



---

**THE S–O–R PERSPECTIVE THROUGH THE MEDIATION OF PERCEIVED  
VALUE IN SHAPING REUSE INTENTION**

**Muhammad Zaky Nurrahman<sup>1</sup>**  
Universitas Trisakti, Jakarta, Indonesia  
[zakynurr@gmail.com](mailto:zakynurr@gmail.com)

**Yolanda Masnita<sup>2</sup>**  
Universitas Trisakti, Jakarta, Indonesia  
[yolandamasnita@trisakti.ac.id](mailto:yolandamasnita@trisakti.ac.id)

**Kurniawati<sup>3</sup>**  
Universitas Trisakti, Jakarta, Indonesia  
[kurniawati@trisakti.ac.id](mailto:kurniawati@trisakti.ac.id)

---

**Abstract**

The fast-food industry increasingly deploys Self-Service Technologies (SSTs) to enhance operational efficiency. However, sustaining user retention remains challenging, compounded by a recent theoretical anomaly where traditional Service Quality failed to predict usage intention in automated contexts. Addressing this gap, this study re-evaluates the Stimulus-Organism-Response (S-O-R) framework by replacing the insignificant Service Quality variable with System Quality and integrating Perceived Value as a mediator. Analyzing data from 221 respondents using PLS-SEM, results reveal that technical stimuli—specifically System Quality and Design Quality—significantly enhance Perceived Value ( $R^2=0.783$ ), which subsequently acts as a dominant mediator in shaping Reuse Intention ( $R^2=0.585$ ). Theoretically, this resolves the "service paradox" in developing economies, confirming that technical reliability replaces traditional service attributes. Practically, managers must prioritize zero-error stability, as consumers perceive technical efficiency as the primary utility driving sustainable reuse behavior.

**Keywords:** Self-Service Technology; Perceived Value; S-O-R Framework; Intention to Reuse



## INTRODUCTION

A massive digital transformation is currently sweeping the fast-food industry in developing countries, including Indonesia. This sector plays a vital role in the national economy, and the landscape is shifting rapidly due to changing consumer preferences in the post-pandemic era. Empirical data suggests that the continuance intention to use Self-Service Technologies (SSTs) is now primarily motivated by perceived usefulness and efficiency, even after social distancing mandates were lifted (Koay & Ang, 2024). Consequently, large restaurant chains such as KFC, McDonald's, and Solaria have integrated these systems not just for safety, but as a strategic standard to optimize operational efficiency and meet modern customer expectations (Abas et al., 2025).

Yet, there is a core problem in the shift of technology: the risk of depersonalizing the service. Technology, for all its top efficiency features, also appears to replace the human touch, which could hurt customer emotional connections because machines have no way of delivering empathy and warmth like personal encounters do (Lantican, 2025). This problem is magnified by customer refusal to use the system when, due to unclear interfaces or system errors, customers feel frustrated by the process (Shahril et al., 2021). Consequently, maintaining customer trust and loyalty becomes much more difficult in this era of non-interpersonal service (Parvez et al., 2025). Accordingly, the strategic concerns of restaurant managers have transitioned from adoption to retention—specifically, determining what factors drive repeat use over time.

The use of self-service ordering technology is now increasingly widespread. However, there is a confusing theoretical inconsistency in the current service marketing literature. A recent empirical study in the restaurant sector found a striking anomaly: the Quality of Service variable proved to have no significant effect on customers' willingness to use this technology (Parvez et al., 2025). This finding indicates that general service attributes fail to function as effective environmental stimuli in a fully automated context. This gap calls for a re-evaluation of the stimuli, suggesting that customers in unassisted environments prioritize the technical quality of the system rather than general service interactions (Gunawan et al., 2025).

This study was designed to fill this empirical gap. First, this study replaces the insignificant Quality of Service with System Quality, drawing from the framework of (Gunawan et al., 2025). This technical aspect—covering system stability and speed—is considered to have a more dominant influence on customer perceptions in the context of unassisted services. Second, this study



places Perceived Value as a crucial mediator in the S-O-R model, as suggested by Value-Based Adoption literature (Harjati et al., 2025). Value evaluation serves to bridge technical features with customer loyalty behavior responses. Third, this study adjusts the output context by focusing on Intention to Reuse, which is considered a more essential sustainability indicator than tipping behavior in the Indonesian context (Syahputera et al., 2025).

Based on these research gaps, this study focuses on testing the mechanism of loyalty formation through the extended S-O-R perspective. Specifically, the study analyzes the influence of Design Quality, System Quality, and Time Savings on Perceived Value. The study then tests the impact of these values on the Intention to Reuse directly. The findings of this study are expected to enrich the service marketing literature on the application of S-O-R in self-service and provide strategic insights for business owners in prioritizing technology investments (Gunawan et al., 2025; Parvez et al., 2025).

## LITERATURE REVIEW

### S-O-R Framework

This study adopts the Stimulus-Organism-Response (S-O-R) framework as the overarching theoretical basis for analyzing the behavioral mechanisms of self-service technology users (Gunawan et al., 2025; Parvez et al., 2025). The fundamental postulate of this theory posits that external environmental signals (stimuli) influence internal cognitive and emotional states (organism) before ultimately manifesting in specific behavioral responses. In the architecture of this research model, technical attribute variables—comprising Design Quality, System Quality, and Time Savings—are categorized as environmental Stimuli that trigger initial user reactions (Abas et al., 2025; Shahril et al., 2021). Subsequently, these stimuli are processed through internal evaluation into Perceived Value, which functions as the Organism or cognitive mediator in the decision-making process (Harjati et al., 2025; Syahputera et al., 2025). A positive internal assessment of value then drives a behavioral Response in the form of a continuous Intention to Reuse (Abas et al., 2025; Wu et al., 2024). Thus, this framework provides a comprehensive perspective that customer retention depends not merely on technological sophistication, but on the perception of value formed in the consumer's mind.

### Quality of Design

Design quality reflects the synergy between visual aesthetic appeal and the technical functionality of the user interface (UI) in self-service technology (Iskender et al., 2022; Parvez et al., 2025; Shahril et al., 2021). In the realm of



human-computer interaction, design is not merely a decorative element but a critical determinant of information clarity and navigation accuracy. Yiğitoğlu et al. (2025) emphasize that visual clarity in digital menus is highly effective in mitigating customer risk perception and confusion during product selection. Furthermore, intuitive designs, often associated with Perceived Ease of Use, have been shown to significantly reduce the cognitive effort required from consumers during the ordering process (Abdurrozzak & Fahrudi, 2025; Harjati et al., 2025; Koay & Ang, 2024; Lantican, 2025). This is reinforced by (Gunawan et al., 2025), who state that a user-friendly interface acts as the primary touchpoint determining technology acceptance, where poor layout can trigger transaction abandonment. Additionally, Indrayani & Muhammad (2022) note that customization aspects in display design contribute to visual comfort, thereby driving user satisfaction with food delivery services (Shunmugasundaram et al., 2025; Syahputera et al., 2025).

*H1: Quality of Design significantly fosters the creation of Perceived Value.*

### **System Quality**

System quality represents consumers' perceptions of the technical performance of the self-service technology, encompassing reliability, access speed, and operational stability (Hashim et al., 2023). From a quality management perspective, Diani et al. (2025) emphasize that system reliability is not merely a complementary feature, but the foundational pillar determining the quality of digital interactions (brand-relationship quality). Specifically, systems that are error-free and easy to operate have proven to be absolute prerequisites for user satisfaction in fast-food restaurants, as found by (Gunawan et al., 2025). Furthermore, responsiveness plays a vital role; Nugraha et al. (2022) demonstrate that intelligent systems capable of executing commands instantly significantly enhance the perception of online convenience. Seo & Lee (2025) add that in technology-based service environments, such as robotics, this technical reliability is directly converted by consumers into high utilitarian value. This aligns with (Wu et al., 2024), who concluded that platform stability is key to building trust and minimizing perceptions of technical risk (Indrayani & Muhammad, 2022).

*H2: System Quality acts as a robust predictor of Perceived Value.*

### **Time Saving**

Time saving is defined as the consumer's utilitarian perception that using self-service technology significantly accelerates the ordering and payment process compared to conventional methods (Abas et al., 2025). In technology adoption literature, this efficiency is often conceptualized as part of Performance



Expectancy, a key motivator for switching to digital services. An empirical study by (Abas et al., 2025) confirms that for Millennials and Gen Z in Indonesia, time saving is not just a preference but a critical determinant directly influencing the intention to continue using food apps post-pandemic. This is relevant to Hashim et al. (2023) in the context of fast-food kiosks, where task completion speed is considered the most vital indicator of system performance. When technology effectively eliminates waiting times and physical queues, consumers perceive a substantial increase in functional value. Therefore, Gunawan et al. (2025) conclude that time efficiency is a core element guaranteeing user satisfaction in a high-speed self-service ecosystem.

*H3: Time Saving substantially enhances the consumer's Perceived Value.*

### **Perceived Value and Intention to Reuse**

Referring to (Gunawan et al., 2025), Perceived Value is defined as the consumer's comprehensive evaluation of service utility based on a rational trade-off between benefits received and sacrifices made. This variable is positioned as the critical predictor in autonomous technology adoption, aligning with the Value-based Adoption Model (VAM) proposed by (Harjati et al., 2025). In this framework, value acts as a cognitive mechanism (Organism) where consumers weigh utilitarian aspects—such as quality and time efficiency—against technical risks or efforts. Wu et al. (2024) enrich this perspective by finding that for post-pandemic digital consumers, value perception is dominated by tangible functional benefits. Recent literature consistently shows that when consumers perceive a service as "worth it," it directly triggers positive behavioral intentions (Wu et al., 2024). Therefore, creating superior value is a key determinant of customer retention success in digital ecosystems (Yiğitoğlu et al., 2025).

Intention to Reuse is defined as the subjective probability and mental commitment of consumers to continue using the self-service technology in the future. In digital marketing, this is a fundamental indicator of long-term retention. Wu et al. (2024) emphasize that reuse intention is the final behavioral response, dependent on the accumulation of satisfaction and perceived value. Empirical studies on robotic restaurants by (Seo & Lee, 2025) validate that high reuse intention leads to positive Word of Mouth. Similarly, (Syahputera et al., 2025) found that in QR code ordering, reuse intention reflects a seamless transaction experience. Thus, Parvez et al. (2025) conclude that fostering reuse intention is strategic for sustaining technology investments.

*H4: Perceived Value serves as a dominant driver of Intention to Reuse.*

### **The Mediating Role of Perceived Value**



Technical superiority alone—whether in design aesthetics or system speed—does not automatically translate into repeat usage behavior without the formation of a strong perception of value (Diani et al., 2025). In consumer psychology, this internal evaluation acts as the primary cognitive filter translating environmental stimuli into motivational impulses (Harjati et al., 2025). Setiawan et al. (2025) emphasize that this mediation occurs because rational consumers calculate the cost-benefit ratio between benefits and efforts before committing to loyalty. This is validated by (Seo & Lee, 2025), who found that infrastructure sophistication is merely a prerequisite; functional value is the ultimate determinant of adoption. Similarly, Wu et al. (2024) conclude that without positive value mediation, superior e-service quality fails to create retention. Thus, this study proposes that Perceived Value mediates the impact of all three technical stimuli.

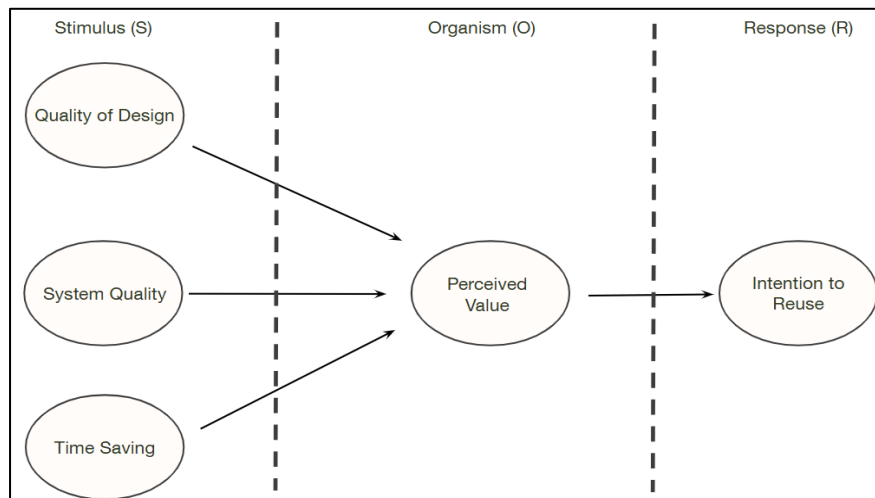
*H5: Perceived Value effectively bridges the relationship between Quality of Design and Intention to Reuse.*

*H6: Perceived Value effectively bridges the relationship between System Quality and Intention to Reuse.*

*H7: Perceived Value effectively bridges the relationship between Time Saving and Intention to Reuse.*

### **Conceptual Framework**

The conceptual framework (Figure 1) is formulated based on S-O-R logic to describe user loyalty determinants (Parvez et al., 2025). In this architecture, Design Quality, System Quality, and Time Saving are categorized as environmental Stimuli. These three technical elements influence the internal Organism evaluation of Perceived Value (Gunawan et al., 2025). Furthermore, value perception acts as a strategic mediator transforming the user experience into Reuse Intention as the final behavioral Response (Abas et al., 2025). This causality underscores that technological functional superiority must create tangible perceived benefits to ensure sustainable retention (Harjati et al., 2025).



**Figure 1.**  
**Conceptual Framework**

## RESEARCH METHOD

### Measurement and Instrument

The research instrument was developed by adapting validated scales from previous literature to ensure content validity. Measurements employed a 5-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5). The questionnaire consists of 5 latent variables manifested in 21 measurement items. Specifically, Quality of Design (7 items) and Time Saving (3 items) were adopted from (Parvez et al., 2025). Meanwhile, consistent with the S-O-R modification in this study, the System Quality construct (5 items), Perceived Value (3 items), and Intention to Reuse (3 items) were adapted from the indicators of (Gunawan et al., 2025). To ensure linguistic accuracy and conceptual equivalence, all items underwent a rigorous back-translation process from English to Indonesian and vice versa.

### Sampling and Respondents

The unit of analysis in this study comprises Indonesian consumers who have patronized limited-service restaurants in major cities. The sampling technique utilized a non-probability purposive sampling method. The inclusion criteria required respondents to be at least 17 years old and have prior experience using self-ordering technology (QR Code or Kiosk) within the last three months.

The survey yielded 221 usable responses. This sample size meets the requirements for PLS-SEM analysis, which suggests a minimum sample size of ten times the largest number of structural paths directed at a particular construct, or a minimum of 100-200 observations for stable parameter estimation (Hair et



al., 2021). Demographic characteristics indicate that the majority of respondents belong to the 26-35 age group (58.82%), followed by the 17-25 range (21.72%). In terms of occupation, the sample is dominated by private sector employees (47.96%) and civil servants/SOE employees (18.10%).

**Data Analysis and Validity**

Data analysis was performed using Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS software, selected for its robustness in handling non-normally distributed data and complex predictive models (Hair et al., 2019). The analysis proceeded in two stages, beginning with the measurement model (outer model) assessment to ensure instrument quality. Based on the results in Table 1, the convergent validity was confirmed as all item factor loadings ranged from 0.712 to 0.963, exceeding the recommended threshold of 0.708 (Hair et al., 2019). Furthermore, the Average Variance Extracted (AVE) values for all constructs ranged from 0.642 to 0.901, surpassing the required 0.50 cut-off, which indicates that the constructs explain more than half of the variance of their indicators (Hair et al., 2019). Internal consistency reliability was also established, with both Cronbach’s Alpha (0.887 – 0.945) and Composite Reliability (0.926 – 0.965) values well above the satisfactory limit of 0.70 (Hair et al., 2019).

**Table 1.**  
**Validity and Reliability Test Results**

Variable	Item	Loading Factor	AVE	Composite Reliability	Cronbach's Alpha
QOD	It is quick and easy to complete a transaction with QR code App	0.780	0.642	0.926	0.907
	The restaurant’s QR Code App understands my needs	0.833			
	The restaurant’s QR Code App provides in-depth information	0.712			
	I feel comfortable surfing a restaurant’s QR Code App	0.817			
	The restaurant’s QR Code App does not waste my time	0.829			



	The restaurant’s QR Code App has a good selection	0.789			
	The restaurant’s QR Code App offers just the right amount of personalization—not too much or too little	0.841			
SQ	I can get my service done with SST in a short time	0.858	0.741	0.935	0.912
	The service process of the SST is clear.	0.879			
	Using the SST requires little effort	0.892			
	I can get service done smoothly with the SST	0.884			
	The service function of the SST is error-free	0.785			
TS	QR Code saves effort in meal preparation	0.927	0.816	0.930	0.887
	QR Code Save time on food orders and payments	0.927			
	QR Code helps me avoid waiting time at restaurants	0.853			
PV	The SST service was appropriate given this price	0.874	0.833	0.937	0.899
	The overall SST service was acceptable given what I paid	0.937			
	The SST service offered good value	0.926			
ITR	I would use the SST again on my next visit	0.963	0.901	0.965	0.945
	I would choose to use the SST on subsequent visits	0.962			
	I would prefer to use the SST	0.922			



Source: Smart PLS 4.0 Output (2025)

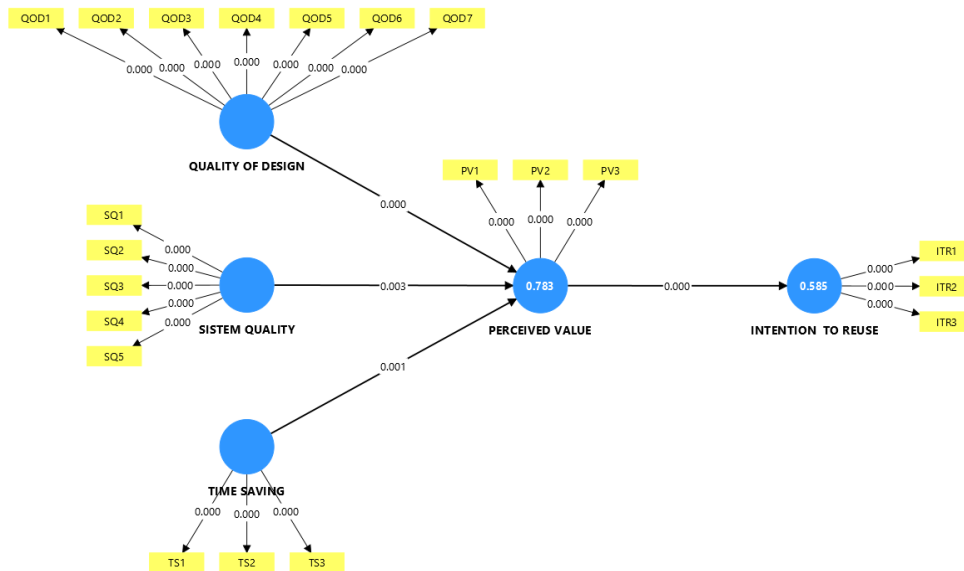
Consequently, the measurement model is declared valid and reliable, allowing for the subsequent structural model assessment (inner model) to test the proposed hypotheses (H1-H7) using a bootstrapping procedure with 5,000 subsamples (Hair et al., 2019).

## RESULTS AND DISCUSSION

Before proceeding to the structural analysis, a descriptive evaluation was conducted to assess the respondents' general consensus. The data reveals that the mean scores for all measurement items are notably high, ranging from 4.21 to 4.45 on a 5-point scale. This consistent tendency indicates that respondents positively perceive the self-service technology as having superior design quality, reliable system performance, and significant time-saving benefits. Furthermore, the relatively low standard deviations (<1.00) suggest a strong homogeneity in the respondents' favorable experiences.

Following the descriptive assessment, the measurement model (outer model) was evaluated to ensure instrument rigidity. The convergent validity was confirmed through factor loadings and Average Variance Extracted (AVE). The analysis demonstrates that all item loadings ranged from 0.712 to 0.963, significantly exceeding the recommended threshold of 0.70. Moreover, the AVE values for all constructs were robust, ranging from 0.642 (Quality of Design) to 0.901 (Intention to Reuse), surpassing the 0.50 cut-off, which confirms that the constructs explain more than half of the variance of their indicators. In terms of internal consistency, the instrument exhibited excellent reliability, with Cronbach's Alpha values ranging from 0.887 to 0.945 and Composite Reliability (CR) scores spanning from 0.926 to 0.965. Notably, the Intention to Reuse variable recorded the highest reliability, affirming the instrument's suitability for structural testing.

Upon validating the measurement model, the structural model analysis was conducted to evaluate predictive power and hypothesis testing, as visualized in Figure 2. The model demonstrated substantial explanatory power, indicated by the Coefficient of Determination ( $R^2$ ) values of 0.783 for Perceived Value and 0.585 for Intention to Reuse. This implies that the combined technical stimuli account for 78.3% of the variance in value perception.



**Figure 2.**  
**Structural Model Path Diagram**  
Source: Smart PLS 4.0 Output (2025)

Based on the bootstrapping analysis summarized in Table 2, all proposed direct paths are empirically supported. Specifically, Quality of Design emerged as the strongest environmental stimulus, significantly fostering Perceived Value ( $\beta=0.406$ ,  $t=5.519$ ,  $p<0.001$ ). Similarly, System Quality acts as a robust predictor of Perceived Value ( $\beta=0.278$ ,  $t=2.955$ ,  $p=0.003$ ), while Time Saving substantially enhances the user's utilitarian perception ( $\beta=0.257$ ,  $t=3.225$ ,  $p=0.001$ ). Furthermore, Perceived Value serves as the dominant driver of Intention to Reuse, exhibiting the strongest path coefficient in the entire model ( $\beta=0.765$ ,  $t=18.505$ ,  $p<0.001$ ).

**Table 2.**  
**Summary of Hypothesis Testing Results**

Relationship Path	Coefficient	(M)	(STDEV)	t-statistics	p-value
QOD -> PV	0.406	0.406	0.074	5.519	0.000
SQ -> PV	0.278	0.278	0.094	2.955	0.003
TS -> PV	0.257	0.257	0.080	3.225	0.001
PV -> ITR	0.765	0.765	0.041	18.505	0.000
QOD -> PV -> ITR	0.311	0.311	0.061	5.076	0.000
SQ -> PV -> ITR	0.213	0.213	0.072	2.945	0.003
TS -> PV -> ITR	0.197	0.197	0.061	3.200	0.001

Source: Smart PLS 4.0 Output (2025)



Finally, the analysis validated the crucial mediating role of Perceived Value in the loyalty formation mechanism. The specific indirect effects confirm that Perceived Value significantly bridges the relationship between technical attributes and retention. The mediation path for Quality of Design showed the largest indirect effect ( $\beta=0.311$ ,  $t=5.076$ ,  $p<0.001$ ), followed by significant mediation effects for System Quality ( $\beta=0.213$ ,  $p=0.003$ ) and Time Saving ( $\beta=0.197$ ,  $p=0.001$ ). These findings (H5-H7) imply that technical features do not automatically generate retention unless they first successfully cultivate a strong perception of value in the user's mind.

### **Discussion**

The primary objective of this study was to address a critical theoretical gap in the service marketing literature regarding the determinants of user retention in Self-Service Technology (SST) contexts. Previous research by (Parvez et al., 2025) identified a "service paradox" where traditional Service Quality measurements failed to predict usage intention in automated restaurant settings. Addressing this anomaly, this study proposed a modification to the Stimulus-Organism-Response (S-O-R) framework by replacing human-centric service attributes with technical system attributes—specifically Design Quality, System Quality, and Time Saving—as the primary environmental stimuli. The empirical results derived from 221 Indonesian respondents provide strong support for this theoretical modification, confirming that in the realm of unmanned services, the reliability and efficiency of the system effectively replace the role of human staff as the primary driver of value.

In the context of the S-O-R framework, the first phase involves identifying the environmental Stimuli (S) that trigger user reactions. The empirical results establish Quality of Design as the most influential environmental stimulus affecting Perceived Value ( $\beta=0.406$ ). This finding is statistically significant and theoretically profound. In the traditional service marketing mix, "Tangibles" (physical evidence) are crucial for building trust. In the context of SSTs, the User Interface (UI) effectively becomes the physical evidence. The high impact of design quality found in this study supports the findings of (Yiğitoğlu et al., 2025) and (Hashim et al., 2023), who argue that for digital natives, the aesthetic appeal and layout clarity of a kiosk are not merely decorative but functional. The strong correlation suggests that Indonesian consumers, particularly the Millennial and Gen Z cohorts who dominate this study's sample, utilize a "Halo Effect" heuristic: they judge the quality of the intangible service based on the tangible quality of the interface. When the menu layout is intuitive and navigation is seamless, it



reduces the user's cognitive load, which is psychologically translated into a perception of high value. Conversely, a confusing design triggers "technological anxiety," which degrades the perceived utility. This confirms (Gunawan et al., 2025)'s emphasis that the interface is the "first point of truth" in SST adoption; if the design fails to communicate ease of use, the entire value proposition collapses.

Furthermore, a substantial contribution of this study is the validation of System Quality as a robust stimulus predicting Perceived Value ( $\beta=0.278$ ). This finding directly resolves the inconsistency noted by (Parvez et al., 2025). Parvez's study utilized metrics suited for human interaction (e.g., empathy), whereas our study proves that in an automated context, the definition of "Service Assurance" shifts from human behavior to machine performance. The significant influence of System Quality confirms that for users, a system that is error-free, loads instantly, and operates consistently provides the necessary psychological assurance. This aligns with (Diani et al., 2025) and (Nugraha et al., 2022), who posit that in developing economies like Indonesia, where internet infrastructure can be intermittent, technical stability is a premium value. When a kiosk operates without crashing, it generates a sense of trust that mimics the "reliability" dimension in SERVQUAL. The respondents in this study, primarily young professionals, view technical glitches as operational failures that breach the service contract. By proving that technical reliability significantly fosters Perceived Value, this study successfully asserts that the "System" is indeed the "Service" in the S-O-R model.

The third stimulus, Time Saving, was also confirmed to significantly enhance Perceived Value ( $\beta=0.257$ ). While statistically the third strongest factor, contextually it is perhaps the most critical for the specific demographic profile of this research. With nearly 48% of respondents being private sector employees and the majority being under 35 years old, the sample represents a time-poor, high-mobility segment. For this demographic, time is a finite currency. The ability of SSTs to bypass long queues is not viewed as a "delight" feature but as a basic utilitarian expectation. This supports the post-pandemic behavioral shifts identified by (Abas et al., 2025) and (Shahril et al., 2021). The positive influence of Time Saving indicates that users perform a rational calculation: the time saved is mentally accounted for as a "benefit" that increases the overall value of the transaction. If the technology fails to deliver speed, the perceived value plummets. Thus, this study reaffirms that efficiency is the core value proposition of automation.

Moving to the Organism (O) component of the framework, this study elucidates the internal mechanism of loyalty formation through the mediating



role of Perceived Value. The structural model results show that Perceived Value is the dominant driver of Intention to Reuse ( $\beta=0.765$ ) and fully mediates the impact of technical stimuli. This validates the Organism component as an internal cognitive state where external inputs are processed. This finding resonates with the Value-Based Adoption Model (VAM) discussed by (Harjati et al., 2025) and (Setiawan et al., 2025). It suggests that consumers are rational decision-makers who constantly perform a cost-benefit analysis. They weigh the benefits (cool interface, stable system, speed) against the sacrifices. Only when the benefits significantly outweigh the costs does a high "Perceived Value" emerge. The strong mediation effect specifically for Design Quality ( $\beta=0.311$ ) highlights that a great interface is the most effective way to communicate this value proposition. The high  $R^2$  of 0.783 for Perceived Value indicates that the three chosen stimuli capture the vast majority of what Indonesian consumers consider "important," suggesting that restaurant managers should focus their resources heavily on these three technical pillars.

Finally, the study confirms the Response (R) component through the Intention to Reuse variable. The strong predictive power ( $R^2=0.585$ ) indicates that loyalty is the behavioral outcome of a positive organismic evaluation. This completes the S-O-R loop, confirming that technical stimuli—when processed as high value—lead directly to a sustainable behavioral response, as suggested by (Wu et al., 2024). The robustness of these findings is deeply rooted in the respondent profile. The dominance of "digital natives" explains the high standards for Design and System Quality. This generation, accustomed to the seamless user experiences of apps like GoFood, brings those same high expectations to in-store kiosks. The descriptive statistics showing high mean scores ( $>4.2$ ) across all variables indicate that current SST implementations are generally meeting these expectations. Additionally, the stability of the model across a sample where 60% of users have used the service for more than 3 months indicates that these findings reflect long-term behavioral patterns, not just a novelty effect. This reinforces the conclusion by (Nugraha et al., 2022) that consistent system performance is key to retaining experienced users. In summary, this study provides empirical evidence that in the Indonesian fast-food sector, the path to customer retention lies in digitizing the service experience with a focus on visual excellence, technical reliability, and strictly utilitarian time-efficiency.

## CONCLUSION



This study successfully validated the modified Stimulus-Organism-Response (S-O-R) framework in explaining the adoption behavior of Self-Service Technology (SST) in fast-food restaurants. Based on the empirical analysis, it can be concluded that technical attributes—specifically Quality of Design, System Quality, and Time Saving—function effectively as environmental stimuli that significantly drive consumer value perception. This confirms that in an automated service context, technical reliability and interface aesthetics successfully replace traditional human service attributes as the primary triggers of user comfort and retention.

Furthermore, this study concludes that Perceived Value plays a central role as the Organism that mediates the relationship between technical stimuli and behavioral responses. Consumers, particularly those from Generations Y and Z, do not adopt technology solely due to its sophistication, but rather based on a rational calculation that the technology provides efficiency benefits commensurate with the effort expended. Without a strong perception of value, advanced technological features alone are insufficient to drive a sustainable Intention to Reuse.

The findings offer strategic practical implications for restaurant managers and kiosk developers. Given that System Quality and Time Saving are proven vital determinants for the highly mobile demographic (private employees), management must implement a "zero-tolerance" standard for technical disruptions such as errors or system lag. Major investments should be allocated to routine maintenance and server responsiveness to ensure frictionless transactions. Simultaneously, developers should focus on designing User Interfaces (UI) that are not only aesthetically pleasing but strictly functional; prioritizing menu layouts that minimize "clicks" to create visual efficiency. Finally, marketing strategies should pivot from highlighting "high-tech" jargon to emphasizing narratives of "time-saving" and "anti-queuing" solutions, which resonate more deeply with the utilitarian needs of busy modern consumers.

Despite its significant contributions, this study acknowledges several limitations. First, the scope of environmental stimuli is limited to technical aspects, resulting in an  $R^2$  of 0.585 for Intention to Reuse. This indicates that 41.5% of the variance is influenced by unobserved external factors, potentially including social or marketing variables. Second, the context is strictly limited to Quick Service Restaurants (QSR) characterized by high-speed transactions, which may limit generalizability to high-touch sectors like luxury dining or hospitality. Third, the reliance on self-reported data may be susceptible to common method bias, reflecting participants' perceived norms rather than actual usage behavior.



Addressing these limitations, future research is recommended to: (1) Expand the S-O-R model by integrating social influence or situational variables (e.g., crowding level) to improve the model's predictive power; (2) Test the model in different service industries to evaluate cross-contextual consistency; and (3) Employ a mixed-method approach or longitudinal observation to validate the consistency between reported intentions and actual reuse behavior in the field.

## REFERENCES

- Abas, N. I., Puspawati, D., Praswati, A. N., & Imaduddin, H. (2025). Re-evaluating key drivers of continuance intention in mobile food ordering apps after Covid-19 pandemic in Indonesia. *Jurnal Economic Resources*, 8(2), 1557–1567. <https://doi.org/10.57178/jer.v8i2.1730>
- Abdurrozak, Z. M., & Fahrudi, A. N. L. I. (2025). Adoption of QR code menu for making order: An extended UTAUT2 approach. *Social Science Studies*, 5(5), 413–437. <https://doi.org/10.47153/sss55.20932025>
- Diani, R., Kurniawati, K., & Siagian, Y. M. (2025). Total quality management (TQM) theory approach to online customer experience using chatbot to improve brand-relationship quality. *Ekonomis: Journal of Economics and Business*, 9(2), 1209–1218. <https://doi.org/10.33087/ekonomis.v9i2.2126>
- Gunawan, S., Tambunan, W. F., & Sundjaja, A. M. (2025). Factors influencing the intention to reuse self-service technology in fast food restaurants: Integration of DeLone McLean and stimulus-organism-response. *Ingénierie Des Systèmes d'Information*, 30(2), 317–327. <https://doi.org/10.18280/isi.300203>
- Hair, J. F., Ortinau, D. J., & Harrison, D. E. (2021). *Essentials of marketing research* (5th ed.). McGraw-Hill Education.
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24.
- Harjati, F., Masnita, Y., & Kurniawati, K. (2025). Value-based adoption model to increase purchase intention in the use of virtual try-on. *Almana: Jurnal Manajemen Dan Bisnis*, 9(1), 27–41. <https://doi.org/10.36555/almana.v9i1.2750>
- Hashim, M. H., Ngelambong, A., Abdullah, D., & Campiranon, K. (2023). Examining attributes affecting fast-food restaurants' self-service ordering kiosk continuous usage intention. *ESTEEM Journal of Social Sciences and Humanities*, 7(Special Issue 1), 123–135. <https://ejssh.uitm.edu.my>



- Indrayani, R., & Muhammad, A. A. (2022). Variables that affect customer satisfaction of online food delivery service users. *Devotion: Journal of Research and Community Service*, 3(11), 1066–1078. <https://doi.org/10.36418/dev.v3i11.217>
- Isbahi, M. B., Zuana, M. M. M., & Toha, M. (2024). The Multi-Social Relation of the Cattle Industry in the Plaosan Subdistrict Animal Market of Magetan Regency. *Malacca: Journal of Management and Business Development*, 1(1), 31–46. <https://doi.org/10.69965/malacca.v1i1.51>
- Iskender, A., Sirakaya-Turk, E., Cardenas, D., & Hikmet, N. (2022). Restaurant patrons' intentions toward QR code menus in the U.S. during COVID-19: Acceptance of technology adoption model (ATAM). *Journal of Foodservice Business Research*, 27(5), 497–522. <https://doi.org/10.1080/15378020.2022.2133518>
- Koay, K. Y., & Ang, K. (2024). Understanding consumers' intentions to use QR code menus in the post-COVID-19 pandemic. *British Food Journal*, 126(5), 2172–2191. <https://doi.org/10.1108/BFJ-10-2023-0880>
- Lantican, M. L. Q. (2025). Customer satisfaction on the use of self-service technologies in selected fast-food restaurants using the technology acceptance model. *Gradiva*, 64(7), 143–159. <https://doi.org/10.5281/zenodo.16751696>
- Nugraha, Y., Masnita, Y., & Kurniawati, K. (2022). Peran responsiveness chatbot artificial intelligence dalam membentuk customer satisfaction. *Jurnal Manajemen Dan Bisnis Sriwijaya*, 20(3), 143–158. <https://doi.org/10.29259/jmbs.v20i3.19122>
- Parvez, M. O., Kim, W. G., Amin, M., Lasisi, T. T., & Dang, A. (2025). QR code usage and tipping behavior: Does gender influence consumer decisions in limited-service restaurants? *British Food Journal*, 127(8), 2849–2867. <https://doi.org/10.1108/BFJ-09-2024-0978>
- Seo, K. H., & Lee, J. H. (2025). The impact of service quality on perceived value, image, satisfaction, and revisit intention in robotic restaurants for sustainability. *Sustainability*, 17(16). <https://doi.org/10.3390/su17167422>
- Setiawan, B., Masnita, Y., & Kurniawati, K. (2025). Analysis of the influence of service quality on customer satisfaction and loyalty in the digital service industry: Insight from online shoppers in Indonesia. *Indonesian Interdisciplinary Journal of Sharia Economics (IIJSE)*, 8(3). <https://doi.org/10.31538/ijse.v8i1.5639>
- Shahril, Z., Zulkafly, H. A., Ismail, N. S., & Sharif, N. U. N. M. (2021). Customer satisfaction towards self-service kiosks for quick service restaurants (QSRs)



- in Klang Valley. *International Journal of Academic Research in Business and Social Sciences*, 11(13), 54–72. <https://doi.org/10.6007/ijarbss/v11-i13/8502>
- Shunmugasundaram, V., Srivastava, S., & Devi, P. (2025). A study on understanding QR-based m-payment adoption intention and satisfaction among consumers in India. *European Journal of Management Studies*, 1–22. <https://doi.org/10.1108/EJMS-03-2025-0024>
- Syahputera, M. A., Prawirayudha, A. G., Adisaputra, R. P., & Rahim, R. K. (2025). The impact of QR codes on customer satisfaction for repurchase intention on the basis of perceived usefulness, perceived ease of use and perceived flow in food and beverage restaurant. *Jurnal Impresi Indonesia*, 4(10), 3823–3835. <https://doi.org/10.58344/jii.v4i10.6012>
- Wu, M., Gao, J., Hayat, N., Long, S., Yang, Q., & Mamun, A. A. (2024). Modelling the significance of food delivery service quality on customer satisfaction and reuse intention. *PLoS ONE*, 19(2 February). <https://doi.org/10.1371/journal.pone.0293914>
- Yiğitoğlu, V., Şahin, E., Güneri, B., & Demir, M. Ö. (2025). The impact of sustainable QR menus on service quality and customer satisfaction: The moderating role of perceived risk. *Sustainability (Switzerland)*, 17(5). <https://doi.org/10.3390/su17052323>