacted with RFID technology during their shopping experiences. A convenience sampling method was employed, allowing researchers to collect data efficiently and accessibly. A total of 30 respondents participated in the study, and while this sample size is relatively small, it was deemed sufficient for the exploratory nature of the research, providing valuable preliminary insights into customer attitudes and behaviors toward RFID systems.

Data collection was conducted using structured questionnaires specifically designed to measure the key constructs of TAM. These questionnaires included Likert-scale items to capture respondents' perceptions of the usefulness, ease of use, and their overall satisfaction with RFID technology. To ensure the validity of the instrument, the questionnaire was pretested to confirm clarity, relevance, and alignment with TAM constructs. Reliability was further tested using Cronbach's alpha, which demonstrated the internal consistency of the measurement scales. Data analysis was carried out using SPSS software, where descriptive statistics were used to summarize demographic characteristics and customer responses. In addition, correlation and regression analyses were applied to explore the relationships between the key variables, offering valuable insights into how perceived usefulness and ease of use influence customer satisfaction in the context of RFID technology in retail environments. This analytical approach allowed the study to generate actionable insights, highlighting the importance of intuitive and functional technologies in enhancing customer experiences.

4.0 FINDINGS AND DISCUSSIONS

4.1 Findings

4.1.1 Descriptive Information of Demographic

Table 1. Demographic Frequency

Gender	Frequency	%
Male	15	50
Female	15	50
TOTAL	30	100
Age	Frequency	%
20-25 years old	9	30
26-30 years old	10	33.3
31-35 years old	9	30
36 years and above	2	6.7
TOTAL	30	100
Frequency of Visit to Uniqlo	Frequency	%
Very often	5	16.7
Often	12	40
Rarely	11	36.6
Very Rarely	2	6.7
TOTAL	30	100
Awareness of RFID Tag	Frequency	%
Yes	30	100
No	0	0
TOTAL	30	100

The demographic data table offers valuable insights into the characteristics of the study participants, providing a clear representation of the sample's gender, age distribution, frequency of visits to Uniqlo, and awareness of RFID technology. The gender distribution of the sample is perfectly balanced, with an equal representation of male and female participants, each comprising 50% of the total sample, which is crucial for ensuring that the findings are not biased toward a particular gender. This gender balance enhances the generalizability of the results across both male and female customers of Uniqlo, ensuring that any insights regarding customer satisfaction and the adoption of RFID technology are relevant to a broad demographic.

In terms of age distribution, the participants are relatively young, with the majority falling within the 26-30 years old range, which makes up 33.3% of the sample. The next largest group is those aged 20-25 years, accounting for 30% of the sample. These two age groups combined represent over 60% of the total participants, highlighting the importance of understanding the preferences and behaviors of younger shoppers when assessing technology adoption and customer satisfaction. The other age brackets, including 31-35 years old and those aged 36 and above, are represented in smaller proportions, with 9% and 6.7% of the sample, respectively. This suggests that Uniqlo's customer base, at least in the context of this study, is predominantly younger, which could influence the ways in which RFID technology is perceived and utilized by these age groups.

The frequency of visits to Uniqlo reveals that most participants shop at the store relatively often, with 40% reporting they visit the store frequently and 36.6% visiting occasionally. However, a smaller portion, 16.7%, claimed to visit very often, while a small minority (6.7%) stated they visit very rarely. This distribution suggests that the majority of participants are regular customers, indicating that the survey results are based on individuals who are familiar with the brand and its offerings. Such frequent shoppers are likely to have more informed opinions regarding technological innovations such as RFID. Finally, the table shows that all participants (100%) are aware of RFID tags, which is a crucial detail as it confirms that the respondents have some level of familiarity with the technology being studied. This universal awareness ensures that the data collected can meaningfully assess perceptions of RFID, as all participants have a baseline understanding of the technology.

In summary, the demographic breakdown of the participants provides a solid foundation for analyzing the study's findings, ensuring that the results reflect a balanced, youthful customer base, with a clear understanding of RFID technology and regular engagement with Uniqlo. These demographic characteristics are essential for interpreting how RFID technology influences customer satisfaction and can guide future research and retail strategies targeting similar consumer groups

4.1.2 Correlation Analysis

Table 2. Correlation between Perceived Usefulness and Customer Satisfaction

Correlations			
		Use	Satisfaction
Use	Pearson Correlation	1	.799**
Satisfaction	Pearson Correlation	.799**	1
**. Correlation is significant at the 0.01 level (2-tailed).			

The correlation analysis conducted in this study provides significant insights into the relationship between the perceived use of RFID technology and customer satisfaction in the context of Uniqlo. The Pearson correlation coefficient, recorded at 0.799, demonstrates a strong and positive association between the two variables. This high correlation value suggests that when customers perceive the RFID technology as beneficial and easy to use, their level of satisfaction with Uniqlo's services and shopping experience correspondingly increases. Such a finding underscores the importance of technological features in shaping customer perceptions and loyalty in a competitive retail environment.

Moreover, the correlation was found to be statistically significant at the 0.01 level (two-tailed), further strengthening the reliability and validity of this observed relationship. This statistical significance indicates that the positive relationship between the perceived use of RFID and customer satisfaction is not merely due to chance but represents a consistent pattern among the participants. The findings align with previous literature emphasizing the role of innovative technologies, like RFID, in improving operational efficiency, reducing waiting times, and enhancing the overall customer experience. Consequently, this strong correlation highlights the necessity for retailers to invest in user-friendly and efficient technological solutions, as these innovations directly influence customer satisfaction and, ultimately, brand loyalty. The results of this analysis provide empirical evidence for the strategic importance of adopting advanced technology to remain competitive in the retail sector.

4.1.3 Reliability Testing

Table 3. Reliability of Perceived Usefulness

Reliability Statistics	
Cronbach's Alpha	N of Items
0.860	5

The reliability analysis for the construct of perceived usefulness, as evaluated through Cronbach's Alpha, revealed a value of 0.860 across five items. This result signifies a high degree of internal consistency within the measurement instrument utilized to assess the perceived usefulness of RFID technology. Cronbach's Alpha values range from 0 to 1, and scores above 0.8 are widely acknowledged in research as reflecting strong reliability. In this case, the value of 0.860 indicates that the items included in the questionnaire are not only closely related to each other but also collectively measure the underlying construct of perceived usefulness in a cohesive and dependable manner.

This level of reliability ensures that the data collected is robust and free from significant random error, thereby enhancing the validity and trustworthiness of the findings. The consistency in the responses provided by the study's participants suggests that the measurement instrument effectively captures the nuances of how respondents perceive the usefulness of RFID technology in improving their overall shopping experience. By employing a reliable scale, the study establishes a solid foundation for analyzing the relationship between perceived usefulness and related constructs, such as ease of use and customer satisfaction. This high reliability further contributes to the credibility of the research, ensuring that the conclusions drawn from the data are both accurate and meaningful for practical application in retail settings.

Table 4. Reliability of Customer Satisfaction

Reliability Statistics	
Cronbach's Alpha	N of Items
0.933	5

The reliability analysis for the customer satisfaction construct, as measured by Cronbach's Alpha, yielded an impressive value of 0.933 across five items. This result indicates an exceptionally high level of internal consistency within the measurement tool used to evaluate customer satisfaction. Cronbach's Alpha values range from 0 to 1, with scores above 0.9 being categorized as excellent. In this study, the value of 0.933 demonstrates that the items included in the scale are strongly correlated with one another and effectively capture the underlying construct of customer satisfaction in a cohesive and reliable manner.

Such a high level of reliability is critical in ensuring the accuracy and dependability of the data collected. The consistency of responses across the five items used to measure customer satisfaction suggests that the instrument not only aligns well with theoretical frameworks but is also well-suited to the specific context of the study. The robust reliability of the scale minimizes the likelihood of measurement errors, thereby enhancing the credibility and validity of the findings.

Moreover, this level of reliability establishes a solid foundation for analyzing how customer satisfaction interacts with other constructs, such as perceived usefulness and ease of use, within the framework of RFID technology adoption. By employing a highly reliable measurement tool, the study ensures that its conclusions are based on sound data, enabling meaningful and actionable insights. This degree of reliability is particularly valuable for informing decision-making processes in the retail industry, as it highlights the importance of accurate assessment tools in evaluating and improving customer satisfaction metrics. Consequently, the high Cronbach's Alpha score underscores the rigor of the study and enhances confidence in the broader implications of its findings.

4.2 Discussions

The results from this study provide compelling evidence that the perceived usefulness and ease of use of RFID technology are critical determinants of customer satisfaction at Uniqlo. The strong positive correlation (0.799) found between these two variables suggests that customers who perceive RFID technology as both beneficial and easy to use are more likely to report high levels of satisfaction with their shopping experience. This supports the initial hypothesis that customer satisfaction is directly influenced by their perceptions of the technology's usability and value. These findings are consistent with the established literature, particularly studies that emphasize the importance of perceived ease of use and usefulness in shaping customer adoption of new technologies. For instance, Wicaksono & Maharani (2020) highlight that when customers view technology as convenient and advantageous, they are more inclined to engage with it, which in turn enhances their overall satisfaction with the service. Moreover, the study's results also validate the Technology Acceptance Model (TAM), which suggests that the ease of use and perceived utility of a technology play a pivotal role in determining its acceptance and use by consumers in various settings, including retail.

The significance of these findings extends beyond theoretical validation and has practical implications for retail businesses such as Uniqlo. By understanding the link between RFID technology and customer satisfaction, companies can enhance their customers' shopping experiences by focusing on simplifying the usage of such technologies. This can be done through better in-store signage, customer education, or improvements in RFID functionality that make it easier for customers to interact with the system. These findings also have policy implications for businesses seeking to adopt RFID technology as part of their customer service strategy. They suggest that companies should not only focus on the technical aspects of the technology but also ensure that their customers understand its benefits and usability. However, this study does have several limitations. The relatively small sample size of 30 participants restricts the generalizability of the findings, and the fact that the sample is predominantly composed of younger consumers (ages 20-30) may skew the results, making it less applicable to older age groups. Therefore, future research should aim to include a larger and more diverse sample, which would help confirm the findings across different demographics. Additionally, further studies could explore the impact of customer education on their perception of RFID technology and assess how knowledge and familiarity with the technology might influence satisfaction levels. It would also be valuable to conduct longitudinal research to understand the long-term effects of RFID adoption on customer loyalty and repeat purchasing behavior. This would offer a more comprehensive understanding of how technology adoption impacts customer retention and could provide valuable insights for retailers looking to leverage RFID as a tool for customer engagement and satisfaction.

5.0 CONCLUSION

In conclusion, this study provides critical insights into the relationship between the perceived usefulness and ease of use of RFID technology and customer satisfaction, focusing on Uniqlo's retail environment. By adopting the Technology Acceptance Model (TAM) as a guiding framework, the research establishes that while both constructs significantly influence customer satisfaction, ease of use is the stronger predictor. This finding underscores the growing importance of user-friendly technological solutions in enhancing the retail experience. The integration of RFID systems, as demonstrated, is instrumental in streamlining shopping processes, optimizing inventory management, and expediting checkout procedures. Such capabilities not only meet customer expectations for efficiency but also align with broader trends in digital transformation across the retail sector.

The research highlights the transformative potential of RFID technology, showing how it can elevate customer satisfaction by reducing friction points in the shopping journey. For instance, the ability to provide real-time inventory updates and faster checkout processes directly addresses common pain points in retail, reinforcing the value customers derive from these technological advancements. These findings affirm that customer satisfaction is not solely dependent on product quality or service excellence but is increasingly shaped by the adoption and effective implementation of innovative technologies.

From a theoretical standpoint, the study makes a significant contribution to the field by extending the application of the TAM framework to the retail domain, particularly within the fast-fashion industry. It fills a critical research gap by empirically exploring how perceived usefulness and ease of use influence customer satisfaction in a real-world retail setting. By doing so, the research provides a robust foundation for future studies seeking to understand the dynamics of technology adoption and its impact on consumer behavior. It also adds to the growing body of literature emphasizing the importance of aligning technological innovations with customer expectations to achieve competitive advantages.

Practically, the study offers actionable recommendations for retailers like Uniqlo. It encourages businesses to invest in user-centric designs and intuitive systems that maximize the tangible benefits perceived by customers. The findings stress the need for ongoing evaluation and refinement of RFID systems to ensure they remain aligned with evolving customer needs. Retailers are urged to view technology not merely as a tool for operational efficiency but as a strategic enabler of superior customer experiences. By doing so, they can foster deeper customer loyalty and secure a competitive edge in the rapidly evolving retail landscape.

As a take-home message, this research underscores that in an era where customer expectations are continuously shaped by technological advancements, the adoption of intuitive, functional, and value-driven solutions is essential for retail success. RFID technology, when implemented effectively, not only enhances operational performance but also transforms customer perceptions and experiences. This dual impact makes it a critical component of modern retail strategies. Looking forward, businesses must embrace a customer-centric approach to technology adoption, recognizing that the future of retail lies in creating seamless, personalized, and efficient shopping experiences. By prioritizing customer satisfaction through innovative solutions, retailers can not only meet but exceed the demands of a competitive and dynamic marketplace.

6.0 ACKNOWLEDGEMENT

The authors would like to express their sincere gratitude to Universiti Poly-Tech Malaysia for providing the resources and support necessary to complete this study. We would also like to thank all participants who contributed their time and insights to this research. Special appreciation is extended to colleagues and peers who offered valuable feedback during the development of this manuscript.

REFERENCES

- Andreoli, A., Fioretti, F., Pasqualini, S., & Pierleoni, P. (2009). An rfid based framework for race tyre companies customer satisfaction survey.. <https://doi.org/10.1109/soli.2009.5203903>
- Avlijaš, G. (2014). Impact of radio frequency identification on retail inventory management., 893-897. <https://doi.org/10.15308/sinteza-2014-893-897>
- Cunningham, N. and Meyer-Heydenrych, C. (2021). Premium versus affordable clothing retailers: what are customer expectations for satisfaction and repurchase intentions?. *International Journal of Retail & Distribution Management*, 49(6), 752-771. <https://doi.org/10.1108/ijrdm-07-2020-0265>
- Deng, Z., Lu, Y., Wei, K., & Zhang, J. (2010). Understanding customer satisfaction and loyalty: an empirical study of mobile instant messages in china. *International Journal of Information Management*, 30(4), 289-300. <https://doi.org/10.1016/j.ijinfomgt.2009.10.001>
- Djunaid, A. (2023). The effect of service quality in enhancing consumer satisfaction. *Jpim (Jurnal Penelitian Ilmu Manajemen)*, 8(2), 238-250. <https://doi.org/10.30736/jpim.v8i2.1622>
- Eisingerich, A., Auh, S., & Merlo, O. (2013). Acta non verba? the role of customer participation and word of mouth in the relationship between service firms' customer satisfaction and sales performance. *Journal of Service Research*, 17(1), 40-53. <https://doi.org/10.1177/1094670513490836>
- Ganguli, S. and Roy, S. (2011). Generic technology-based service quality dimensions in banking. *The International Journal of Bank Marketing*, 29(2), 168-189. <https://doi.org/10.1108/02652321111107648>
- Huang, Y. (2023). How does service quality improve consumer loyalty in sports fitness centers? the moderating role of sport involvement. *Sustainability*, 15(17), 12840. <https://doi.org/10.3390/su151712840>
- Jamaludin, A., & Seman, S. A. (2024, August 24). Graduate versus Non-Graduate Entrepreneurs in Urban Malaysia: Involvement in SMEs and Micro SMEs. <https://journal.uptm.edu.my/index.php/ijsep/article/view/337>
- Jin, Y., Park, Y., & Yu, J. (2019). An assessment model for evaluating asymmetric effects of attribute-level performance on satisfaction. *Sustainability*, 11(16), 4323. <https://doi.org/10.3390/su11164323>
- Kaura, V. (2013). Service convenience, customer satisfaction, and customer loyalty: study of indian commercial banks. *Journal of Global Marketing*, 26(1), 18-27. <https://doi.org/10.1080/08911762.2013.779405>
- Mafini, C. and Dhurup, M. (2015). Drivers of customer loyalty in south african retail stores. *Journal of Applied Business Research (Jabr)*, 31(4), 1295. <https://doi.org/10.19030/jabr.v31i4.9317>
- Malek, N. (2023). Exploring customer satisfaction and loyalty in the telecommunications industry: a comprehensive review. *International Journal of Management Public Policy and Research*, 2(4), 95-107. <https://doi.org/10.55829/ijmpr.v2i4.193>
- Miguel, P., Heredero, C., Botella, J., & García, A. (2022). Impact of dynamic capabilities on customer satisfaction through digital transformation in the automotive sector. *Sustainability*, 14(8), 4772. <https://doi.org/10.3390/su14084772>
- Moraru, A. and Duhnea, C. (2018). E-banking and customer satisfaction with banking services. *Strategic Management*, 23(3), 3-9. <https://doi.org/10.5937/straman1803003m>
-

- Ngo, V. and Nguyen, H. (2016). The relationship between service quality, customer satisfaction and customer loyalty: an investigation in vietnamese retail banking sector. *Journal of Competitiveness*, 8(2), 103-116.
<https://doi.org/10.7441/joc.2016.02.08>
- Park, Y., Rim, M., & Lee, S. (2013). Factors affecting customer loyalty of mobile rfid services in korea. *Technological and Economic Development of Economy*, 19(4), 687-705. <https://doi.org/10.3846/20294913.2013.837413>
- Poernomo, A. and Suharjito, S. (2019). Indonesian online travel agent sentiment analysis using machine learning methods. *Indonesian Journal of Electrical Engineering and Computer Science*, 14(1), 113.
<https://doi.org/10.11591/ijeecs.v14.i1.pp113-117>
- Preikschas, M., Cabanelas, P., Rüdiger, K., & Lampón, J. (2017). Value co-creation, dynamic capabilities and customer retention in industrial markets. *Journal of Business and Industrial Marketing*, 32(3), 409-420.
<https://doi.org/10.1108/jbim-10-2014-0215>
- Purohit, S. and Jain, A. (2022). Rfid: the silver bullet towards seamless indian petro retail customer service. *Indian Journal of Science and Technology*, 15(43), 2290-2296. <https://doi.org/10.17485/ijst/v15i43.1773>
- Saleem, M., Zahra, S., & Yaseen, A. (2017). Impact of service quality and trust on repurchase intentions – the case of pakistan airline industry. *Asia Pacific Journal of Marketing and Logistics*, 29(5), 1136-1159.
<https://doi.org/10.1108/apjml-10-2016-0192>
- Santini, F., Ladeira, W., Pinto, D., Herter, M., Sampaio, C., & Babin, B. (2020). Customer engagement in social media: a framework and meta-analysis. *Journal of the Academy of Marketing Science*, 48(6), 1211-1228.
<https://doi.org/10.1007/s11747-020-00731-5>
- Setiono, B. and Hidayat, S. (2022). Influence of service quality with the dimensions of reliability, responsiveness, assurance, empathy and tangibles on customer satisfaction. *International Journal of Economics Business and Management Research*, 06(09), 330-341. <https://doi.org/10.51505/ijebmr.2022.6924>
- Suvanmanee, W., Kee, D., Lee, Z., Low, C., Zakwan, M., Gupta, A., ... & Quttainah, M. (2020). The relationship between customer satisfaction and organizational success: a study of panasonic. *Journal of the Community Development in Asia*, 3(3), 48-57. <https://doi.org/10.32535/jcda.v3i3.889>
- Tahir, H. M., Salleh, S. M., Seman, S. A., Omar, M., Aborashang, J., & Mustapha, N. D. B. (2024). “Prospects and Perspectives: Personal Context Shaping Growth Intentions in Graduate Entrepreneurship across Malaysia.” *International Journal of Religion*, 5(10), 2199–2208. <https://doi.org/10.61707/8fhhb7086>
- Tervonen, J., Hautamäki, J., Heikkilä, M., & Isoherranen, V. (2018). Survey of business excellence by knowledge gathering for industrial internet-of-things applications. *International Journal of Management and Enterprise Development*, 17(4), 388. <https://doi.org/10.1504/ijmed.2018.10017528>
- Thayananthan, V. (2019). Healthcare management using ict and iot based 5g. *International Journal of Advanced Computer Science and Applications*, 10(4). <https://doi.org/10.14569/ijacsa.2019.0100437>
- Valmohammadi, C., Ebrahimi, F., & Mohammadi, M. (2017). Proposing a model to study the impact of rfid technology on organizational performance. *Library Review*, 66(1/2), 69-82. <https://doi.org/10.1108/lr-11-2015-01>

