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Designing an Electronic Citizen Relationship Management Model in the Social Security Organization Based on the S-O-R Approach

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Abstract

The purpose of the present study is to design a model of electronic citizen relationship management in the Social Security Organization using the S-O-R (Stimulus–Organism–Response) approach (case study: Social Security Organization). In this regard, after reviewing the concepts of electronic customer relationship management, the notion of citizenship, and the Stimulus–Organism–Response framework, a qualitative method was employed to identify the indicators and components of the electronic relationship management model and to design the proposed framework. The study population consisted of experts and university professors in the fields of management and marketing. A sample of 10 experts in this domain was selected using the snowball sampling method. Data collection was conducted through expert interviews using the Delphi technique. Data analysis was performed through coding procedures in MAXQDA software. The findings revealed that the electronic citizen relationship management model in the Social Security Organization based on the S-O-R approach includes five main themes, six subthemes, and forty final indicators confirmed by experts. These themes include: (1) marketing strategies; (2) environmental factors (website); (3) external organizational factors (social and cultural, economic); (4) perceived experience (perceived value, perceived quality, perceived security, and perceived ease of use); and (5) citizens' behavioral responses and reactions (e-loyalty, interactions, and information sharing).

Keywords: electronic customer relationship management (E-CRM); citizen; Stimulus–Organism–Response (S-O-R) approach.

1. Introduction

The increasing convergence of digital technologies and citizen-oriented services has fundamentally reshaped the way public institutions interact with stakeholders. Governments and social service organizations are no longer confined to traditional, paper-based systems but are instead leveraging electronic relationship management systems to improve efficiency, transparency, and citizen satisfaction. In this digital era, understanding the dynamics of electronic customer relationship management (e-CRM) and its adaptation into electronic citizen relationship management (e-CRM for public governance) has become critical for public institutions such as the Social Security Organization, which plays a central role in citizen welfare and service delivery (Alshurideh, 2022; Yun et al., 2023). The integration of the Stimulus–Organism–Response (S-O-R) framework provides a robust theoretical lens for explaining how various technological, social, and psychological factors



stimulate citizens' experiences and behavioral responses in the digital service ecosystem (Fakhri & Mottahari, 2020; Peng, 2025).

The S-O-R model, originally developed in environmental psychology, has been extensively used to explain user behavior in digital contexts such as e-commerce, social media, and online service environments (Javadi & Murwani, 2022; Pahrudin et al., 2023). The model posits that stimuli (S) such as environmental or organizational factors trigger internal organism (O) responses like perceptions, attitudes, and emotions, which ultimately lead to observable responses (R)—for instance, behavioral intentions or loyalty. Applying this model to the management of citizen relationships through digital platforms allows for a deeper understanding of how technological design, service quality, and user experience influence citizen satisfaction, engagement, and e-loyalty (Haudi et al., 2022; Kaur, 2023). In the context of social service delivery, the S-O-R approach emphasizes that citizens' digital experiences are not merely transactional but also emotional and cognitive, affecting their trust, perception of fairness, and overall satisfaction (Arabshahi & Abbaszadeh, 2023; Chen et al., 2023).

Digital transformation has compelled both private and public sectors to adopt customer-centric systems that emphasize personalization, interaction, and long-term relationship building (Dehdashti Shahrikh et al., 2023; Massoud & Al-Dulaimi, 2023). In this respect, electronic customer relationship management (e-CRM) has evolved into a strategic instrument for optimizing interactions between organizations and users by integrating technology, information systems, and service management (Aria & Dafoulas, 2023; Naim, 2022). While the private sector has been quicker to embrace e-CRM for competitive advantage, public institutions like the Social Security Organization face unique challenges due to regulatory constraints, digital literacy levels, and infrastructural limitations (Bikzad & Jalili Nejad, 2021; Hashemi et al., 2022). The adoption of an e-CRM model tailored for citizens (e-CRM-C) offers an opportunity to bridge this gap by aligning government service systems with citizens' behavioral and psychological expectations (Akour et al., 2021; Allen et al., 2019).

From a theoretical standpoint, integrating the S-O-R framework into e-CRM provides a multidimensional structure to evaluate the mechanisms underlying citizen interactions with digital platforms. The stimulus dimension includes marketing strategies, environmental (web-related) factors, and external socio-cultural and economic variables (Khoram et al., 2021; Taghvaifard et al., 2019). These factors shape citizens' perceptions of service accessibility, communication transparency, and perceived benefits. The organism component represents internal perceptions such as perceived value, quality, security, and ease of use—key constructs that mediate between technological stimuli and behavioral outcomes (Khodaami et al., 2020; Shah Tahmasbi et al., 2019). Finally, the response phase encompasses behavioral reactions like e-loyalty, engagement, and information sharing, which reflect citizens' satisfaction and willingness to maintain long-term digital interactions with the organization (Haudi et al., 2022; Savira et al., 2022).

In recent years, empirical studies have underscored that the application of e-CRM in public organizations enhances service quality, information transparency, and citizen empowerment, leading to higher e-participation and trust (Alshurideh et al., 2020; Arabshahi & Abbaszadeh, 2023). Research by (Allen et al., 2019) demonstrated that e-participation in smart city initiatives fosters stronger public service outcomes by engaging citizens in co-production processes. Similarly, the findings of (Bikzad & Jalili Nejad, 2021) revealed that the pathology of digital governance often stems from poor integration of user experience in electronic government systems. Thus, effective e-CRM requires a holistic understanding of both technological and human factors to ensure user-centered service delivery.

Public organizations, particularly social security agencies, handle large volumes of sensitive data and transactions that necessitate robust digital infrastructures (Babaahmadi Tangagazi & Karrahi Moghadam, 2020; Heij et al., 2020). The modernization of administrative systems through advanced information technology facilitates not only operational efficiency but also fosters digital inclusivity, enabling citizens in remote areas to access essential services (Jafari & Yaghoubi Jahromi, 2018; Kiani, 2021). However, technological readiness alone is insufficient unless accompanied by organizational learning and citizen trust-building mechanisms (Guo et al., 2019; Jafari & Yaghoubi Jahromi, 2018). The adoption of AI-driven CRM tools, automation, and predictive analytics can enhance personalization and responsiveness in public e-services (Agrawal et



al., 2017; Yun et al., 2023), but their success depends on ensuring data security and maintaining transparency in citizen interactions (Fakhri & Mottahari, 2020; Mohammad Shafiei et al., 2020).

Moreover, the perceived experience of citizens acts as a central mediator between system quality and behavioral responses. According to (Chen et al., 2023), the perceived experience, which combines cognitive and emotional evaluations, directly affects users' engagement with digital platforms. In a similar vein, (Dehdashti Shahrikh et al., 2023) found that customer experience modeling can serve as a diagnostic tool to enhance customer management in high-contact industries. Translating this perspective into a governmental context means that understanding how citizens perceive the usability, reliability, and emotional appeal of digital services is crucial to fostering sustained digital participation (Khodaami et al., 2020; Pahrudin et al., 2023).

The stimulus dimension also incorporates environmental factors, particularly website functionality, design simplicity, and service accessibility, which are significant drivers of citizens' digital satisfaction (Haudi et al., 2022; Massoud & Al-Dulaimi, 2023). As (Kaur, 2023) highlighted, the success of e-CRM practices in the banking sector relies heavily on usability and communication transparency—an insight equally applicable to public institutions. Furthermore, marketing strategies such as value-based incentives, personalization, and trust-based communication have shown to enhance perceived service quality and e-loyalty (Naim, 2022; Shah Tahmasbi et al., 2019). The Social Security Organization can leverage these findings by integrating user feedback mechanisms, dynamic content delivery, and multi-channel communication strategies to build long-term citizen engagement (Aria & Dafoulas, 2023; Peng, 2025).

The organism in the S-O-R model captures how citizens process and internalize their digital experiences through constructs like perceived value, quality, security, and ease of use (Fakhri & Mottahari, 2020; Khoram et al., 2021). These factors have been found to influence satisfaction and intention to reuse e-services. For example, (Akour et al., 2021) demonstrated that perceived ease of use and usefulness significantly predict user intention in mobile learning systems. Likewise, (Haudi et al., 2022) confirmed that e-CRM and e-marketing efforts foster e-loyalty when users perceive digital systems as secure, efficient, and beneficial. In social welfare systems, ensuring that online platforms are intuitive, safe, and responsive to citizens' needs enhances both perceived service value and institutional credibility (Alshurideh, 2022; Hashemi et al., 2022).

At the response stage, behavioral outcomes such as e-loyalty and digital engagement determine the overall success of the relationship management model (Massoud & Al-Dulaimi, 2023; Savira et al., 2022). Research by (Javadi & Murwani, 2022) confirmed that online behavioral intention is influenced by perceived trust and satisfaction, which are shaped by users' interactive experiences on digital platforms. Similarly, (Haudi et al., 2022) emphasized the pivotal role of e-CRM in nurturing long-term relationships through continuous digital communication and feedback. In the public sector, these outcomes translate to citizens' sustained use of online services, increased participation in policy processes, and enhanced public trust in government institutions (Allen et al., 2019; Bikzad & Jalili Nejad, 2021).

In the case of the Social Security Organization, the integration of e-CRM with the S-O-R framework supports a systematic approach to digital transformation. It enables the identification of factors that stimulate citizen engagement (stimuli), shape their digital experience (organism), and predict their behavioral responses (response) (Khodaami et al., 2020; Taghvaifard et al., 2019). As (Heij et al., 2020) and (Guo et al., 2019) noted, innovation management and process optimization are essential for sustaining digital infrastructure performance. The dynamic nature of e-governance requires continuous adaptation to citizens' evolving expectations, technological advancements, and socio-economic conditions (Jabali & Abdi, 2020; Kiani, 2021).

In conclusion, the growing importance of electronic citizen relationship management (e-CRM-C) within the public sector highlights the need for models that integrate technological, organizational, and behavioral perspectives.



2. Methods and Materials

In the present study, the research strategy is based on a qualitative approach, as there is a lack of theoretical foundations sufficient for gaining a comprehensive understanding of the key indicators related to the issue and their interrelationships. Qualitative research generally has an exploratory nature and is used in situations where there is concern regarding understanding how phenomena occur and how they are interconnected, or when sufficient knowledge of the main indicators and their relationships is lacking due to limited theoretical foundations.

In the first stage of the present study, by employing a library method and conducting expert interviews, the collected data were transcribed in MAXQDA software. Through open and axial coding, the indicators and components were identified and summarized. Subsequently, using the Delphi method, the indicators and components were validated by experts, and in the next stage, through selective coding, the final framework of the model was developed.

3. Findings and Results

The findings of the research derived from the Delphi technique and coding are presented below by stages.

In grounded theory, open coding is an analytical process during which concepts are identified and expanded based on their characteristics and dimensions. The interviews conducted with experts were fully transcribed into MAXQDA software and reviewed several times to achieve a comprehensive understanding of their content. Then, the main themes and concepts were extracted from each interview statement and related articles, conceptualized, and labeled using specific codes. In open coding, the researcher extracts meaning from every statement, sentence, and section of the interviews, and the conceptual extraction is performed from textual documents. After completing the open coding stage, the initial indicators were extracted. The primary goal of open coding is to fragment and understand the text, connect the resulting components, develop categories, and organize them systematically. In this stage, 43 initial indicators were identified.

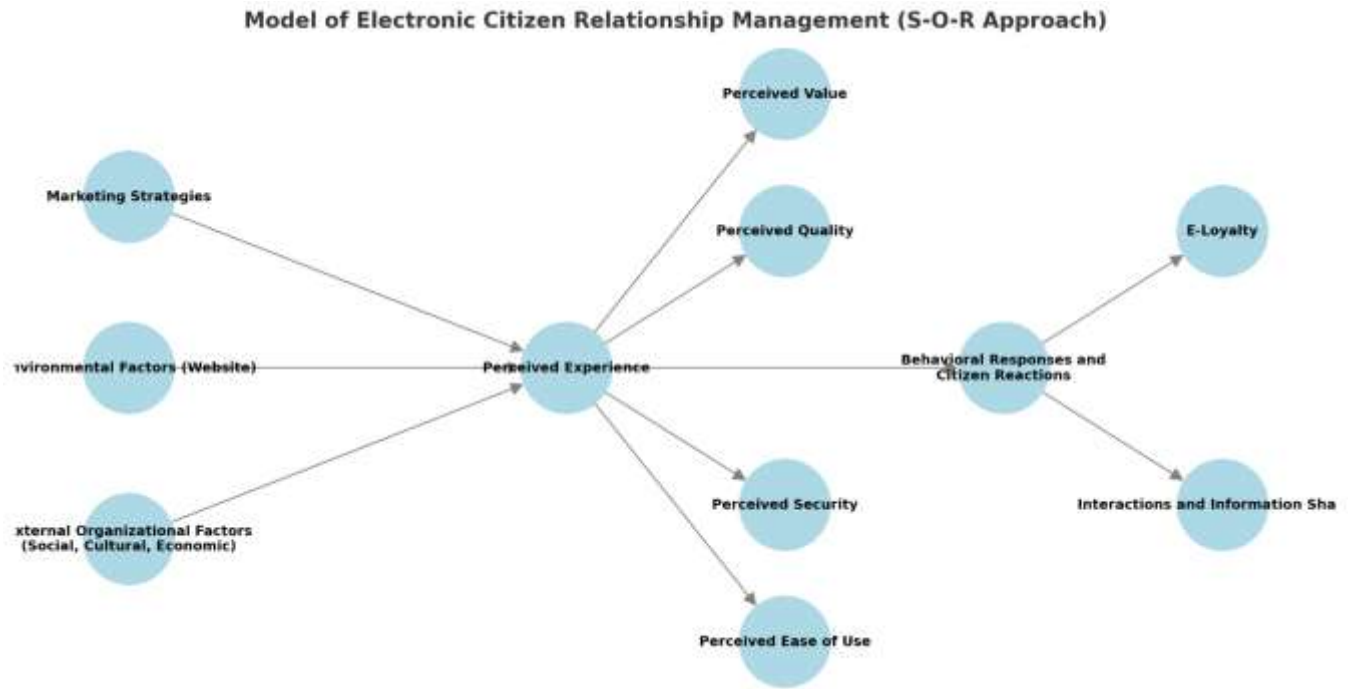
The basis of categorization in axial coding lies in reviewing previous studies, acquiring sufficient knowledge and theoretical mastery of the subject matter, and developing insights to identify commonalities among indicators around a specific axis. At this stage, the shared features among concepts were determined and categorized, leading to the formation of components and categories. Here, the researcher engages in category development. This phase begins once all data have been coded and compiled, and a list of various codes is created. Subsequently, the analysis process starts, focusing on how different codes can be combined to form a set of main and subcomponents.

In this stage, five main themes, six subthemes, and forty-three indicators were categorized. These themes included: (1) marketing strategies; (2) environmental factors (website); (3) external organizational factors (social and cultural, economic); (4) perceived experience (perceived value, perceived quality, perceived security, and perceived ease of use); and (5) citizens' behavioral responses and reactions (e-loyalty, interactions, and information sharing).

Since this study is qualitative, it follows an inductive logic (from specific to general). Therefore, it proceeds from evidence toward explanation, gradually reaching more abstract concepts at each stage (from indicator to component, from component to dimension, and from dimension to concept). Ultimately, after extracting the identified indicators, the Delphi method was used to validate them through expert judgment.

Based on the identified concepts and categories, the theoretical model is presented as follows:



**Figure 1. The Results of Selective Coding**

In the Delphi process, to assess the validity of the indicators and components after open and axial coding, the opinions of ten experts were collected over three rounds through a yes/no questionnaire. Then, by assigning a score from 1 to 5 to indicate the level of importance of each indicator (very low = 1 to very high = 5) and applying a mean threshold of ≥ 3 based on the five-point Likert scale, some indicators were eliminated. Finally, five main themes, six subthemes, and forty indicators were classified and validated by experts. The results obtained from the three Delphi rounds and the indicators confirmed by experts are summarized in Table 1.

Table 1. Summary of the Three Rounds of the Delphi Research

Main Theme	Indicators
Citizen participation strategies by the Social Security Organization	1. In this organization, administrative systems have been modernized using advanced information technologies, and electronic communication is established to provide services to citizens. 2. Citizens use the organization's online service platform to access electronic services. 3. Digital service delivery in this organization is carried out by simplifying executive regulations and using simple, direct, informal, and non-complex communication language. 4. The organization employs pricing incentives (differential premium payment rates, discounts, and credit offerings) as online marketing mix strategies. 5. The organization's communication strategies consider population needs, characteristics, local conditions, and linguistic and cultural barriers. 6. Digitalization of correspondence, announcements, and non-systematic notifications to facilitate communication between the organization and the public leads to improved service quality and enhanced organizational reputation (perceived ease, perceived experience).
Environmental factors (website)	7. The design of the organization's service websites is always client-oriented, emphasizing transparency and traceability. 8. Within the organization, the expansion of insurance coverage and support for human and social capital has been strengthened through modern technologies and the use of artificial intelligence. 9. The organization continuously identifies customer needs regarding the structure and design of customer-centered websites to enhance organizational agility. 10. With a client-centered approach, the organization strives to improve user experience through digital service expansion, strengthening electronic communication, empathy, and goodwill with its audiences. 11. On the organization's website, ease of use, independence, online information dissemination, and increased service delivery speed to insured individuals are ensured through a permanent virtual assistant. 12. The organization's website raises awareness by establishing a knowledge base concerning newly issued directives and circulars. 13. The organization's online service platform includes control tools to prevent errors and fraud. 14. Information access on the organization's service website has been simplified. 15. Work processes on the service website are accessible via various smart communication devices.

External organizational factors (social, cultural, and economic)	16. The organization's service website provides transparent and accurate information for decision-making and calculations.
	17. The organization's website considers time and cost savings for users.
	18. Social activities have expanded in the organization, and labor relations have been structured through the extension of social security coverage to all digital occupations entering the formal economy.
	19. The organization continually creates opportunities for employment, income generation, and social division of labor.
	20. Providing services to the organization's audience in remote areas or various cities has become feasible.
Perceived value — <i>Perceived experience</i>	21. The organization consistently seeks to address citizens' economic needs and ensure their financial security considering the diversity of needs.
	22. Geographic restrictions for electronic service providers and recipients have been eliminated in the organization.
	23. The organization's client database, online request systems, and digital payment methods play an important role in accelerating social support responses and maintaining service continuity in crisis conditions.
Perceived value — <i>Perceived quality</i>	24. There is an increase in public satisfaction with the resulting welfare level and the sense of pleasure derived from simplified virtual service delivery.
	25. The level of satisfaction among users regarding expert guidance and electronic consultation processes is favorable.
Perceived value — <i>Perceived security</i>	26. The organization's electronic responsiveness aligns with audience needs and expectations.
	27. The organization has contributed to improving citizens' quality of life, along with peace of mind, financial satisfaction, and economic well-being.
	28. Platform-based digital workers enjoy the legal right to social insurance benefits.
Perceived value — <i>Perceived ease of use</i>	29. To what extent have standards related to error detection, prevention, and fraud control been embedded in the organization's ICT systems?
	30. Financial security of communication channels for users is ensured on the organization's website.
	31. The organization's website ensures the security of recording, maintaining, and preserving insurance records and personal data.
	32. There is coordination and integration among all digital public services provided by the organization.
	33. Forms for accessing services, retrieving information, and completing workflows have been simplified across all smart devices, resulting in time and cost savings for users.
E-loyalty — <i>Behavioral responses and citizen reactions</i>	34. Waiting times have been reduced due to minimized processing durations for registration, file transfer, and smart card verification.
	35. Electronic services are available 24 hours a day.
	36. Citizens intend to use the organization's electronic services in the future and recommend them to others.
E-loyalty — <i>Interactions and information sharing</i>	37. Advertising costs have decreased due to word-of-mouth promotion by users.
	38. Feedback collection from users is conducted electronically.
	39. Citizens share organizational information and disseminate institutional news.
	40. Effective online interactions between users and the organization are established.

4. Discussion and Conclusion

The results of this study, aimed at designing an Electronic Citizen Relationship Management (E-CRM-C) model for the Social Security Organization based on the Stimulus–Organism–Response (S-O-R) framework, revealed a comprehensive structure comprising five main dimensions, six subthemes, and forty validated indicators. These dimensions include (1) marketing strategies, (2) environmental factors (website), (3) external organizational factors (social, cultural, economic), (4) perceived experience (encompassing perceived value, perceived quality, perceived security, and perceived ease of use), and (5) citizens' behavioral responses and reactions (including e-loyalty and information sharing). Collectively, the model demonstrates how technological, environmental, and socio-psychological stimuli interact to shape citizens' perceptions and behavioral outcomes in digital service systems.

The findings indicate that marketing strategies are critical stimuli that influence citizens' perceptions of digital service quality and satisfaction. In this study, marketing-related initiatives such as transparent communication, simplified service procedures, and differentiated pricing incentives (for example, premium discounts and credits) were found to enhance the perceived value and accessibility of the Social Security Organization's digital services. These findings are consistent with prior research highlighting that marketing efforts within digital governance environments serve as catalysts for trust formation and user engagement (Arabshahi & Abbaszadeh, 2023; Haudi et al., 2022). Similarly, (Shah Tahmasbi et al., 2019) and



(Massoud & Al-Dulaimi, 2023) confirmed that marketing orientation and relationship-based strategies positively affect service innovation and customer retention. The results also align with (Alshurideh, 2022), who found that E-CRM implementation directly enhances service quality and customer satisfaction in service-oriented institutions. Within a governmental context, these strategies help foster citizen participation and loyalty by promoting openness and reliability in institutional communication.

Page | 7

Moreover, the study identified environmental factors, specifically website design, accessibility, and digital communication interfaces, as powerful antecedents of perceived experience. The results demonstrated that ease of navigation, transparency, and visual coherence significantly increase citizens' perceived ease of use and emotional engagement. These findings support (Kaur, 2023), who observed that E-CRM effectiveness in banking sectors largely depends on user-friendly digital interfaces and website usability. Likewise, (Naim, 2022) emphasized that user-centric digital platforms contribute to the co-creation of service value through social E-CRM mechanisms. The findings of this research also resonate with (Allen et al., 2019), who found that e-participation platforms in smart city projects significantly improved citizen engagement when design simplicity and interactivity were prioritized. In the Social Security Organization, a similar pattern emerges: website transparency, real-time support tools, and intuitive workflows enhance perceived convenience and digital trust, ultimately reinforcing e-loyalty among users.

The third dimension—external organizational factors, including social, cultural, and economic elements—was shown to significantly shape citizens' engagement and behavioral outcomes. The findings revealed that socio-economic inclusivity and cultural adaptability of digital services contribute to users' sense of belonging and perceived fairness. This aligns with (Kiani, 2021), who reported that expanding social insurance coverage and inclusive support mechanisms improve public trust and participation among diverse citizen groups. Similarly, (Taghvaifard et al., 2019) highlighted the importance of integrating social media and cultural responsiveness in e-government services to increase digital inclusivity. Moreover, (Hashemi et al., 2022) emphasized that digital systems promoting equity and transparency improve citizens' perception of institutional justice, leading to stronger loyalty and compliance. In the current study, ensuring economic accessibility—such as offering online services to remote populations and lowering participation barriers—emerged as a critical success factor for digital relationship management.

The perceived experience dimension acted as the central organismic construct in the model, mediating between technological stimuli and behavioral responses. The findings revealed that perceived value, quality, security, and ease of use collectively determine the emotional and cognitive evaluations that drive citizens' behavioral intentions. For instance, citizens who perceived higher system reliability and data protection reported greater satisfaction and willingness to reuse the organization's online platforms. These results correspond with the findings of (Fakhri & Mottahari, 2020), who applied the S-O-R model to retail contexts and found that perceived experience mediates the relationship between marketing communication and consumer behavior. Similarly, (Dehdashti Shahrikh et al., 2023) confirmed that positive experiential attributes significantly strengthen user commitment and trust. (Chen et al., 2023) also emphasized that memorable experiences in digital environments enhance connectedness, emotional value, and sustainable engagement. In this context, citizens' perceived security and ease of use are essential psychological responses that mediate between digital stimuli (website and communication systems) and behavioral loyalty outcomes.

Perceived security, in particular, played a decisive role in citizens' engagement behavior, given the sensitivity of social security information. The results demonstrated that when users trusted the system's capacity to protect their data and ensure transaction transparency, they were more likely to share information and interact with the platform. These findings are consistent with (Mohammad Shafiei et al., 2020), who noted that data integrity and privacy protection are foundational to sustainable E-CRM adoption. Likewise, (Babaahmadi Tangagazi & Karrahi Moghadam, 2020) found that technical barriers, particularly concerns over data confidentiality, significantly hindered the implementation of electronic insurance services. The Social Security Organization's approach to developing secure digital ecosystems thus serves as a behavioral stimulus, enhancing confidence and encouraging recurrent use.



Another key finding of this study is the effect of perceived ease of use on citizens' e-loyalty. As suggested by (Akour et al., 2021), intuitive digital platforms encourage user adoption by minimizing perceived complexity and increasing functional efficiency. This is also supported by (Alshurideh et al., 2020), who emphasized that digital systems that integrate artificial intelligence and machine learning can predict user needs and simplify their interaction journey. The Social Security Organization's emphasis on designing accessible and responsive interfaces—such as integrating 24-hour service availability and virtual assistants—reflects this principle. Furthermore, consistent with (Guo et al., 2019), the study demonstrates that efficient digital infrastructure reduces citizens' cognitive load, fostering greater engagement and satisfaction.

The behavioral response dimension captures the final stage of the S-O-R process, where citizens' perceptions translate into concrete actions such as e-loyalty, interaction, and information sharing. The findings revealed that citizens who reported positive digital experiences and high perceived value were more inclined to recommend services, participate in online discussions, and maintain active engagement with the organization's platform. This aligns with (Haudi et al., 2022), who found that e-CRM directly contributes to e-loyalty through enhanced interaction quality and personalization. Similarly, (Savira et al., 2022) demonstrated that E-CRM practices significantly influence customer satisfaction, which in turn fosters repeat engagement. In a public service context, these behaviors correspond to higher e-participation and long-term trust in institutional governance. (Allen et al., 2019) corroborated these findings, showing that citizen co-production in digital governance improves overall service quality and civic involvement.

The interplay between stimulus, organism, and response dimensions reinforces the relevance of the S-O-R model as a theoretical framework for understanding digital behavior in public organizations. The current study's model provides empirical support for the mediating role of perceived experience in translating technological and environmental stimuli into behavioral loyalty. These results are in line with (Pahrudin et al., 2023), who confirmed that in post-disaster tourism contexts, users' cognitive and emotional evaluations mediate the impact of environmental stimuli on behavioral intention. Similarly, (Peng, 2025) applied the S-O-R model to live-stream shopping behavior and found that stimuli such as trust cues and social interaction significantly influence impulse responses through perceived pleasure and involvement. In the context of the Social Security Organization, this suggests that citizens' engagement is shaped by both extrinsic (technological and social) and intrinsic (psychological and experiential) motivators.

The integration of these findings provides practical and theoretical implications for public digital management. The study empirically demonstrates that applying the S-O-R model to the e-CRM framework enhances understanding of citizens' digital engagement mechanisms in service organizations. It also confirms that emotional and cognitive experiences play a decisive role in determining the success of digital governance systems. This is consistent with the findings of (Aria & Dafoulas, 2023) and (Khoram et al., 2021), who concluded that readiness for digital transformation depends on aligning technological capabilities with citizens' emotional satisfaction and perceived service value. Additionally, the findings echo (Heij et al., 2020), who argued that management innovation amplifies the effectiveness of technological investments by fostering adaptability and human-centered practices. Therefore, the present model not only advances theoretical understanding but also provides a structured foundation for designing human-centric e-governance strategies.

The results also underscore the importance of cross-sectoral alignment between technology providers, policymakers, and citizens. Public institutions cannot achieve sustainable digital transformation without integrating feedback systems that capture citizens' evolving perceptions. As (Bikzad & Jalili Nejad, 2021) emphasized, the pathology of e-government arises when digital initiatives overlook the role of citizen experience and contextual realities. The Social Security Organization's approach, which combines marketing outreach, technological modernization, and socio-economic responsiveness, represents a pragmatic application of this principle. Furthermore, consistent with (Agrawal et al., 2017) and (Yun et al., 2023), the convergence of artificial intelligence, automation, and digital relationship management can lead to adaptive and personalized citizen interactions, transforming the organization into a proactive rather than reactive service entity.

Overall, the study validates the premise that citizen satisfaction and loyalty in digital environments are not solely driven by technological efficiency but by perceived trust, security, and emotional resonance. When institutions like the Social Security Organization prioritize user-centric design, experiential quality, and transparent communication, they enhance both service



uptake and institutional credibility. These insights strengthen the empirical foundation of the S-O-R-based E-CRM-C model, offering a replicable framework for other public organizations seeking to modernize their service relationships with citizens.

This study, while offering valuable theoretical and practical insights, is subject to several limitations. First, the research was conducted within the context of a single organization—the Social Security Organization—which may limit the generalizability of its findings to other public or private institutions. Second, the qualitative design, though effective for conceptual model development, relies heavily on expert judgment, which may introduce subjective bias despite validation through the Delphi technique. Third, the model was not quantitatively tested; thus, the causal relationships between constructs remain theoretical and require further empirical verification. Additionally, cultural and infrastructural differences across regions may influence how citizens perceive and engage with electronic services, indicating that the results should be interpreted within their socio-economic context.

Future studies should focus on quantitatively validating the proposed model through structural equation modeling (SEM) or partial least squares (PLS) approaches to establish the strength and direction of causal relationships among constructs. Comparative analyses across multiple governmental sectors—such as healthcare, taxation, and municipal services—could further test the model's adaptability and robustness. Moreover, future research could explore the role of artificial intelligence and predictive analytics in enhancing citizen engagement and emotional satisfaction within e-CRM systems. Longitudinal studies would also be valuable to examine how technological maturity and policy shifts influence the evolution of digital loyalty and trust over time. Finally, integrating cross-cultural perspectives could provide a broader understanding of how socio-cultural norms shape citizens' acceptance of digital governance.

From a managerial perspective, organizations should adopt citizen-centered design principles when developing e-CRM platforms. Continuous feedback mechanisms must be embedded into digital systems to capture user satisfaction and identify service gaps in real time. Training programs for staff in digital communication, empathy, and problem-solving can strengthen the human dimension of e-service delivery. Policymakers should also prioritize cybersecurity, data protection, and transparency to foster citizen trust and long-term engagement. Finally, integrating technological innovation with marketing and social inclusion strategies can help create adaptive, resilient, and citizen-oriented service ecosystems that reflect the dynamic needs of a digitally evolving society.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

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Conflict of Interest

The authors report no conflict of interest.

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