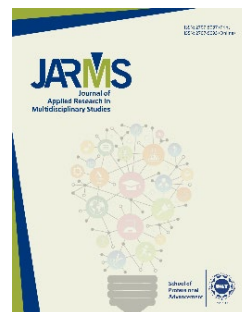
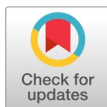


Journal of Applied Research and Multidisciplinary Studies (JARMS)

Volume 6 Issue 2, Fall 2025

ISSN(P): 2707-5087, ISSN(E): 2707-5095

Homepage: <https://journals.umt.edu.pk/index.php/jarms>



Title: **Impact of Digitalization and Value Co-Creation on Customer Loyalty: The Mediating Role of Emotional Engagement in Banking Services**

Author (s): Shahid Mahmood¹, Irfan Sabir², and Shahjahan Masud²


Affiliation (s): ¹University of Management and Technology, Lahore, Pakistan
²University of Central Punjab, Lahore, Pakistan

DOI: <https://doi.org/10.32350/jarms.62.04>

History: Received: July 08, 2025, Revised: September 22, 2025, Accepted: October 24, 2025,
Published: December 04, 2025

Citation: Mahmood, S., Sabir, I., & Masud, S. (2025). Impact of digitalization and value co-creation on customer loyalty: The mediating role of emotional engagement in banking services. *Journal of Applied Research and Multidisciplinary Studies*, 6(2), 74–100. <https://doi.org/10.32350/jarms.62.04>

Copyright: © The Authors




Licensing:  This article is open access and is distributed under the terms of [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/)

Conflict of Interest: Author(s) declared no conflict of interest



A publication of
School of Professional Advancements
University of Management and Technology, Lahore, Pakistan

Impact of Digitalization and Value Co-Creation on Customer Loyalty: The Mediating Role of Emotional Engagement in Banking Services

Shahid Mahmood^{1*}, Irfan Sabir², and Shahjahan Masud²

¹Institute of Aviation Studies, University of Management and Technology, Lahore, Pakistan

²Faculty of Management Sciences, University of Central Punjab, Lahore, Pakistan

Abstract

The study examined the impact of Digitalization of Banking Services (DBS) and Value Co-Creation (VCC) on Customer Loyalty (CL), with Emotional Engagement (EE) as a mediating factor. A sample of 232 managers and supervisors from the banking sector was selected, and the data was compiled using PLS-SEM to determine both the direct and the indirect relationship. The results illustrate that Value Co-Creation has a positive influence on Emotional Engagement and Customer Loyalty, highlighting the significance of participatory service strategies in enhancing customer attachment and loyalty. Digitalization of Banking Services on the contrary has a positive impact on both Emotional Engagement and Customer Loyalty, implying that increased automation can enhance emotional involvement and improve loyalty outcomes. The mediation analysis has shown that Emotional Engagement partially mediates the relationships between VCC and CL, and between DBS and CL, underscoring the key role of emotions in transforming service experiences into behavioral outcomes. Furthermore, correlation and path tests prove that relational and participatory strategies prove to be more effective than digitalization alone in building loyalty. The research contributes to the existing literature by extending service relationship theories and models to represent the two-fold impact of digitalization and co-creation through the emotional engagements. In practical terms, the results emphasize the need for banks to find a balance between technological effectiveness and engaging participation, so that digitalization does not interfere with, but intensifies relational interactions to increase the retention of customers over the long term.

Keywords: banking services, customer loyalty, digitalization, emotional engagement, value co-creation

*Corresponding Author: shahid-mahmood@umt.edu.pk

Introduction

The digital revolution of banking has become a key strategic objective of all financial institutions in the world in an age characterized by fast technological change and increase in the expectations of customers (Alqararah et al., [2025](#)). The digital platforms are becoming more and more the replacement of traditional banking systems that previously depended on a physical presence and face to face delivery of services through increasingly advanced systems that facilitate real time access and automation, as well as personalized financial services. Not only has this evolution transformed the manner in which services are being offered but it has also radically transformed the dynamics of value creation between the banks and their customers (Alkhowaiter, [2020](#)).

Digitalization in banking is not about technological acquisition; however, it is a wholesome redesign of the service delivery procedures, customer-relationship approaches, and organizational value systems to provide streamlined, effective and consumer-focused experiences. Digital platforms like mobile banking apps, internet banking websites, chatbots powered by artificial intelligence, and automated financial assistants have become commonplace and provide convenience and empowerment to customers who desire speed, ease of access and customization at all their interactions (Nwachukwu et al., [2025](#)). The concept of digitalization of banking services in this regard is an operation requirement and a competitive edge in a globalized market.

In line with technological innovation, the idea of value co creation has received a lot of attention in service research, especially in the Service Dominant Logic (S D Logic). In contrast to traditional goods dominant logic where the value is incorporated in the products and transmitted unilaterally by the firms to the passive consumers, the S D Logic conceptualizes value as created co-creatively through interactive processes between the providers and the customers. The value co creation in digital banking contexts occurs where the customers interact with the digital interfaces, input to customization, engage in self-service and give feedback in shaping the service outputs and subsequent innovations. These are not transactional interactions but a value of relationship that is a dynamic, iterative and personalized interaction (Alqararah et al., [2025](#)).

Although the presence of digital infrastructure provides accessibility,

and value co creation utilizes customer involvement, neither of the two constructs necessarily ensure customer loyalty in the long run. Overall, there is growing evidence of the importance of emotional involvement in determining the long-term relational outcomes (Alqararah et al., [2025](#)). Emotional engagement is the affective attachment or psychological attachment and feeling of value of service provider to the customer. Emotional engagement is also manifested in the context of digital banking when a customer feels that the digital bank processes are meaningful, trusts the digital processes, and believes that the bank knows their financial needs and preferences. This emotional aspect is important as it not only affects the rational consideration of the quality of the service but also other underlying factors that lead to the urge of staying with the provider despite the availability of other options (Nwachukwu et al., [2025](#)).

Loyalty can be understood as commitment in behavior and also attitudinal attachment, not merely repeated transactions as it is also a positive word of mouth and positive advocacy. Customer loyalty in banks in competitive markets translate to longer revenue streams, lower costs in acquiring customers and increase in brand equity. The interaction of digitalization, value co creation, emotional involvement and loyalty is thus theoretically dense and practically implicated (Alqararah et al., [2025](#)).

In spite of the long-standing research on digital banking adoption and service quality, there are still major gaps in the comprehension of how the emotional engagement mediates the relationship between the digitalization and value co creation and the customer loyalty (Kini et al., [2024](#)). These constructs have been studied independently or based on utilitarian consequences like frequency of use or satisfaction in most studies. The empirical accounts of how digital transformation and co-creative customer participation leads to long-term loyalty through emotional channels are scanty. It is vital to understand how such processes can take place, as the adoption of technology can not necessarily develop the emotional bonds that lead to the long-term relational results (Saini & Singh, [2020](#)).

Theoretically, the current research is based on the Service Dominant Logic, which predicts the active involvement of customers as value co-creators and underlines the relational, experience, and result-oriented aspects of service (Batool et al., [2023](#)). The concept of value S D Logic assumes that value is not distributed but rather co-created in the process of collaborative interactions and, therefore, it is especially applicable to

digitally mediated service situations. This study, by theorizing emotional involvement as a key action between digitalization and value co creation to loyalty, adds to the understanding of S D Logic by adding facets of affectivity that are under-estimated in technology adoption studies. It hypothesizes that affective interaction is not just an effect of service use but a critical intermediary that determines the impact of technological structures and co-creative actions to the long-term customer loyalty (Ahmad et al., [2022](#)).

Additionally, the development of digital banking has been more advanced than the academic knowledge on customer psychological reaction within most emerging market. Although the developed economies usually take control of the research stories with the availability of data and the maturity of their technology, there is always something new in those emerging and developing markets, in terms of socio cultural, economic and infrastructural environments, which can also affect the way the customers experience the digital banking services (Alqararah et al., [2025](#)). In that case, the emotional reactions to the online interaction can be informed by the degree of trust in the stability of technology, the anxieties about privacy of the data, and cultural beliefs regarding the relationship with money. These contextual characteristics also highlight the importance of integrative research models which do not focus simply on the structural determinants of loyalty, but also on the psychological processes.

Customers are already experiencing more emotionally evocative and personalized service experiences as digital banking ecosystems are getting more and more complex, including built-in financial management apps, biometric security, AI-assisted financial advice, and more. When the banks can effectively utilize digital technologies and create a sense of meaningful customer involvement, they are in a better position to develop emotional involvement, which, in its turn, leads to the creation of loyalty. On the other hand, only by focusing on the emotional aspect of customer experiences, one may experience transactional relationships that lack commitment over time even in case digital services are effective and rich in features (Chen et al., [2020](#); de Matos & Rossi, [2008](#); Gambetti et al., [2012](#)).

The implications of the study of emotional engagement as a mediator are practical in their nature. To banking practitioners, these mechanisms can provide knowledge in strategic choices concerning digital design, customer communication, and engagement strategies. User interface design, personal

communication, loyalty programs and interactivity that appeal to the emotional side of customers can be utilized by the banks. Examples of these strategies can be customized financial insights, active customer service via digital channels, and co creation, like interactive feedback loops and crowd sourced features. Incorporating the emotional involvement into digital service tactics, banks to grow the perceptions of the value, credibility, and the depth of relations, which are central to loyalty (Brodie et al., [2011](#); de Matos & Rossi, [2008](#)).

Literature Review

The revolutionization of the banking industry through digital platforms has given the industry unexplored chances to grow relationships with customers, achieve better work performance, and gain long-term customer loyalty. There is an accent in the literature regarding the topic of digital banking as based on the use of the technological tools, but also the relational and emotional aspects, which are used to shape the customer behaviors. This review analyzes the literature related to Digitalization of Banking Services, Value Co-Creation, Emotional Engagement, and Customer Loyalty with the emphasis being placed on the theoretical frameworks, empirical evidence, and gaps in the research. The digitalization of banking services can be used as an example of the former (Klaus & Maklan, [2013](#); Sumaedi et al., [2015](#)).

Digitalization in banking is the process of systematic adoption of digital technologies in banking business activities to provide efficient, accessible, and interactive financial services. These are mobile and internet banking, AI-based chatbots, automated customer service, digital wallets, and blockchain-enabled security features (Battisti et al., [2022](#); Chauhan et al., [2022](#); Chhaidar et al., [2023](#)). Digitalization enables banks to fulfill the increasing customer demands of convenience, transparency and 24/7 availability of services which reforms traditional banking relationships (Banna & Alam, [2021](#)).

Artificial intelligence, big data analytics, machine learning, and blockchain technologies are technological forces of digitalization. Chatbots and robo-advisors based on AI can be used to improve personalized financial management, whereas predictive analytics can help banks predict the customer needs and provide custom solutions (Bueno et al., [2024](#)). Such innovations make services more efficient, less expensive, and overall, more enjoyable to the customer.

Digitalization behavioral outcomes are studied more and more with the help of the Technological Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT). Perceived ease of use, usefulness, and trust in online platforms have a tremendous influence on adoption practices (Ekaimi et al., [2024](#); Owusu et al., [2022](#)). But, in recent studies, it is claimed that technological adoption is not enough to foster loyalty; it is also possible to have excellent electronic contact and the sense of emotional connection experienced by the client (Lee et al., [2025](#)). Digitalization, thus, acts as an enabling factor of operations as well as a facilitating factor of relations.

In addition, there are unique challenges and opportunities of digital banking in emerging markets. Customer adoption and engagement patterns are based on cultural norms, technological infrastructure and regulatory frameworks. Asian, African, and Middle Eastern studies show that digital banking has the potential to enhance financial inclusion, but emotional trust and perceived security are especially important factors of customer commitment (Dluhopolskyi et al., [2023](#); Shams & Hamdan, 2023). In this way, the process of digitalization is not only technical but also social and psychological and also has an interaction with contextual factors.

H1: Digitalization of banking services has a positive impact on customer loyalty.

Digital banking involves the value co-creation of value through the application of new digital technologies. Service-Dominant Logic (S-D Logic) is a fundamental concept that value can be co-created and that the customers take active part in creating the value instead of being the passive receivers (Sethi, [2023](#)). In digital banking, the co-creation is realized when customers are involved in self-service processes, digital interface personalization, get feedback and are involved in the interactive process that influence the service outcomes (Dias et al., [2025](#)).

Examples of value co-creation are customized financial planning, interactive investment tools, crowdsourced innovation platforms and customized alerts. Co-creation does not only enhance relevance of services but also relational ties because it gives the customers power to participate in service design. It has been found that co-created experiences increase satisfaction, trust, and perceived control, which are key antecedents of loyalty (Davis, [1989](#)).

There are psychological and behavioral consequences of co-creation. The active involvement helps create the feeling of ownership and investment in service outcomes, which also improves cognitive and emotional involvement. According to Islam et al. (2025), co-creation programs in online banking resulted in a higher engagement score, advocacy behavior, and decreased switching intentions. Moreover, perceived risk on digital platforms can be addressed through co-creation, since customers are more skilled and knowledgeable throughout the interactive processes.

The moderating role of the customer demographics as well as digital literacy and previous banking experience on co-creation outcomes are also examined in recent studies. As an example, younger and more tech-savvy customers more engaged in co-creation, and older customers might need to be guided and to be provided with trust-building mechanisms (Abu-Taieh et al., 2022; Bajwa et al., 2025). The implications of these findings include the necessity of the adaptive co-creation strategies that can match the capabilities and preferences of the customers.

H2: Value co-creation has a positive impact on customer loyalty.

H3: The value co creation has a positive impact on emotional engagement.

Being a Mediator: Emotional Engagement

Emotional engagement refers to the emotional bond characterized by attachment, trust, and psychological connection between customers and a service provider (Becker & Jaakkola, 2020). Emotional engagement, in the case of digital banking, occurs when customers perceive personalized attention, responsiveness, reliability, and safety throughout their digital communication (Levy, 2022). Emotional engagement is in contrast to cognitive evaluations of service quality and reflects more in-depth and often subconscious motives that contribute to customer loyalty.

The motivators of emotional involvement in digital banking are usability of interface, personalized financial information, timely notifications, proactive service, and perceived transparency. Individualization, like investment suggestions depending on consumption patterns, is an aspect of AI-driven personalization that improves the perceived compassion and expertise of the bank, which increases emotional commitment (Anshu et al., 2022).

It has been empirically indicated that emotional engagement mediates the correlation between digital initiatives and customer loyalty. Peng and Jiaying (2024) proved that digital tools do not only grow the adoption rates but the affective experience defines whether customers loyal in the long-run. It is quite the same that Nanta et al. (2025) discovered that emotional engagement intensified the impact of co-creation in increasing loyalty, which is the most important factor in the context of digital banking.

This mediation is also supported by theoretical understanding. TAM and UTAUT are useful in describing the adoption efforts in terms of perceived usefulness and ease of use but they do not adequately cover the affective reactions. The use of emotional engagement helps to close this gap since it incorporates the psychological, relational, and behavioral aspects hence offering a comprehensive view of the formation of loyalty.

H4: Customer loyalty is positively related to emotional engagement.

H5: Emotional engagement mediates the relationship between customer loyalty and digitalization of banking services.

H6: Value co-creation and customer loyalty are mediated by the emotional engagement.

H7: Emotional engagement mediates the relationship between customer loyalty and Value co creation.

Customer Loyalty in the Digital Environment

Customer loyalty refers to a long-term commitment to a service provider and includes behavioral intentions, such as repeat usage, recommendation, and resistance to switching (Zaman et al., 2024). In online banking, customer loyalty is shaped by a mix of functional, relational and emotional variables. While service efficiency and accessibility are vital, loyalty is enhanced when digital experiences are customized, reliable, and emotionally involving (Peng & Jiaying, 2024).

According to a recent empirical evidence, digitalization and co-creation have an indirect impact on loyalty, which is mediated by affective mechanisms. According to Wahab et al., (2022), banks that had high levels of digital platforms realized a better retention rate when the customers felt that the services offered were interesting and helpful. Ferm and Thaichon (2021) have also established that co-created interactions promoted advocacy behaviors, which proved that loyalty is not a solely transactional

event but a relationship phenomenon.

The issues of cross-culture also influence the results of loyalty. Social influence, peer recommendation, and community engagement are more likely to be considered in collectivist societies and perceived personalization and effectiveness in individualist societies (Carpenter, [2008](#)). These results highlight that context-specific interventions in the design of digital services that maximize loyalty by delivering emotional experiences are necessary.

Theoretical Integration

This paper incorporates the Service-Dominant Logic (S-D Logic) and the TAM/UTAUT models to offer an in-depth insight into the customer loyalty in online banking. S-D Logic focuses on the role of the customer in service processes, including self-service, feedback, and customization, in which relational and experience-based mechanisms are vital in the loyalty (Lusch & Vargo, [2009](#)).

TAM and UTAUT further support this view since they posit cognitive and behavioral factors of technology adoption such as perceived ease of use, usefulness, performance expectancy, social influence, and facilitating conditions (Shachak et al., [2019](#)). Combined with each other, these frameworks document relational-emotional, cognitive-behavioral processes that acknowledge the lack of loyalty due to adoption and participation alone (Tian & Wang, [2022](#)).

This relationship is mediated by emotional engagement, which is a manifestation of attachment, trust, and psychological connection that occurs due to meaningful digital interactions (Marangunić & Granić, [2015](#)). It details the way technological and co-creative efforts turn into long-term loyalty that goes beyond using it. These dynamics are also further influenced by contextual considerations like cultural differences, digital literacy and trust (Ammenwerth, [2019](#)).

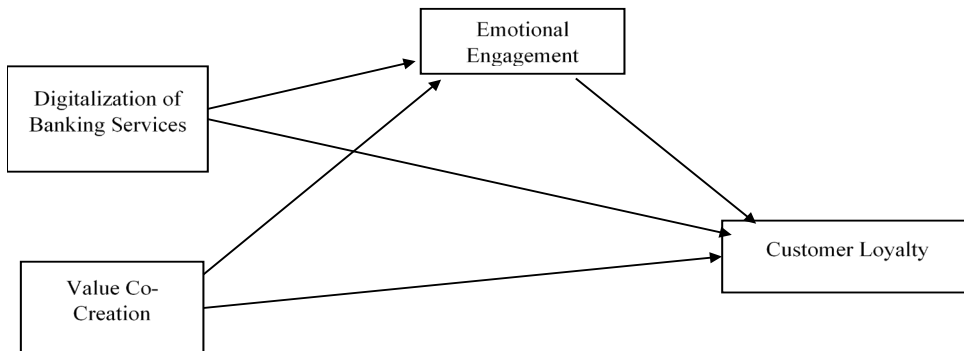
Altogether, this comprehensive model connects the use of technology, co-creation, and emotional involvement to customer loyalty and provides a comprehensive view of developing a theory and providing practical information to create digital banking services that create long-term commitment and advocacy (Lee et al., [2025](#)).

Conceptual Framework

Based on the literature review, the proposed study is based on the model in which Digitalization of Banking Services and Value Co-Creation are the independent variables, Emotional Engagement is a mediator, and Customer Loyalty is the dependent variable. This integrative paradigm is in line with S-D Logic, which emphasizes the impact of the mechanisms of technology and co-creation on loyalty via affective channels. Through empirical testing of this model, the research fills existing gaps and provides practical implications to banking organizations on the struggle to improve customer commitment in a highly digital environment.

Figure 1

Conceptual Framework



Methodology

The research proposed in this paper uses a quantitative research methodology to explore the correlation between Digitalization of Banking Services, Value Co-Creation, Emotional Engagement and Customer Loyalty of digital banking. The empirical data of customers who actively use digital banking platforms were gathered by a cross-sectional survey research design, which allowed testing the proposed model using the Partial Least Squares Structural Equation Modeling (PLS-SEM) method. It can help to analyze complicated relationships between several independent, mediating, and dependent variables that are suitable in the situations when it is necessary to build the theory and conduct the exploratory analysis (Hair et al., [2021](#)).

The research target included clients of commercial banks who are frequently using digital banking applications, web-based banking websites,

and self-service machines. The survey was carried out on 232 respondents who were chosen using a convenience method of sampling. The participants were selected within the scope of the recent experience using the digital banking services to make sure that the answers were able to reflect the current usage trends and levels of engagement. A total of 232 participants are enough to perform PLS-SEM analysis since it enables the strong testing of structural correlations, such as mediation effects, and satisfies the recommended minimum sample size requirement of multi-construct models (Hair et al., [2010](#)). Demographic data were also gathered such as age, gender, education as well as banking experience to give a descriptive picture and to eliminate the possibility of other confounding factors.

The structured questionnaire with close-ended questions was used to collect the data in a Likert scale of five points (Strongly Disagree to Strongly Agree). The tool contained five questions of each construct: Digitalization of Banking Services (Tamanni & Besar, [2019](#)), Value Co-Creation (Yi & Gong, [2013](#)), Emotional Engagement (Dubovi, [2022](#)), and Customer Loyalty (Bobâlcă et al., [2012](#)). Digitalization items measured the perceptions of customers towards mobile applications and online platforms, AI-based tools, and self-service. Value co-creation items also gauged active involvement of feedback, customization, and interactive participation to banking services. The items of emotional engagement measured attachment, trust and psychological connection in digital contacts, and customer loyalty items were determined in the form of the intention to use the bank regularly, resistance to switching, and readiness to recommend it to other people. The questionnaire had undergone pre-test on 30 respondents to clarify, make relevant, and reliable and few changes were made based on the respondent's feedback before administering the final survey.

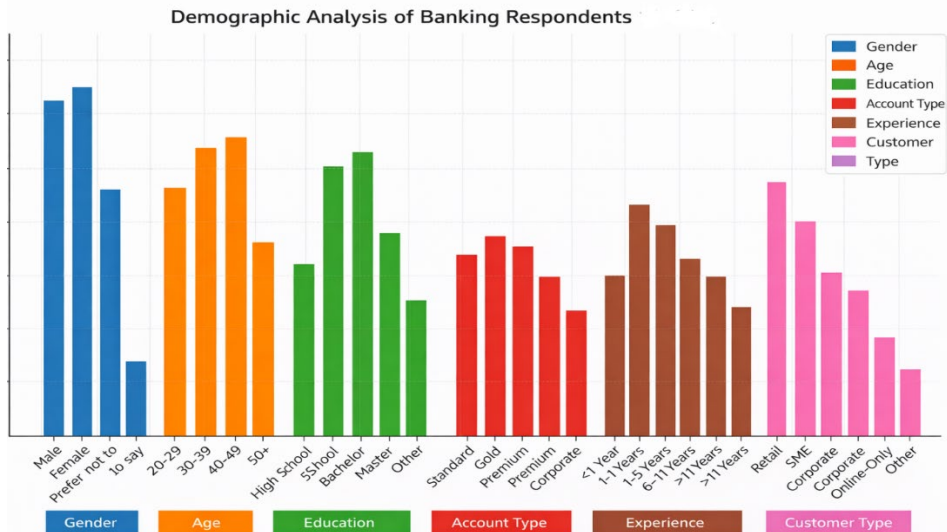
The validated scales used in the study were derived based on the previous literature; therefore, there was reliability and validity. Cronbach alpha and composite reliability were used to measure internal consistency and Average Variance Extracted (AVE) was used to determine convergent validity. Both Fornell-Larcker (Fornell & Larcker, [1981](#)) criterion and Heterotrait-Monotrait (HTMT) ratios were used in assessing discriminant validity. All of the survey questions were coded numerically so that analysis is possible using PLS-SEM with demographic variables given a particular code to manage the data effectively.

PLS-SEM was used to test the proposed structural model to determine the relationship between variables both directly and indirectly. In particular, the analysis has explored the direct impact of Digitalization of Banking Services and Value Co-Creation on Customer Loyalty, and their impact on Emotional Engagement. Emotional Engagement was the mediating factor that was tested in order to establish the relationship between affective attachment and psychological connection with technological adoption and co-creation as the final outcome of loyalty. We have used bootstrapping with 5,000 resamples to calculate the significance of path coefficients and t-values and R^2 was used to assess the explanatory power of the model. An evaluation of the relationships strength using effect sizes (f^2) was also computed, as well as an evaluation of Variance Inflation Factor (VIF) to ensure that there was no multicollinearity between the constructs.

Ethical standards were strictly adhered to throughout the study. The participation was entirely voluntary, and all the respondents were assured of anonymity and confidentiality. The survey was conducted with informed consent and the data was stored and used safely and exclusively in conducting the research. Participants were also informed about the goals of the study and how they could be used in future scholarly work.

Results

Figure 2
Demographic Analysis



The analysis of the data collected with the help of 232 managers and supervisors who serve in the banking industry provides helpful circles of knowledge about the relations implied in the research project. The demographical picture showed a well-balanced distribution of the sample composition in terms of demographical parameters.

Table 1
Fornell–Larcker Criterion (Discriminant Validity)

Construct	Digitalization of Banking Services	Value Co-Creation	Emotional Engagement	Customer Loyalty
Digitalization of Banking Services	0.820			
Value Co-Creation	0.281	0.751		
Emotional Engagement	0.528	0.028	0.840	
Customer Loyalty	0.403	0.470	0.232	0.801

The FornellLarcker criterion of discriminant validity of the constructs was used. Based on this criterion, the square root of the Average Variance Extracted (AVE) of each construct is expected to exceed their correlations with all the other constructs. Computed in Table 1, the square roots of AVE are 0.820, 0.751, 0.840, and 0.801 of Digitalization of Banking Services, Value Co-Creation, Emotional Engagement, and Customer Loyalty respectively. The values of each of these are much higher than the corresponding inter-construct correlations, which indicates that each construct is more shared with its indicators than with any other constructs in the model. In particular, the correlations among the constructs are moderate and conceptually significant: Digitalization of Banking Services has a positive finding with Emotional Engagement ($r = 0.528$) and Customer Loyalty ($r = 0.403$), Value Co-Creation has a positive finding with Customer Loyalty ($r = 0.470$) and insignificant finding with Emotional Engagement ($r = 0.028$), and Emotional Engagement with Customer Loyalty has a moderate correlation ($r = 0.232$). The inter-construct correlations are low to moderate and square roots of AVE are higher, which supports the use of empirically distinct constructs, which is also a strong indication of discriminant validity.

Table 2
Construct Reliability and Validity

Construct	α	Rho A	CR	AVE
Digitalization of Banking Services	0.930	0.932	0.943	0.673
Value Co-Creation	0.914	0.916	0.928	0.564
Emotional Engagement	0.916	0.919	0.935	0.605
Customer Loyalty	0.920	0.925	0.935	0.642

Cronbach alpha (α), Rho A, composite reliability (CR) and average variance extracted (AVE) were used to determine the reliability and convergent validity of the measurement model. As indicated in the table, all constructs had excellent internal consistency. The alpha value of Cronbach was 0.914 (Value Co-Creation), 0.930 (Digitalization of Banking Services), which is above 0.70 which is the recommended number, which means that the items under each construct are always used when measuring the intended latent variable. Likewise, Rho A values, 0.916-0.932 and composite reliability values, 0.928-0.943 also confirm the high reliability and internal consistency of the constructs.

AVE was used to determine convergent validity with a mean of 0.564 to 0.673 which is higher than the minimum of 0.50. It means that both constructs account for a considerable percentage of variance in their indicators. In particular, Digitalization of Banking Services had the largest AVE (0.673), which implied a good representation of indicators, whereas Value Co-Creation, Emotional Engagement, and Customer Loyalty showed good values of explained variance. All of these findings suggest that the measurement model can be considered reliable and valid, which is a solid basis to conduct the further analysis of the structural model.

Table 3
Path Coefficients (Direct Effects)

Path	β	<i>t</i> -value	<i>p</i> -value
DBS \rightarrow CL	0.220	3.627	0.000
DBS \rightarrow EE	0.296	5.833	0.000
VCC \rightarrow EE	0.412	8.654	0.000
VCC \rightarrow CL	0.536	12.672	0.000
EE \rightarrow CL	0.127	2.155	0.032

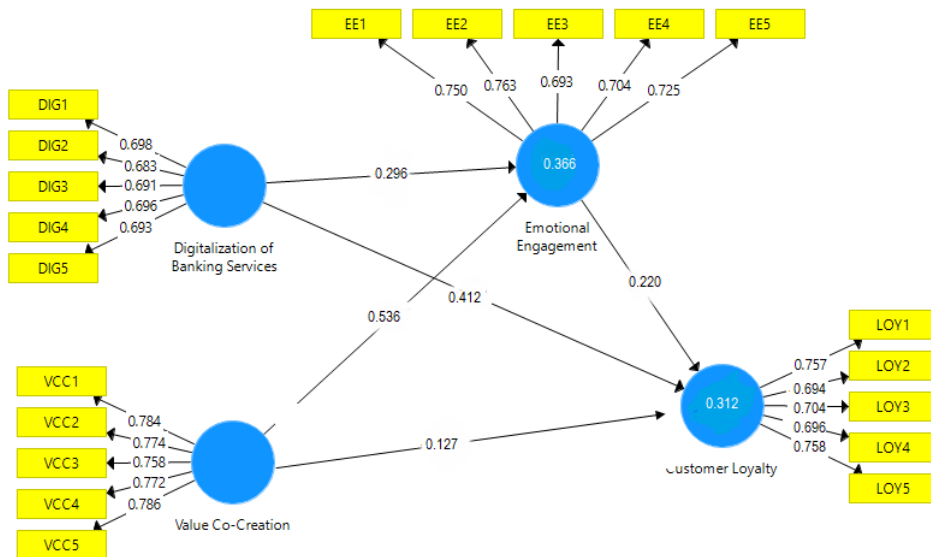
The outcomes of the structural model indicate that the Digitalization of

Banking Services has a positive impact on Customer Loyalty ($\beta = 0.220, p= 0.001$) and Emotional Engagement ($\beta =0.296, p= 0.001$), which means that over-digitization can lead to the increase of the emotional bond and loyalty of the customers. Meanwhile, Value Co-Creation has a positive impact on Emotional Engagement ($\beta = 0.412, p < 0.001$) and Customer Loyalty ($\beta =0.536, p < 0.001$), which means the customer involvement reinforces the bond to the customer and loyalty. Customer Loyalty is another concept that is greatly influenced by Emotional Engagement ($\beta =0.127 = -0.032, p = 0.032$). These results highlight the idea that digitalization does not work as well as relational and participatory strategies to create customer loyalty.

Table 4
Mediation Analysis

Indirect Path	B	t-value	p-value
VCC → EE → CL	0.065	2.821	0.005
DBS → EE → CL	0.118	3.400	0.001

Figure 2
Path Analysis



Indirect influence of Emotional Engagement on the connection between the independent variables and Customer Loyalty is established through the mediation analysis. Value Co-Creation (VCC) enhances Customer Loyalty with Emotional Engagement ($\beta=0.065, t = 2.821, p = 0.005$), which means

that some of the impact of co-creation on the loyalty is mediated by the improvement of the emotional connection of the customers. On the contrary, Customer Loyalty is positively influenced by Digitalization of Banking Services (DBS) through Emotional Engagement ($\beta = 0.118$, $t = 3.400$, $p = 0.001$), which indicates that the incline of emotional engagement is one of the reasons why the digitalization can lead to a reduction in customer loyalty. These findings prove that Emotional Engagement is a strong mediator enabling its key position in the transformation of service experiences, both positive due to co-creation and positive due to digitalization, into customer loyalty results.

Table 5
Correlations Among Constructs

Construct	DBS	VCC	EE	CL
Digitalization of Banking Services	1.000			
Value Co-Creation	0.281	1.000		
Emotional Engagement	0.528	0.028	1.000	
Customer Loyalty	0.403	0.470	0.232	1.000

Table 5 shows the correlation analysis shows how strong and directional the relationships between the constructs are. The concept of Digitalization of Banking Services (DBS) has a positive relationship with Value Co-Creation ($r = 0.281$) and Customer Loyalty ($r = 0.403$), whereas it has a positive relationship with Emotional Engagement ($r = 0.528$). This suggests that the increased degree of digitalization can increase the perception of co-creation and loyalty among customers. The Customer Loyalty ($r = 0.470$) and Value Co-Creation ($r = 0.028$) demonstrate positive and significant correlation, respectively, which indicates that co-creation leads to loyalty directly, rather than through emotional attachment. In this dataset, Customer Loyalty ($r = 0.232$) has a positive correlation with Emotional Engagement (EE) which indicates that it is a complex mediating variable. Taken altogether, these patterns of correlation partly support the proposed relationships and contribute to the conceptual differentiation of the constructs, which proves that the structural model will be appropriate to be used in further analysis.

Table 6
Hypotheses Testing Results

Hypothesis	Path	β	<i>t</i> -value	<i>p</i> -value	Result
H1	DBS → CL	0.412	8.654	0.000	Supported
H2	DBS → EE	0.296	2.155	0.032	Supported
H3	VCC → EE	0.536	5.833	0.000	Supported
H4	VCC → CL	0.127	12.672	0.000	Supported
H5	EE → CL	0.220	2.821	0.005	Supported
H6	VCC → EE → CL	0.118	3.400	0.001	Supported
H7	DBS → EE → CL	0.065	3.627	0.000	Supported

The outcomes of the testing of the hypotheses prove that all the suggested relations were statistically significant and this gives a complete support to the conceptual model. H1 and H4 indicate that Customer Loyalty is positively affected by Digitalization of Banking Services (DBS) ($\beta = 0.412$, $p = 0.001$), and Value Co-Creation is positively affected by Customer Loyalty ($\beta = 0.127$, $p = 0.001$), which means that both technological advancements and participatory service strategies have a direct impact on customer loyalty results. Under H2 and H3, it can be seen that DBS ($\beta = 0.296$, $p = 0.032$) and VCC ($\beta = 0.536$, $p = 0.001$) have a positive impact on Emotional Engagement (EE) and both digital service delivery and customer involvement contribute to the establishment of the emotional bond between the customers and the service.

H5 proves that Customer Loyalty is greatly increased after the Emotional Engagement ($\beta = 0.220$, $p = 0.005$), indicating that the former is really crucial in converting service experiences into the former. H6 and H7 are another set of mediation hypotheses which prove that EE is a partial mediator between the relationship between VCC ($\beta = 0.118$, $p = 0.001$) and Customer Loyalty and DBS ($\beta = 0.065$, $p < 0.001$) and service strategies. In combination, the above results highlight that not only digitalization but also co-creation directly and indirectly increase customer loyalty through emotional engagement, and it is necessary to emphasize the need to combine technological efficiency and relationship and participatory service strategies.

Discussion

The study analyzed the impact of Digitalization of Banking Services (DBS) and Value Co-Creation (VCC) on Customer Loyalty (CL) and Emotional

Engagement (EE) as a mediator. The results verify the main suppositions of the service relationship theory according to which relational and participatory resources contribute to improving customer outcomes, and the excessive use of technology without relationships could increase the loyalty. In particular, the findings indicate that Value Co-Creation has a robust positive direct influence on Emotional Engagement and Customer Loyalty, which confirms that consideration of customers in service design increases their emotional engagement and customer loyalty. Conversely, Digitalization of Banking Services positively influences both the Emotional Engagement and Customer Loyalty, which means that over-automation can enhance personal contact and reduce the emotional connection of customers to the service.

Emotional Engagement is also a major mediator and it mediate the impact of both DBS and VCC on Customer Loyalty. According to the mediation analysis, the positive role of Value Co-Creation in determining loyalty can be explained in part by the improved emotional connection, whereas the positive role of Digitalization in loyalty is executed through the enhanced engagement. These results indicate that the customer experiences and emotional reactions are the key determinants of loyalty, and that the technology will be able to substitute participatory or relational processes. Altogether, the findings highlight the importance of value co-creation and emotional involvement as key to retaining loyalty and digitalization must be thoroughly planned to be complementary and not to be an alternative to the human interaction.

Conclusion

This research suggests that technological and relational factors (which form a balance) determine the customer loyalty in the banking services, and emotional engagement is a key mediating variable. Value Co-Creation (VCC) is one of these resources, as it directly increases both the emotional engagement and loyalty, yet Digitalization of Banking Services (DBS) when applied without the relational and participatory aspects, may impact the emotional engagement and consequently increase loyalty. Emotional attachment is both a mediating and a determinant variable of loyalty and proves that the emotional bond of customers is key in the conversion of service experiences into behavioral consequences. Altogether, these findings indicate that relational and participatory strategies can be more effective than digitalization itself in case of the development of sustainable

customer loyalty.

Theoretical Contribution

The research has a number of contributions to literature on services marketing and relationship management. To begin with, it affirms the fact that value co-creation boosts emotional involvement, thus in line with previous studies which focus on the linkage of participatory processes in enhancing psychological attachment and loyalty. Second, the argument in favor of technology that emotional engagement and loyalty can be positively influenced by digitalization supports the idea that technology can be replace relational experiences despite its ability to improve operational efficiency. Third, the research contributes to the knowledge about the emotional involvement as a mediating process by revealing that the latter partially conveys positive (VCC) and (DBS) influences on the customer loyalty. This brings some new empirical data to the banking services context, which proves that emotional processes play the key role in transforming service delivery plans into reality on the loyalty front. Lastly, the findings support the conceptualization of service resources and stressors in a broader way, showing that customer behavior can be mitigated by the possible adverse impact of over-digitalization through relational and participatory resources.

Practical Contribution

In a practical way, the research points out that the focus of banks on value co-creation strategies to enhance customer emotional involvement and loyalty should be a priority. It will involve coming up with services that engage customers in making decisions, customization, and feedback. Though digitalization is necessary to ensure efficiency and scalability, it is to be introduced in such a way that it can support, but not substitute relational interactions because too much automation can erase emotional attachment and loyalty. The results are also supportive of the idea that emotional involvement is to be constantly tracked as a measure of the effectiveness of the services. Through creating relational and participatory experiences in addition to digital services, the organizations will be able to increase customer loyalty, satisfaction, and retention in the long run.

Future Research Directions

This study can be further enhanced by the adoption of longitudinal or experimental research approaches that investigate causal relationships

between digitalization and co-creation strategies and their impact on emotional engagement and loyalty in the long term. The hypothesis to be explored in the experimental studies may involve the role of the introduction of co-creation interventions or the redesign of digital interfaces in relation to the outcome of emotional engagement and loyalty. Also, the other mediators (e.g., trust, satisfaction, perceived value) or moderators (e.g., digital literacy, cultural context, service type) could be the focus of research to better comprehend the processes through which service design is correlated with loyalty. The findings can then be further generalized by expanding the study to other service industries like healthcare, hospitality or aviation tourist industries. Lastly, interviews or case studies as a form of a qualitative approach, could offer deeper insights about the experience-level and emotional side of co-creation and digital service delivery.

Policy Implications

The implications of the findings on the service management policies and regulatory practices are numerous. To begin with, companies must implement policies that strongly encourage value co-creation by using customer participation initiatives, feedback systems, and co-design of services. Second, the process of digitalization must be regulated to make sure that it is efficient without sacrificing the relational focus and creating a balance between the automatization and the individual approach. Third, emotional engagement is to be considered one of the most important performance indicators, and organizational policies must be designed to boost it with the help of service design, personnel training, and customer experience programs. Lastly, service-intensive sectors may implement regulatory rules that follow the dual focus on efficiency in technology and quality in relationships to make sure that the strategy of digitalization will not jeopardize customer satisfaction and loyalty.

Author Contribution:

Shahid Mahmood: conceptualization, writing-original draft. **Irfan Sabir:** data curation, writing-review & editing. **Shahjahan Masud:** formal analysis.

Conflict of Interest

The authors of the manuscript have no financial or non-financial conflict of interest in the subject matter or materials discussed in this manuscript.

Data Availability Statement

The data associated with this study will be provided by the corresponding author upon request.

Funding Details

No funding has been received for this research.

Generative AI Disclosure Statement

The authors did not use any type of generative artificial intelligence software for this research.

References

- Abu-Taieh, E. M., AlHadid, I., Abu-Tayeh, S., Masa'deh, R., Alkhaldeh, R. S., Khwaldeh, S., & Alrowwad, A. (2022). Continued intention to use of m-banking in Jordan by Integrating UTAUT, TPB, TAM and service quality with ML. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(3), Article e120. <https://doi.org/10.3390/joitmc8030120>
- Ahmad, F., Mustafa, K., Hamid, S. A. R., Khawaja, K. F., Zada, S., Jamil, S., Qaisar, M. N., Vega-Muñoz, A., Contreras-Barraza, N., & Anwer, N. (2022). Online customer experience leads to loyalty via customer engagement: Moderating role of value co-creation. *Frontiers in Psychology*, 13, Article e897851. <https://doi.org/10.3389/FPSYG.2022.897851>
- Alqararah, E. A., Shehadeh, M., & Yaseen, H. (2025). The role of digital transformation capabilities in improving banking performance in Jordanian commercial banks. *Journal of Risk and Financial Management*, 18(4), Article e196. <https://doi.org/10.3390/jrfm18040196>
- Alkhowaiter, W. A. (2020). Digital payment and banking adoption research in Gulf countries: A systematic literature review. *International Journal of Information Management*, 53, Article e102102. <https://doi.org/10.1016/J.IJINFOMGT.2020.102102>
- Ammenwerth, E. (2019). Technology acceptance models in health informatics: TAM and UTAUT. *Studies in Health Technology and Informatics*, 263, 64–71. <https://doi.org/10.3233/SHTI190111>
- Anshu, K., Gaur, L., & Singh, G. (2022). Impact of customer experience on attitude and repurchase intention in online grocery retailing: A moderation mechanism of value Co-creation. *Journal of Retailing and Consumer Services*, 64, Article e102798. <https://doi.org/10.1016/J.JRETCONSER.2021.102798>
- Bajwa, F. A., Fu, J., Bajwa, I. A., Ahmad, S., & Mahmood, F. (2025).

- Factors influencing usage and loyalty for payment app customers in Saudi Arabia. *Acta Psychologica*, 255, Article e104961. <https://doi.org/10.1016/J.ACTPSY.2025.104961>
- Banna, H., & Alam, M. R. (2021). Impact of digital financial inclusion on ASEAN banking stability: Implications for the post-Covid-19 era. *Studies in Economics and Finance*, 38(2), 504–523. <https://doi.org/10.1108/SEF-09-2020-0388>
- Batool, S., Panezai, B. A., Baloch, G. J., & Sohail, S. (2023). Influence of customer perceived ethicality on customer loyalty in the banking industry of Pakistan. *International Journal of Ethics and Systems*, 39(1), 54–80. <https://doi.org/10.1108/IJOES-03-2021-0071>
- Battisti, E., Alfiero, S., & Leonidou, E. (2022). Remote working and digital transformation during the COVID-19 pandemic: Economic–financial impacts and psychological drivers for employees. *Journal of Business Research*, 150, 38–50. <https://doi.org/10.1016/j.jbusres.2022.06.010>
- Becker, L., & Jaakkola, E. (2020). Customer experience: fundamental premises and implications for research. *Journal of the Academy of Marketing Science*, 48(4), 630–648. <https://doi.org/10.1007/S11747-019-00718-X>
- Bobâlcă, C., Gătej, C., & Ciobanu, O. (2012). Developing a scale to measure customer loyalty. *Procedia Economics and Finance*, 3, 623–628. [https://doi.org/10.1016/S2212-5671\(12\)00205-5](https://doi.org/10.1016/S2212-5671(12)00205-5)
- Brodie, R. J., Hollebeek, L. D., Jurić, B., & Ilić, A. (2011). Customer engagement: Conceptual domain, fundamental propositions, and implications for research. *Journal of Service Research*, 14(3), 252–271. <https://doi.org/10.1177/1094670511411703>
- Bueno, L. A., Sigahi, T. F. A. C., Rampasso, I. S., Leal Filho, W., & Anholon, R. (2024). Impacts of digitization on operational efficiency in the banking sector: Thematic analysis and research agenda proposal. *International Journal of Information Management Data Insights*, 4(1), Article e100230. <https://doi.org/10.1016/J.JJIMEI.2024.100230>
- Carpenter, J. M. (2008). Consumer shopping value, satisfaction and loyalty in discount retailing. *Journal of Retailing and Consumer Services*, 15(5), 358–363. <https://doi.org/10.1016/J.JRETCONSER.2007.08.003>
- Ferm, L. E. C., & Thaichon, P. (2021). Value co-creation and social media:

- Investigating antecedents and influencing factors in the U.S. retail banking industry. *Journal of Retailing and Consumer Services*, 61, Article e102548. <https://doi.org/10.1016/J.JRETCONSER.2021.102548>
- Chauhan, S., Akhtar, A., & Gupta, A. (2022). Customer experience in digital banking: A review and future research directions. *International Journal of Quality and Service Sciences*, 14(2), 311–348. <https://doi.org/10.1108/IJQSS-02-2021-0027>
- Chen, R., Zhou, Z., Zhan, G., & Zhou, N. (2020). The impact of destination brand authenticity and destination brand self-congruence on tourist loyalty: The mediating role of destination brand engagement. *Journal of Destination Marketing and Management*, 15, Article e100402. <https://doi.org/10.1016/J.JDMM.2019.100402>
- Chhaidar, A., Abdelhedi, M., & Abdelkafi, I. (2023). The Effect of Financial Technology Investment Level on European Banks' Profitability. *Journal of the Knowledge Economy*, 14(3), 2959–2981. <https://doi.org/10.1007/S13132-022-00992-1/TABLES/6>
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly: Management Information Systems*, 13(3), 319–339. <https://doi.org/10.2307/249008>
- de Matos, C. A., & Rossi, C. A. V. (2008). Word-of-mouth communications in marketing: A meta-analytic review of the antecedents and moderators. *Journal of the Academy of Marketing Science*, 36(4), 578–596. <https://doi.org/10.1007/S11747-008-0121-1>
- Dias, M. R. M., Castelo, J. S. F., & Mainardes, E. W. (2025). The influence of empathy on value co-creation, value in use, and customer retention in the banking sector. *International Journal of Bank Marketing*, 44(2), 237–257. <https://doi.org/10.1108/IJBM-06-2024-0365>
- Dluhopolskyi, O., Pakhnenko, O., Lyeonov, S., Semenog, A., Artyukhova, N., Cholewa-Wiktor, M., & Jastrzębski, W. (2023). Digital financial inclusion: COVID-19 impacts and opportunities. *Sustainability (Switzerland)*, 15(3), Article e2383. <https://doi.org/10.3390/SU15032383>
- Dubovi, I. (2022). *Emotional engagement assessment: Self-reports versus facial expressions* [Paper presentation]. Proceedings of the 16th International Conference of the Learning Sciences-ICLS, Hiroshima,

Japan.

- Ekaimi, S., Utomo, P., Gunawan, D., Jimmy, S. Y., & Christian, M. (2024). Examining the factors influencing teleconsultation adoption during the pandemic using the TAM Model. *Global Business and Finance Review*, 29(3), 149–160. <https://doi.org/10.17549/GBFR.2024.29.3.149>
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50. <https://doi.org/10.1177/002224378101800104>
- Gambetti, R. C., Graffigna, G., & Biraghi, S. (2012). The grounded theory approach to consumer-brand engagement: The practitioner's standpoint. *International Journal of Market Research*, 54(5), 659–687. <https://doi.org/10.2501/IJMR-54-5-659-687>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial least squares structural equation modeling (PLS-SEM) using R: A workbook*. Springer International Publishing.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis*. Cengage.
- Islam, M. R., Loureiro, S. M. C., Carvalho, I., & Ramires, A. (2025). Engaging in co-creation experiences: The role of affective image and satisfaction. *Journal of Hospitality and Tourism Insights*, 8(1), 326–349. <https://doi.org/10.1108/JHTI-10-2023-0672>
- Kini, A. N., Savitha, B., & Hawaldar, I. T. (2024). Brand loyalty in FinTech services: The role of self-concept, customer engagement behavior and self-brand connection. *Journal of Open Innovation: Technology, Market, and Complexity*, 10(1), Article e100240. <https://doi.org/10.1016/J.JOITMC.2024.100240>
- Klaus, P., & Maklan, S. (2013). Towards a better measure of customer experience. *International Journal of Market Research*, 55(2), 227–246. <https://doi.org/10.2501/IJMR-2013-021>
- Lee, A. T., Ramasamy, R. K., & Subbarao, A. (2025a). Understanding Psychosocial barriers to healthcare technology adoption: A review of TAM technology acceptance model and unified theory of acceptance and use of technology and UTAUT frameworks. *Healthcare*, 13(3), Article e250. <https://doi.org/10.3390/HEALTHCARE13030250>

- Levy, S. (2022). Brand bank attachment to loyalty in digital banking services: Mediated by psychological engagement with service platforms and moderated by platform types. *International Journal of Bank Marketing*, 40(4), 679–700. <https://doi.org/10.1108/IJBM-08-2021-0383>
- Lusch, R. F., & Vargo, S. L. (2009). Service-dominant logic — a guiding framework for inbound marketing. *Marketing Review St. Gallen*, 26(6), 6–10. <https://doi.org/10.1007/S11621-009-0094-6>
- Marangunić, N., & Granić, A. (2015). Technology acceptance model: A literature review from 1986 to 2013. *Universal Access in the Information Society*, 14(1), 81–95. <https://doi.org/10.1007/S10209-014-0348-1>
- Nanta, T. M., Noermijati, N., Rohman, F., & Hussein, A. S. (2025). The influence of digital touchpoint usage experience on customer loyalty and the mediating role of digital engagement: A study on an internet service provider company. *International Journal of Analysis and Applications*, 23, Article e143. <https://doi.org/10.28924/2291-8639-23-2025-143>
- Nwachukwu, P. S., Chima, O. K., & Okolo, C. H. (2025). Digital transformation in banking: Impact of technological innovation and an integrated framework for customer relationship success. *Gulf Journal of Advance Business Research*, 3(9), 1245–1283. <https://doi.org/10.51594/gjabr.v3i9.158>
- Owusu, P. R., Asiedu, E. P., Ji, J., & Sarpong, F. A. (2022). Innovation and evaluation of technology acceptance model (TAM) in s-commerce: A case of social media platforms in Ghana. *Journal of Computer and Communications*, 10(03), 100–124. <https://doi.org/10.4236/JCC.2022.103007>
- Peng, P., & Jiaying, G. (2024). Analysis of the impact of service-dominant logic on value co-creation in online tourism enterprises. *International Journal of Management Science Research*, 7(4), 6–9. [https://doi.org/10.53469/IJOMSR.2024.07\(04\).02](https://doi.org/10.53469/IJOMSR.2024.07(04).02)
- Saini, S., & Singh, J. (2020). A link between attitudinal and behavioral loyalty of service customers. *Business Perspectives and Research*, 8(2), 205–215. <https://doi.org/10.1177/2278533719887452>
- Sethi, S. (2023). Exploring the role of value co-creation in banking: A

- customer-centric approach. *International Journal of Research in Marketing Management and Sales*, 5(1), 74–77. <https://doi.org/10.33545/26633329.2023.v5.i1a.238>
- Shachak, A., Kuziemsy, C., & Petersen, C. (2019). Beyond TAM and UTAUT: Future directions for HIT implementation research. *Journal of Biomedical Informatics*, 100, Article e103315. <https://doi.org/10.1016/J.JBI.2019.103315>
- Shams, A. K., & Hamdan, A. (2023). The role of blockchain in transforming the financial sector. In R. El Khoury, N. Nasrallah (Eds.), *Emerging trends and innovation in business and finance. contributions to management science* (pp. 769–775). Springer. https://doi.org/10.1007/978-981-99-6101-6_57
- Sumaedi, S., Juniarti, R. P., & Bakti, I. G. M. Y. (2015). Understanding trust & commitment of individual saving customers in Islamic banking: The role of ego involvement. *Journal of Islamic Marketing*, 6(3), 406–428. <https://doi.org/10.1108/JIMA-06-2013-0045>
- Tamanni, L., & Besar, M. H. A. H. (2019). Profitability vs poverty alleviation: Has banking logic influences Islamic microfinance institutions? *Asian Journal of Accounting Research*, 4(2), 260–279. <https://doi.org/10.1108/AJAR-05-2019-0039>
- Tian, Y., & Wang, X. (2022). A study on psychological determinants of users' autonomous vehicles adoption from anthropomorphism and UTAUT perspectives. *Frontiers in Psychology*, 13, Article e986800. <https://doi.org/10.3389/FPSYG.2022.986800>
- Wahab, H. K. A., Tao, M., Alam, F., & Ocloo, E. C. (2022). Impact of value co-creation on customer loyalty. *International Journal of E-Business Research*, 18(1), 1–20. <https://doi.org/10.4018/IJEBR.309390>
- Yi, Y., & Gong, T. (2013). Customer value co-creation behavior: Scale development and validation. *Journal of Business Research*, 66(9), 1279–1284. <https://doi.org/10.1016/J.JBUSRES.2012.02.026>
- Zaman, S. U., Ansari, M. A., Alam, S. H., & Iqbal, R. F. (2024). Role of customer loyalty in online banking services through artificial intelligence (AI). *Review Journal of Social Psychology & Social Works*, 2(2), 342–360. <https://doi.org/10.71145/RJSP.V2I2.133>