



Reconciling Service Quality and Customer Satisfaction: An Integrated Expectation-Disconfirmation and Contingency Framework

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Abstract

This conceptual paper addresses two major limitations in service quality research: direct, unmediated links between SERVQUAL attributes and customer satisfaction, and empirical inconsistencies across service environments. The study synthesizes Expectation Disconfirmation Theory with SERVQUAL to introduce an integrated framework that conceptualizes the RATER dimensions as inputs operating through an expectation–disconfirmation cognitive loop. Four formal propositions explain how service typology (standardized vs. experiential), delivery channel (digital vs. physical), and cultural context moderate customer satisfaction, perceived trust, and behavioral loyalty intentions. Key insights emphasize that process reliability dominates digital environments, empathy and assurance drive high-touch encounters, and core operational failures cause asymmetric negative disconfirmation. The paper highlights strategic imperatives for precise expectation calibration and context-specific resource allocation, advancing service management theory beyond generic, one-size-fits-all models and providing a clear roadmap for future empirical research.

Keywords: Service Quality, SERVQUAL, Expectation Disconfirmation Theory, Customer Satisfaction, Contingency Framework, Digital Service Quality, Perceived Trust © MRN Publishing

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Introduction

The landscape of service delivery has undergone a profound structural shift, evolving from traditional face-to-face physical encounters into complex digital, hybrid, and omnichannel delivery ecosystems (Aggarwal *et al.*, 2024; Vatulkina *et al.*, 2020). Modern service encounters are increasingly characterized by automated systems, website user interfaces, self-service technologies, and multi-touchpoint customer journeys (Wang & Tang, 2003; Zhao & Xiong, 2011). However, foundational service quality models—most notably the traditional SERVQUAL scale—were originally designed to evaluate physical, interpersonal interactions (Parasuraman *et al.*, 1988; Seth *et al.*, 2005). Applying these classical tools to contemporary e-services, online platforms, and hybrid channels requires significant theoretical and dimensional adaptation to reflect how service quality is conceptualized and delivered across automated and digital touchpoints (Blut *et al.*, 2015; Yaya *et al.*, 2015).

Despite the widespread application of service quality frameworks, existing research suffers from two major theoretical and empirical gaps. First, a substantial portion of literature continues to employ direct, unmediated linear models that connect SERVQUAL dimensions directly to customer satisfaction (Parasuraman *et al.*, 1988; Uzir *et al.*, 2021). This approach neglects the underlying psychological mechanisms governing customer evaluation, particularly the cognitive loop of expectation baseline formation, perceived performance assessment, and expectation disconfirmation (Oliver, 1980; Yen & Lu, 2008). Empirical studies demonstrate that service quality

attributes rarely determine satisfaction directly; instead, they operate through a mediating chain of expectations, perceived performance, and disconfirmation (Alzamani *et al.*, 2026; Ong *et al.*, 2023; Rahman *et al.*, 2017).

Second, empirical studies across various sectors—including telecommunications, retail banking, healthcare, home delivery, and e-commerce—yield highly conflicting findings regarding which specific service quality dimensions drive customer satisfaction (Alzamani *et al.*, 2026; Mercado-Aravena & Jorquera-Zapata, 2026; Uzir *et al.*, 2021). Dimensions such as responsiveness or physical tangibles frequently show strong statistical significance in certain organizational settings while proving completely statistically insignificant in others (Çelik *et al.*, 2026; Igomu *et al.*, 2016; Usman, 2020). Meta-analytic findings and systematic reviews confirm that the five core RATER dimensions (Reliability, Assurance, Tangibles, Empathy, Responsiveness) exhibit substantial structural instability across distinct industry typologies, delivery channels, and cultural contexts (Blut *et al.*, 2015; Seth *et al.*, 2005; Srivastava, 2015).

To resolve these empirical contradictions and address the theoretical oversight of direct-effect models, this paper synthesizes Expectation Disconfirmation Theory (EDT) with the SERVQUAL framework into an integrated cognitive evaluation model (Ong *et al.*, 2023; Yen & Lu, 2008). The primary objectives of this study are twofold: first, to conceptualize service quality attributes not as direct drivers of satisfaction, but as performance inputs within an expectation-disconfirmation cognitive loop (Rahman *et al.*, 2017; Uzir *et al.*, 2021); and second, to formulate formal, testable contingency propositions



(P_1 through P_4) that explain how service typologies (standardized vs. experiential), delivery channels (physical, digital, or hybrid), and cultural variables moderate the cognitive evaluation pathway (Blut *et al.*, 2015; Srivastava, 2015; Vatulkina *et al.*, 2020).

Bridging EDT and SERVQUAL through a contingent lens enables this paper to advance service management theory beyond generic, one-size-fits-all dimensional models (Seth *et al.*, 2005; Srivastava, 2015). It offers a nuanced theoretical framework that reconciles historical empirical inconsistencies and provides scholars with a contingencies-based roadmap for future empirical research across digital and physical service contexts (Aggarwal *et al.*, 2024; Alzamani *et al.*, 2026; Yaya *et al.*, 2015).

Theoretical Foundations & Integrative Synthesis

Expectation Disconfirmation Theory (EDT)

The EDT, introduced by Oliver (1980), postulates that customer satisfaction is not a direct reflection of perceived performance alone, but arises from a cognitive comparison between perceived service performance and pre-consumption baseline expectations. In this cognitive evaluation mechanism, customers form initial expectation baselines prior to service consumption. Upon experiencing the service, they evaluate the realized performance against these initial baselines, yielding three psychological disconfirmation states:

1. Positive Disconfirmation: Realized service performance exceeds initial expectations, leading to heightened customer satisfaction.
2. Confirmation: Realized service performance exactly matches initial expectations, maintaining baseline satisfaction.
3. Negative Disconfirmation: Realized service performance falls below initial expectations, resulting in customer dissatisfaction.

The magnitude and strength of the disconfirmation-to-satisfaction pathway are further influenced by contextual and psychological boundary conditions. Specifically, customer expectation confidence—the degree of certainty a customer holds regarding their prior expectations—moderates the impact of performance and expectations on customer evaluations (Yi & La, 2003). Furthermore, individual expectation thresholds and tolerance zones determine how performance deviations convert into positive or negative disconfirmation states, reinforcing that satisfaction formation is a dynamic cognitive process rather than a static rating (Topaloglu & Fleming, 2017).

SERVQUAL Framework

The SERVQUAL framework, developed by Parasuraman *et al.* (1988), conceptualizes service quality across five core attributes (the RATER dimensions):

- Reliability: The ability to perform promised services dependably and accurately.
- Assurance: The knowledge, competence, and courtesy of employees that inspire trust and confidence.
- Responsiveness: The willingness to help customers and provide prompt service.
- Tangibles: The physical facilities, equipment, communication materials, and visual elements of the service setting.
- Empathy: The caring, individualized attention provided to customers.

Operationalized as an expectation–perception gap scale ($Q = P - E$), SERVQUAL has been extensively applied across public utility, telecommunications, healthcare, logistics, and retail environments (Ancarani, 2009; Calabrese, 2012; Le *et al.*, 2020; Martínez & Martínez, 2010; Miranda *et al.*, 2018; Saraei & Amini, 2012; Zhang *et al.*, 2011). However, the framework has

faced enduring scholarly criticism regarding its structural instability. Empirical studies and meta-analyses across diverse operational settings reveal that the five dimensions do not hold uniform weight or significance; specific dimensions like tangibles or responsiveness often prove statistically significant in some sectors while remaining insignificant in others (Çelik *et al.*, 2026; Mercado-Aravena & Jorquera-Zapata, 2026; Seth *et al.*, 2005; Srivastava, 2015).

Theoretical Integration

Integrating EDT with SERVQUAL provides a more theoretically coherent explanation of how service quality translates into customer outcomes than models that assume direct effects of service-quality attributes on satisfaction. In this work, the five SERVQUAL attributes—reliability, assurance, responsiveness, tangibles, and empathy—are conceptualised primarily as service-performance inputs. These attributes shape customers' perceptions of how well the service has actually been delivered, rather than automatically producing satisfaction. The resulting perceived performance is then evaluated against customers' baseline expectations, which represent their prior standards concerning the level of service they anticipate. Thus, the model shifts the analytical emphasis from a simple service-quality-to-satisfaction relationship to the cognitive process through which customers interpret and evaluate service performance (Ong *et al.*, 2023; Rahman *et al.*, 2017; Uzir *et al.*, 2021; Yen & Lu, 2008).

The central mechanism in this integration is disconfirmation formation. Customers compare perceived service performance with their baseline expectations, producing either confirmation or disconfirmation. When perceived performance meets expectations, confirmation occurs; when performance exceeds or falls below expectations, positive or negative disconfirmation is generated. This comparison provides the cognitive bridge between the service experience and subsequent customer evaluations. Accordingly, the model does not treat baseline expectations as having an independent direct effect on customer satisfaction or loyalty. Rather, expectations establish the comparison standard against which perceived performance is assessed, thereby contributing to the formation of confirmation or disconfirmation. This distinction is important because it positions expectations as part of the cognitive evaluation process rather than as a parallel predictor of downstream outcomes.

The integrated logic is consistent with empirical applications of EDT and SERVQUAL across digital, utility, and telecommunication contexts, where perceived service performance has been shown to operate through confirmation or disconfirmation processes before influencing subsequent customer evaluations and behavioural responses (Alzamani *et al.*, 2026; Ong *et al.*, 2023; Uzir *et al.*, 2021; Yen & Lu, 2008). In the present framework, disconfirmation therefore represents the principal psychological mechanism through which SERVQUAL-based performance perceptions are translated into customer satisfaction, perceived trust, and behavioural loyalty intentions. The inclusion of perceived trust extends the conventional satisfaction–loyalty sequence by recognising that customers' evaluations of service performance may also influence their confidence in the service provider and their willingness to maintain the relationship.

Consequently, the integrated SERVQUAL–EDT framework conceptualises customer retention not as an automatic consequence of high service quality, but as the downstream outcome of a performance–expectation comparison process. The five SERVQUAL dimensions influence perceived performance; perceived performance is evaluated against baseline expectations; and the resulting confirmation or disconfirmation shapes satisfaction, trust, and behavioural loyalty intentions. This formulation addresses the limitation of direct-effect service-quality models by identifying the cognitive mechanism through



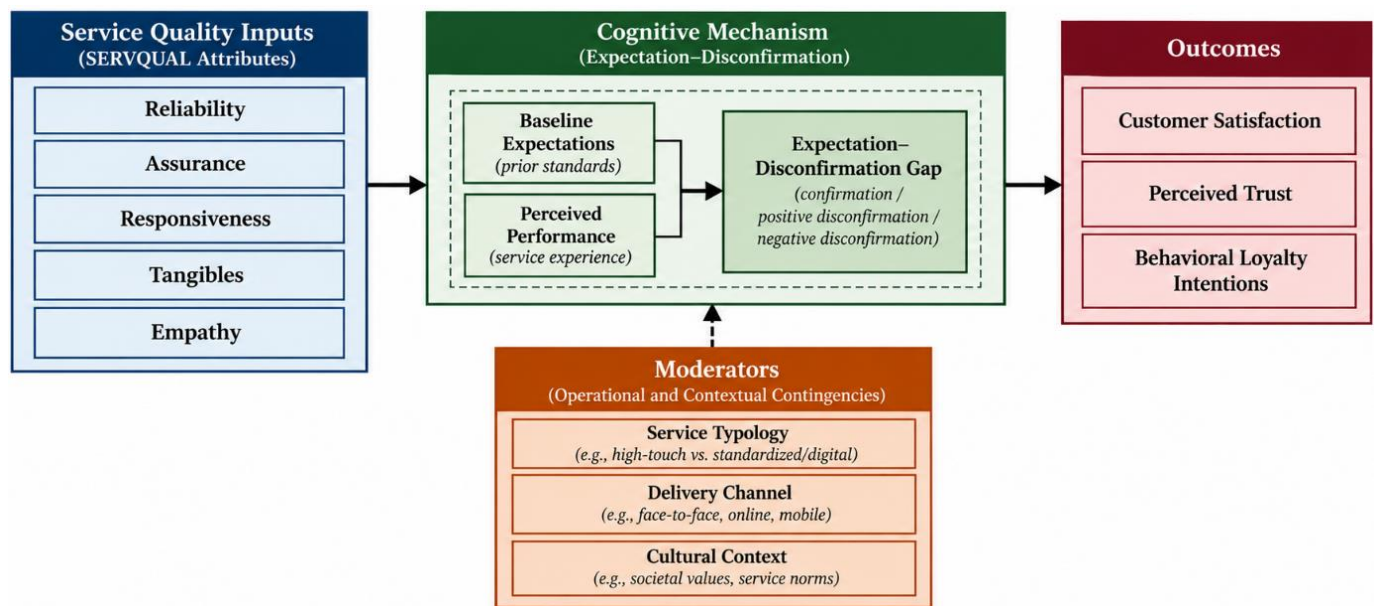


Figure 1. A Contingent SERVQUAL–Expectation Disconfirmation Model of Customer Satisfaction and Downstream Outcomes

which service quality becomes consequential. In particular, it suggests that the relationship between service quality and customer retention is fundamentally interpretive: what matters is not simply whether a service possesses desirable attributes, but whether customers perceive the resulting performance as meeting, exceeding, or falling short of what they expected (Rahman *et al.*, 2017; Yen & Lu, 2008).

Conceptual Framework & Proposition Development

To resolve historical empirical inconsistencies and advance a contingent model of service evaluation, this study synthesizes SERVQUAL attributes with EDT into an integrated cognitive framework (Figure 1). Rather than treating service quality attributes as direct antecedents of customer satisfaction, the model conceptualises the five SERVQUAL dimensions as evaluative inputs that shape baseline expectations and perceived performance, whose comparison generates an expectation–disconfirmation gap. This cognitive mechanism subsequently drives customer satisfaction and downstream outcomes, including perceived trust and behavioural loyalty intentions, while the strength and direction of these relationships vary according to operational and contextual contingencies, notably service typology, delivery channel, and cultural context.

The following propositions specify the principal mechanisms and contingencies through which the integrated SERVQUAL–EDT framework is expected to operate. Together, they address the psychological mediation, contextual variation, and asymmetric effects underlying customer satisfaction.

P₁ (Psychological Mediation): The impact of core service quality attributes (Reliability, Assurance, Responsiveness, Tangibles, Empathy) on customer satisfaction is mediated by expectation confirmation/disconfirmation rather than following a direct, unmediated path.

Literature Evidence: Empirical studies integrating SERVQUAL and EDT across public utility, telecommunications, and e-commerce sectors demonstrate that service attributes drive customer expectations and perceived performance evaluations. These dual evaluations flow through a cognitive confirmation or disconfirmation mechanism before shaping customer satisfaction and subsequent loyalty intentions (Alzamani *et al.*, 2026; Ong *et al.*, 2023; Rahman *et al.*, 2017; Uzir *et al.*, 2021; Yen & Lu, 2008). Direct-effect models omit this critical

psychological loop, failing to account for how pre-encounter expectation baselines alter perceived satisfaction.

P₂ (Digital/Standardized Contingency): In standardized or digitally mediated service environments (e.g., e-banking, online bill payment, e-commerce), operational *Reliability* and *Responsiveness* exert a significantly stronger influence on expectation disconfirmation than physical or digital *Tangibles*.

Literature Evidence: E-service quality research—including the development and validation of EC-SERVQUAL (Wang & Tang, 2003), E-Tail-SERVQUAL (Zhao & Xiong, 2011), E-S-QUAL adaptations across retail and banking (Yaya *et al.*, 2012, 2015), and e-service meta-analyses (Blut *et al.*, 2015)—consistently indicates that system fulfillment, process accuracy, and prompt issue resolution dominate customer evaluations in automated channels. Empirical evaluations of online bill payment platforms similarly reveal that core process reliability and responsiveness drive perceived performance and confirmation, whereas aesthetic or interface tangibles exert a secondary or statistically insignificant effect (Rahman *et al.*, 2017).

P₃ (High-Touch/Relational Contingency): In experiential or high-touch service environments (e.g., healthcare, personalized delivery), *Empathy* and *Assurance* exert a significantly stronger influence on positive disconfirmation than physical environment attributes or operational efficiency.

Literature Evidence: Systematic reviews and meta-analyses of service quality in healthcare organizations demonstrate that interpersonal interactions, provider empathy, trust, and perceived competence are the primary drivers of patient evaluations and overall satisfaction across international settings (Çelik *et al.*, 2026; Divya *et al.*, 2026; Mercado-Aravena & Jorquera-Zapata, 2026). Similarly, empirical investigations into home delivery service personnel highlight that employee care, interpersonal trust, and assurance mediate customer satisfaction, outperforming physical infrastructure or standardized speed metrics in high-involvement service encounters (Uzir *et al.*, 2021).

P₄ (Asymmetric Disconfirmation Effect): Negative disconfirmation resulting from failures in core service dimensions (*Reliability*) reduces customer satisfaction at a steeper rate than positive disconfirmation from peripheral dimensions (*Tangibles*) increases it.

Literature Evidence: Theoretical and experimental literature on expectation confidence and asymmetric disconfirmation reveals that customers respond disproportionately to performance deficits in core operational attributes (Topaloglu &

Fleming, 2017; Yi & La, 2003). While exceeding expectations on peripheral attributes (e.g., physical facility aesthetics or promotional extras) produces minor positive gains in satisfaction, failing to deliver on baseline functional promises (e.g., service reliability or billing accuracy) breaches the core service contract, inducing severe negative disconfirmation and sharp declines in satisfaction (Seth *et al.*, 2005).

Contextualizing Empirical Inconsistencies

Reconciling Conflicting Industry-Sector Findings

A persistent challenge in service quality literature is the variable statistical significance and relative importance assigned to individual SERVQUAL (RATER) dimensions across empirical studies. Comprehensive systematic reviews and meta-analyses confirm that the relative impact of specific service quality dimensions is not universal, but varies systematically across industry sectors, including public utilities, banking, telecommunications, hospitality, and healthcare (Çelik *et al.*, 2026; Seth *et al.*, 2005; Srivastava, 2015). In cross-sector comparisons, dimension weights shift significantly because service evaluations are inherently bound to situational factors, customer needs, and operational settings (Seth *et al.*, 2005; Srivastava, 2015).

This scale structure instability occurs because customer evaluative priorities reconfigure based on whether a service encounter is transactional and commoditized versus relational and high-involvement. In transactional and utility-driven contexts (e.g., online bill payment, public electricity supply), customers prioritize core operational accuracy, speed, and process reliability over interpersonal elements (Ong *et al.*, 2023; Rahman *et al.*, 2017). Conversely, in complex, personal, or relational environments like healthcare and customized logistics, functional efficiency alone is insufficient. Systematic reviews of hospital service environments demonstrate that complex healthcare interactions elevate interpersonal dimensions—such as empathy, assurance, and responsiveness—to key determinants of satisfaction, while dimensions like tangibility exhibit inconsistent or secondary effects (Çelik *et al.*, 2026; Divya *et al.*, 2026; Mercado-Aravena & Jorquera-Zapata, 2026).

Channel & Cultural Moderation

The physical, digital, or hybrid mode of service delivery fundamentally alters the customer baseline expectation structure, changing which specific quality dimensions drive the evaluative process (Vatolkina *et al.*, 2020). Traditional SERVQUAL metrics, designed for face-to-face physical encounters, often demonstrate dimensional breakdown when applied directly to digital interfaces (Ssemugabi, 2026; Wang & Tang, 2003; Yaya *et al.*, 2012). To address this channel mismatch, domain-adapted frameworks (e.g., EC-SERVQUAL, E-Tail-SERVQUAL, E-S-QUAL) replace physical tangibles with interface usability, security, fulfillment quality, and system recovery (Wang & Tang, 2003; Yaya *et al.*, 2015; Zhao & Xiong, 2011). In hybrid and digital service contexts, the alignment between system responsiveness and process fulfillment dictates performance perceptions, rendering traditional brick-and-mortar aesthetic dimensions non-significant (Blut *et al.*, 2015; Vatolkina *et al.*, 2020).

Cultural values and geographical contexts further explain empirical divergence in service quality assessments. A meta-analysis of cross-cultural service quality research reveals that cultural orientations—specifically collectivist versus individualist societal norms—substantially moderate how strongly individual dimensions impact customer satisfaction (Srivastava, 2015). Customers in collectivist cultures frequently place greater emphasis on empathy, interpersonal harmony, and relational assurance, whereas individualist settings prioritize personal autonomy, prompt responsiveness, and contractual reliability (Srivastava, 2015). Furthermore, meta-analytic evidence in e-

service quality confirms that national culture, regulatory environments, and regional market maturity moderate the overall strength of service attribute relationships with customer satisfaction and retention (Blut *et al.*, 2015).

Finally, sociodemographic characteristics and local operational factors account for the erratic significance of tangibility across empirical literature. Systematic healthcare reviews indicate that patient perceptions of physical facilities, equipment, and visual elements are strongly moderated by demographic profiles (such as age and income level) as well as country-specific health system structures (Çelik *et al.*, 2026; Mercado-Aravena & Jorquera-Zapata, 2026). Consequently, empirical inconsistencies in SERVQUAL findings do not reflect measurement failure, but rather demonstrate that service quality evaluation is a contingency-dependent cognitive process governed by industry type, delivery channel, cultural norms, and demographic context (Blut *et al.*, 2015; Seth *et al.*, 2005; Srivastava, 2015).

Agenda for Future Empirical Research

Methodological Recommendations

To advance service quality research beyond static, cross-sectional observations, scholars must address persistent methodological limitations in the existing literature (Seth *et al.*, 2005; Ssemugabi, 2026). The predominant reliance on cross-sectional survey designs hinders the ability to capture how customer expectation baselines evolve, how tolerance zones shift, and how disconfirmation dynamics unfold across repeated service encounters (Blut *et al.*, 2015; Vatolkina *et al.*, 2020). Future empirical studies should transition toward longitudinal panel designs and experimental scenario or vignette methodologies (Çelik *et al.*, 2026; Mercado-Aravena & Jorquera-Zapata, 2026). Experimental approaches allow researchers to systematically manipulate expectation confidence, isolate cognitive threshold shifts, and evaluate post-recovery satisfaction across distinct encounter stages (Ong *et al.*, 2023; Uzir *et al.*, 2021).

In addition, the dimensional instability of SERVQUAL across industry settings necessitates advanced statistical modeling (Srivastava, 2015; Yaya *et al.*, 2015). Scholars should employ Structural Equation Modeling with Multi-Group Analysis (SEM-MGA) to test the invariance of dimensional weights, direct relationships, and complex mediation pathways (e.g., perceived value and trust) across distinct sector typologies (e.g., public utilities vs. healthcare), cultural contexts (individualist vs. collectivist), and delivery channels (digital, physical, and hybrid) (Blut *et al.*, 2015; Rahman *et al.*, 2017; Seth *et al.*, 2005).

Emerging Research Questions

RQ1: *How do automated and AI-driven touchpoints reconfigure customer expectation baselines for Responsiveness and digital Empathy in hybrid service environments?*

As service organizations increasingly deploy artificial intelligence, algorithmic agents, and automated self-service technologies, the boundary between human interpersonal empathy and system-driven responsiveness is fundamentally reconfigured (Ssemugabi, 2026; Vatolkina *et al.*, 2020). Future research must examine whether customer expectation baselines shift when interacting with AI interface agents compared to human staff, and how digital empathy can be operationalized without compromising perceived authenticity or trust (Uzir *et al.*, 2021; Wang & Tang, 2003).

RQ2: *How do cultural norms and country-level regulatory frameworks moderate the disconfirmation thresholds that convert service performance into long-term customer retention?*

Although cross-cultural meta-analyses confirm that societal values moderate dimension weights (Srivastava, 2015), less is known about how macro-level regulatory standards (e.g., public

service guarantees and consumer protection laws) interact with cultural orientations (Ong *et al.*, 2023; Rahman *et al.*, 2017). Future empirical inquiries should examine how country-level regulatory mandates set baseline expectation thresholds and how collectivist versus individualist cultural values moderate the conversion of positive disconfirmation into long-term customer retention and brand loyalty (Blut *et al.*, 2015; Divya *et al.*, 2026).

Strategic Managerial & Policy Implications

Expectation Calibration

Service managers and public policy makers must recognize expectation management as a core strategic lever rather than focusing exclusively on service performance enhancement. Marketing communications, advertising campaigns, and public service-level agreements must be calibrated with high precision to avoid over-promising. Because customer satisfaction is governed by an expectation-disconfirmation cognitive mechanism, artificially inflated baseline expectations significantly heighten the risk of severe negative disconfirmation and customer churn when actual service delivery experiences even minor operational friction (Oliver, 1980; Topaloglu & Fleming, 2017; Yi & La, 2003). Strategic and operational policies should emphasize consistently setting and communicating accurate, transparent performance standards rather than relying on uncalibrated over-delivery tactics, as customer evaluations respond far more sharply to unexpected functional deficits than to peripheral over-performance (Seth *et al.*, 2005; Topaloglu & Fleming, 2017).

Targeted Resource Allocation

Executive decision-makers must abandon “one-size-fits-all” resource allocation models that distribute capital and operational budgets uniformly across all five generic SERVQUAL dimensions. Instead, strategic capital allocation must be tailored to the organization’s specific service typology, delivery channel, and customer interaction environment (Blut *et al.*, 2015; Seth *et al.*, 2005; Srivastava, 2015).

Digital and Automated Contexts: In standardized, digital, or self-service channels (e.g., e-banking, e-commerce, online utility payment platforms), resource allocation should focus heavily on operational reliability, system uptime, data accuracy, and swift process responsiveness, where operational failures directly trigger negative disconfirmation (Rahman *et al.*, 2017; Wang & Tang, 2003; Yaya *et al.*, 2015; Zhao & Xiong, 2011). Physical or visual tangibles in these environments yield marginal returns on customer satisfaction (Rahman *et al.*, 2017).

High-Involvement and Relational Contexts: In complex, personal, or experiential service encounters (e.g., healthcare organizations, customized delivery, social services), capital and administrative support should prioritize frontline employee empathy, training, personal care, and institutional assurance, which serve as the dominant drivers of customer trust and retention (Çelik *et al.*, 2026; Divya *et al.*, 2026; Mercado-Aravena & Jorquera-Zapata, 2026; Uzir *et al.*, 2021).

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