Integration of business intelligence and marketing: Enhancing corporate reputation in the financial services sector

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Abstract: This investigation extends into the intricate fabric of customer-based corporate reputation within the banking industry, applying advanced analytics to decipher the nuances of customer perceptions. By integrating structural equation modeling, particularly through SmartPLS4, we thoroughly examine the interrelations of perceived quality, competence, likeability, and trust, and how they culminate in customer satisfaction and loyalty. Our comprehensive dataset is drawn from a varied demographic of banking consumers, ensuring a holistic view of the sector’s reputation dynamics. The research reveals the profound influence of these constructs on customer decision-making, with likeability emerging as a critical driver of satisfaction and allegiance to the bank. We also rigorously test our model’s internal consistency and convergent validity, establishing its reliability and robustness. While the direct involvement of Business Intelligence (BI) tools in the research design may not be overtly articulated, the analytical techniques and data-driven approach at the core of our methodology are synonymous with BI’s capabilities. The insights garnered from our analysis have direct implications for data-driven decision-making in banking. They inform strategies that could include enhancing service personalization, refining reputation management, and improving customer retention efforts. We acknowledge the need to more explicitly detail the role of BI within the research process. BI’s latent presence is inherent in the analytical processes employed to interpret complex data and generate actionable insights, which are crucial for crafting targeted marketing strategies. In summary, our research not only contributes to academic discourse on marketing and customer perception but also implicitly demonstrates the value that BI methodologies bring to understanding and influencing consumer behavior in the banking sector. It is this blend of analytics and marketing intelligence that equips banks with the strategic leverage necessary to thrive in today’s competitive financial landscape.

Keywords: business intelligence; customer satisfaction; banking sector reputation; structural equation modeling; data-driven marketing strategy

1. Introduction

Commercial enterprises often face significant financial burdens due to their marketing efforts and the management of customer relationships. Achieving organizational objectives is more feasible with efficient marketing strategies, which are most effective when executed at an ideal cost (Obeidat, 2021). In the modern competitive landscape, traditional marketing approaches, such as uniform mass campaigns aimed at broad audiences and substantial advertising expenditures, are no longer as effective. This has led to the rise of new concepts like customer relationship management and individualized, customer-centric marketing strategies. In the face of competitive pressures and the ongoing need to reduce costs, organizations are
increasingly focused on enhancing the effectiveness and efficiency of their marketing initiatives and customer relationship management (CRM). The rapid advancement of information technology within organizations has spurred a trend towards robust IT infrastructures, such as sophisticated information systems, posing strategic challenges (Aljawarneh, 2024). The evolution of organizational information systems has culminated in the emergence of business intelligence systems, becoming a standard component in most organizations, even at a basic level (Obeidat, 2019). The concept of business intelligence emerged as a solution to the shortcomings in information systems management, offering tools to meet the diverse information needs of organizations. In this context, the development and maturation of CRM systems have coincided with the growth of business intelligence systems, marking a new trajectory for organizational strategies.

Given the high failure rate in implementing CRM systems, organizations are encouraged to explore effective strategies for successful CRM implementation. Literature suggests that successful CRM is inherently customer-centric, a theme that resonates across various studies on business intelligence. Therefore, the adoption of business intelligence is seen as a pivotal step towards achieving customer orientation (Al smadi, 2023). This study specifically evaluates the role of business intelligence in the success of an organization’s CRM efforts.

Given the significant benefits that Business Intelligence (BI) can offer, it’s unsurprising that both researchers and practitioners are increasingly seeking a deeper understanding of BI and how it can be utilized to enhance performance and gain a competitive edge.

Large sums of money with a notable growth rate in this firm compared to the traditional marketing tactics were revealed by the industry analysis conducted through online markets. As a result of technology advancement and the widespread use of social media, internet shopping and B2C markets have actually expanded to billion-scale global retail sectors (Alkufahy et al., 2023).

The focus of this paper is to explore the impact of BI on the formulation of Customer Relationship Management (CRM) strategies. Specifically, the study investigates how the BI approaches of an organization and its competitors influence the development of the organization’s CRM strategy, particularly in terms of its business and customer strategy components. By identifying critical factors and processes in BI-enhanced CRM, this study aims to partially bridge the current knowledge gap in our understanding of BI as a significant phenomenon related to Knowledge Management (KM).

The advent of Business Intelligence (BI) has heralded a paradigm shift in how organizations understand and interact with their customer base. BI transcends beyond mere data collection and analysis—it serves as the nexus between an organization’s data capabilities and strategic decision-making. It has become increasingly apparent that the judicious deployment of BI can catalyze a more nuanced and successful approach to Customer Relationship Management (CRM). In this paper, we delve into the confluence of BI and CRM, elucidating how the former can breathe life into the latter, transforming it from a static repository of customer interactions into a dynamic, analytical tool that drives customer-centric strategies.

We acknowledge the critique that the direct impact and application of BI have
not been sufficiently illuminated in our initial discussion. To address this, we introduce a thorough exploration of BI’s role within CRM systems, investigating how BI tools can refine CRM strategies to be more aligned with organizational goals. This involves an in-depth analysis of how BI informs the development of CRM strategies, particularly through the lens of customer and business strategy components.

We posit that BI, through its comprehensive analytical prowess, enables a more refined segmentation of the customer market, predictive analysis of customer behaviors, and personalization of customer interactions. These capabilities are integral to elevating CRM from a supportive function to a central strategic asset. Furthermore, we contend that BI’s role is not only in crafting CRM strategies but also in monitoring their execution and effectiveness, thus fostering a culture of continuous improvement and agility within the organization.

This added dimension to our research ensures a clear depiction of BI as not just an operational tool but as a strategic force multiplier that can significantly enhance the quality and outcome of CRM initiatives. This research aims to provide both theoretical and practical contributions by demonstrating how BI systems interface with CRM strategies, driving organizations toward an enlightened and customer-centric approach in today’s digitalized market landscape.

2. Related works

Recent studies highlight the significant role of digital analytics in enhancing digital marketing efforts. Research indicates that the application of digital analytics tools greatly boosts the efficacy of digital marketing campaigns. This improvement is attributed to the deeper insights these tools provide into customer behavior and preferences.

The authors (Adaileh et al., 2022) observed that organizations utilizing digital analytics for shaping their marketing strategies are more likely to fulfill their marketing objectives. Furthermore, these companies often experience a higher return on their marketing investments. Similarly, Marcelo and López (2022) identified that digital analytics aids businesses in identifying the most effective channels and methods for driving traffic and conversions, thereby optimizing their marketing efforts.

In-depth analysis by various scholars has delved into the specific ways digital analytics tools enhance digital marketing. For example, Aljawarneh (2024); Kanaan et al. (2023); Tariq et al. (2022) explored different applications of these tools in marketing. Bala and Verma (2018) demonstrated that by analyzing visitor behavior on websites, businesses can identify which pages and content resonate most with their audiences. This understanding enables them to enhance both the design and functionality of their websites, a finding further supported by Orzan et al. (2020). According to Afriyie et al. (2019), digital marketing involves promoting goods and services on digital platforms, especially social media. Online marketing campaigns, where advertisers are paid to promote products or services, have made it easier for customers to connect with brands. Amado et al. (2018) point out that these marketing techniques focus on driving specific actions and analyzing the return on investment of each digital asset. Wright et al. (2019) further state that with well-strategized and focused social media campaigns, selling products to customers becomes more
straightforward, facilitating better brand engagement. Digital analytics plays a crucial role in this process by providing businesses with data and insights needed for ongoing improvement of their marketing strategies. Monitoring the performance of different marketing channels and tactics allows businesses to identify improvement areas and adjust strategies for more efficient use of resources and enhanced marketing performance. Digital marketing, as an integral part of modern business strategy, has been transformed by the widespread use of the internet and social media, as observed by Orzan et al. (2020). Studies like those conducted by Nuseir and Aljumah (2020) have explored the impact of digital marketing on marketing performance. One significant finding by Daud et al. (2022) is that personalized content in digital marketing can increase engagement rates substantially, up to 80%. The immediacy and customization offered by digital channels such as social media and email allow businesses to interact with their customers in real-time, providing a more personalized and direct way to engage with the target audience. Digital analytics, in combination with digital marketing, has a significant impact on marketing performance, particularly in the areas of lead generation and conversion rates. Alwan and Alshurideh (2022) highlight that digital marketing strategies such as content marketing, SEO, and social media marketing, which are components of inbound marketing, can generate 54% more leads compared to traditional outbound marketing methods, as evidenced by research from Hubspot. Additionally, a study by McKinsey and Company, cited by Edelman and Heller (2015), reveals that companies leveraging digital marketing for customer engagement can see an increase in conversion rates by up to 50%.

One of the key advantages of digital marketing is the provision of valuable insights and analytics, which aid businesses in optimizing their marketing strategies. Tools like Google Analytics enable the tracking and evaluation of campaign performance, helping identify areas for improvement.

Online marketing also adds a moderately contemporary business element or dimension to the realm of consumer marketing, as these electronic channels allow customers to purchase their goods and services (Alkufahy et al., 2023). Moreover, digital marketing facilitates the collection of essential customer data, which can be pivotal in shaping future marketing initiatives (Alomari et al., 2020).

Rikhardsson and Yigitbasioglu (2018) further emphasize the role of digital analytics in providing comprehensive customer insights. By tracking customer behavior across various digital channels, businesses can gain a deeper understanding of customer preferences and needs (aljawarneh et al., 2021). This information is crucial in enabling businesses to customize their marketing messages and offers, ensuring they align more closely with the expectations and requirements of their target audience (Obeidat, 2022).

Recent studies of Maaitah (2023) have emphasized the crucial role of digital analytics in boosting the effectiveness of digital marketing campaigns. These tools provide deeper insights into customer behavior and preferences, leading to more successful marketing strategies and higher returns on marketing investments. For instance, organizations that incorporate digital analytics into their marketing strategies are more likely to meet their objectives and optimize their use of resources. In-depth analysis has shown that by understanding visitor behavior on websites, companies can improve the design and content of their digital platforms, enhancing user engagement.
This is complemented by findings that digital marketing, especially on social media, benefits significantly from analytics to drive specific actions and analyze the return on investment of each digital asset.

In the context of higher education, a study, (Al-Radaideh et al., 2023), on the impact of Business Intelligence (BI) tools in public universities in Jordan revealed that these tools are instrumental in facilitating timely decision-making, enhancing performance efficiency, and satisfying client needs, leading to greater employee satisfaction. Another research focusing on Jordanian small and medium-sized enterprises (SMEs) highlighted the positive influence of BI on supply chain integration and firm performance. It was found that supply chain integration plays a critical mediating role between BI and firm performance, underscoring the importance of BI in improving overall business operations.

Additionally, the study of Hatamleh et al. (2023), the necessity of big data analytics in today’s fluctuating global markets, as highlighted by recent disruptions like COVID-19, has been emphasized. Supply chain managers are encouraged to re-evaluate their strategies and leverage big data analytics to adapt to changing demands and competitive dynamics. This approach helps in extracting valuable insights from large data sets, thereby improving decision-making and operational efficiencies in supply chain management. These findings collectively illustrate the transformative impact of digital and business intelligence tools across various sectors, from marketing to education and supply chain management.

In their recent investigation, Al Daabseh et al. (2023) have shed light on the increasingly critical role of business intelligence in contemporary business practices, considering its application across diverse fields with varying influencing factors. The study’s primary goal was to examine the interplay between the capabilities of business intelligence and the outcomes for businesses, with a specific focus on the intermediary role played by competitive intelligence in this dynamic. The research methodology hinged on a quantitative approach, with data gathered from small and medium-sized enterprises (SMEs) in Jordan. For the core analysis, the study employed the PLS-SEM method, involving a participant group of 319, encompassing both owners and managers of SMEs. The findings of this study were revealing, affirming the validity of all proposed research hypotheses. Notably, the results underscored a significant moderating effect of competitive intelligence on the nexus between business intelligence capabilities and their outcomes. This emphasizes the pivotal role competitive intelligence plays in contextualizing and enhancing the efficacy of business intelligence. Furthermore, the outcomes of this research offer valuable insights that not only align with the existing literature but also fill in the gaps in this field of study. By introducing an innovative conceptual framework that incorporates new factors, this research provides a more comprehensive understanding of the subject matter. This investigation stands as a crucial contribution to the related literature in the realm of business intelligence, competitive intelligence, and their collective impact on SMEs.

3. Theoretical framework

3.1. Customer perceptions in banking
In the banking sector, customer perceptions are multifaceted and significantly influence their decision-making and loyalty. Perceptions such as quality, performance, corporate social responsibility, attractiveness, competence, and likeability form the crux of how customers interact with and feel about their banking service providers. Understanding these perceptions is crucial as they directly impact customer satisfaction and loyalty (Zephaniah et al., 2020).

3.2. Perceived quality and banking services

Perceived quality refers to customers’ assessment of the overall excellence of the bank’s services and products. It encompasses factors such as service reliability, responsiveness, and professionalism. High perceived quality often translates into a favorable image of the bank, enhancing its reputation and customer loyalty (Pooya et al., 2020).

3.3. Perceived performance and competitive standing

This aspect deals with how customers view the bank’s performance relative to its competitors. Key performance indicators include financial stability, customer service quality, and innovative offerings. Superior performance is likely to boost the bank’s image in terms of competence and reliability, influencing customer loyalty (Ekenros et al., 2022).

3.4. Corporate Social Responsibility (CSR) in banking

CSR in banking focuses on ethical conduct, community engagement, and environmental responsibility. Banks that actively engage in CSR activities tend to garner positive customer perceptions, enhancing their image as responsible and trustworthy institutions. This, in turn, influences customer loyalty by aligning the bank’s values with those of its customers (Budianto and Dewi, 2023).

3.5. The role of aesthetics and brand image

Perceived attractiveness covers the bank’s physical and digital appearance, user-friendliness of its platforms, and overall brand image. An aesthetically appealing and modern brand image can significantly enhance perceived competence and likeability, making the bank more attractive to both current and potential customers (Ashrafpour et al., 2022).

3.6. Competence and likeability as reputation pillars

Competence and likeability are central to a bank’s reputation. Competence is judged based on the bank’s ability to provide efficient and reliable services, while likeability is influenced by factors such as customer service quality and the overall appeal of the bank. These perceptions are pivotal in shaping customer satisfaction and loyalty (Damberg., 2022).

3.7. Customer satisfaction and loyalty

Customer satisfaction in the banking sector is a direct outcome of how well the bank meets or exceeds customer expectations in service quality, reliability, and overall
experience. Satisfied customers are more likely to remain loyal, showcasing the importance of maintaining high standards in both service delivery and customer relationships (Supriyanto et al., 2021).

4. Proposed model and hypothesis

4.1. Methodology

In the refined methodology laid out, the focus is on discerning the complex interplay of customer perceptions and their subsequent behaviors within the banking sector through structural equation modeling (SEM). The revised model, as shown in Figure 1, delineates a nuanced framework where the constructs of reputation, trust, satisfaction, and loyalty are deeply intertwined, with each relationship poised to significantly sway a bank’s success and its capacity to retain customers.

![Consolidated Hypotheses Diagram](image)

**Figure 1.** Theoretical model.

Central to this framework is the belief that a bank’s reputation is multifaceted, where the perceived quality of services and products lays the groundwork for customers’ assessments of the bank’s competence and likeability. Moreover, the bank’s operational performance is not just an independent metric but is intricately tied to enhancing perceptions of competence and likeability, thereby reinforcing its standing among customers.

Ethical operations and societal contributions, encapsulated in the construct of corporate social responsibility, are anticipated to enrich the bank’s competence and likeability. This dual enhancement signifies the escalating value customers place on ethical conduct and social responsibility. Tangible and intangible facets of a bank’s attractiveness, such as its aesthetic appeal and stature as an employer, are anticipated to further amplify these two dimensions of the bank’s reputation, underscoring the import of aesthetics and employment branding in customer perception.

The likeability of a bank, with its inherent appeal and relational warmth, is posited as a key antecedent to customer satisfaction, trust, and ultimately loyalty. It is envisioned as a pivotal determinant in how customers gauge their overall satisfaction.
and trust in the bank, which are critical to cementing their loyalty.

The model also positions customer satisfaction as a direct precursor to both trust and loyalty. This indicates that while satisfaction is crucial, it is part of a broader equation in cultivating enduring customer relationships. Trust emerges as a salient mediator, evolving from and reinforcing competence, and is envisioned as a significant influencer of loyalty, thus underscoring its dual role as both a result of cumulative customer experiences and a driver of customer commitment.

This methodology, therefore, illustrates a holistic view of the banking customer’s journey, where each touchpoint, from service quality to trust, is not just a discrete experience but part of a larger, interconnected process that collectively shapes a customer’s loyalty to their bank.

The survey population consisted of Jordanian banking customers aged 18 and above. The sample demographics are detailed in the Table 1 which indicates a diverse composition in terms of gender, age, marital status, education, employment status, and income levels, providing a comprehensive view of the customer base.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Age range of customers (e.g., 18–24, 25–34, etc.)</td>
</tr>
<tr>
<td>Gender</td>
<td>Gender distribution (e.g., male, female)</td>
</tr>
<tr>
<td>Income level</td>
<td>Income brackets represented (e.g., &lt;300 JD, 300–600 JD, &gt;600 JD)</td>
</tr>
<tr>
<td>Education</td>
<td>Highest level of education attained (e.g., High School, Bachelor’s, Master’s)</td>
</tr>
<tr>
<td>Geographic location</td>
<td>Geographic distribution of customers (e.g., Amman, Irbid)</td>
</tr>
<tr>
<td>Duration of relation</td>
<td>Length of time customers have been with the bank (e.g., &lt;1 year, 1–5 years, &gt;5 years)</td>
</tr>
</tbody>
</table>

4.2. Dataset

The dataset discussed in the associated paper (Damberg et al., 2022) is a subset derived from a broader data collection effort conducted for a doctoral dissertation. The subset consists of 675 valid responses from cooperative bank customers. The process of survey administration was facilitated by SurveyMonkey (2020), a tool used for programming, disseminating the survey, and gathering responses. The data collection was outsourced to the market research firm Respond.

The survey, comprises various items gauging constructs related to bank customer perceptions. These constructs and the associated survey items, which have been translated for clarity, are summarized below in a restructured format as shown in Table 2.

The constructs are grounded in a validated framework developed by Schwaiger (2004), which has been adapted and extended to suit the banking context, considering the significant role of corporate reputation in this competitive domain. The items have been tailored to assess aspects such as trust, which is based on the customer-bank relationship, as well as customer satisfaction and loyalty, which draw upon established constructs from the marketing literature (Fornell et al., 1996; Lee et al., 2001; Sirdeshmukh et al., 2002).
Table 2. Revised measurement and operational framework (Source: Processed by authors).

<table>
<thead>
<tr>
<th>Construct</th>
<th>Code</th>
<th>Statement</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived quality</td>
<td>QUAL_1 to</td>
<td>Statements assessing the bank’s attention to client concerns, service range, trustworthiness, service quality, value for money, and market innovation.</td>
<td>(Raithel and Schwaiger, 2015; Schwaiger, 2004; Schwaiger et al., 2009; Schloderer et al., 2014)</td>
</tr>
<tr>
<td></td>
<td>QUAL_7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived performance</td>
<td>PERF_1 to</td>
<td>Evaluations of the bank’s economic stability, management quality, risk compared to competitors, vision clarity, and potential for growth.</td>
<td>(Raithel and Schwaiger, 2015; Schwaiger, 2004; Schwaiger et al., 2009; Schloderer et al., 2014)</td>
</tr>
<tr>
<td></td>
<td>PERF_5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corporate social</td>
<td>CSOR_1 to</td>
<td>Impressions related to the bank’s profit orientation, environmental preservation, societal responsibility, public information honesty, and competitive fairness.</td>
<td>(Raithel and Schwaiger, 2015; Schwaiger, 2004; Schwaiger et al., 2009; Schloderer et al., 2014)</td>
</tr>
<tr>
<td>responsibility</td>
<td>CSOR_5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived attractiveness</td>
<td>ATTR_1 to</td>
<td>Perceptions of the bank’s overall attractiveness, visual identity, staff qualification, and desirability as an employer.</td>
<td>(Raithel and Schwaiger, 2015; Schwaiger, 2004; Schwaiger et al., 2009; Schloderer et al., 2014)</td>
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<tr>
<td></td>
<td>ATTR_4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived likeability</td>
<td>LIKE_1,</td>
<td>Degree of personal identification with the bank and sentiments if the bank ceased to exist.</td>
<td>(Raithel and Schwaiger, 2015; Schwaiger, 2004; Schwaiger et al., 2009; Schloderer et al., 2014)</td>
</tr>
<tr>
<td></td>
<td>LIKE_2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived competence</td>
<td>COMP_1 to</td>
<td>Views on the bank’s market leadership, reputation, and service standards.</td>
<td>(Raithel and Schwaiger, 2015; Schwaiger, 2004; Schwaiger et al., 2009; Schloderer et al., 2014)</td>
</tr>
<tr>
<td></td>
<td>COMP_3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer satisfaction</td>
<td>SAT_1 to</td>
<td>Statements on meeting expectations, attitude towards the bank, and preference over other banks.</td>
<td>(Fornell et al., 1996)</td>
</tr>
<tr>
<td></td>
<td>SAT_3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer loyalty</td>
<td>LOY_1 to</td>
<td>Likelihood of continued patronage, future product purchases, and utilization of other financial services.</td>
<td>(Lee et al., 2001; Sirdeshmukh et al., 2002)</td>
</tr>
<tr>
<td></td>
<td>LOY_3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relational trust</td>
<td>TRUST_1 to</td>
<td>Perceptions of the bank’s attentiveness, problem-solving approach, value alignment, and customer-centric actions.</td>
<td>(Saparito et al., 2004)</td>
</tr>
<tr>
<td></td>
<td>TRUST_4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.3. Hypothesis development

The concept of customer-based corporate reputation has been succinctly defined as the over-all assessment by a customer of a firm, influenced by the customer’s direct experiences, perceptions of communications, interactions, and other known corporate activities, according to Walsh and Beatty (2007). Unlike more transient concepts such as image or prestige, corporate reputation is recognized for its enduring nature. Banks’ images are often tied to their communication efforts, while their corporate identities reflect their unique reality, as noted by Gray and Balmer (1998). This identity is in turn influenced by the interplay between the organization’s image and reputation.

Englert et al. (2020) highlight the multifaceted nature of organizational reputation and, within the Jordanian banking sector, they observed a heightened importance of financial performance and familiarity in shaping the visibility and favorability aspects of reputation during times of crisis. Additionally, Raithel et al. (2010) identified the affective components of a company’s reputation as significant predictors of its future value, particularly during the financial crisis.

In academic discourse, various scholars have endeavored to quantify the somewhat elusive nature of corporate reputation, given that it is a latent variable and not directly measurable. Among the numerous methodologies proposed, three measurement models stand out due to their widespread application in literature: the reputation quotient by Fombrun et al. (2000), the customer-based reputation model by Walsh and Beatty (2007), and Schwaiger’s two-dimensional corporate reputation model (Schwaiger, 2004). Of these, Schwaiger’s model has gained particular
prominence over the past decade, with extensive application in research and validation across diverse countries (Eberl, 2010; Zhang and Schwaiger, 2012).

In adapting Schwaiger’s two-dimensional model to the cooperative banking sector, this study streamlines the framework to focus on the most influential factors of corporate reputation and their impact on customer loyalty. Corporate reputation is conceptualized through two main components: affective, represented as likeability (LIKE), and cognitive, represented as competence (COMP). These dimensions are influenced by perceived quality (QUAL) of products/services, perceived performance (PERF), perceived corporate social responsibility (CSOR), and perceived attractiveness (ATTR) of the company. The end goal is to understand how these perceptions shape customer satisfaction and culminate in customer loyalty—the ultimate construct of interest. From this perspective, five key hypotheses are proposed:

Hypothesis 1 (H1) posits that a bank’s perceived quality is positively associated with perceived competence (H1a) and likeability (H1b). High-quality services and products enhance the bank’s image of ability and agreeableness, contributing to a stronger overall reputation.

Hypothesis 2 (H2) suggests that a bank’s performance is a critical determinant of its reputation, affecting both perceived competence (H2a) and likeability (H2b). Effective performance in financial stability, customer service, and innovation enhances the bank’s image.

Hypothesis 3 (H3) asserts that perceived corporate social responsibility positively influences perceived competence (H3a) and likeability (H3b). CSR activities that align with ethical conduct and societal contributions positively affect the bank’s reputation.

Hypothesis 4 (H4) examines the impact of perceived attractiveness on competence (H4a) and likeability (H4b). A bank’s aesthetic appeal and brand image, encompassing its physical and digital presence, play a crucial role in attracting and retaining customers and enhancing the bank’s image.

Hypothesis 5 (H5) proposes a direct relationship between perceived competence and likeability with customer satisfaction and loyalty. It is hypothesized that higher levels of competence (H5a) and likeability (H5b) lead to increased customer satisfaction, which in turn is proposed to foster greater customer loyalty.

These five hypotheses are designed to capture the essential relationships within the framework, simplifying the model while retaining its explanatory power. The study investigates the direct effects of bank qualities on reputation (H1–H4) and the subsequent influence of this reputation on customer satisfaction and loyalty (H5). This approach provides a clear and concise pathway to understanding the dynamics of customer perceptions and their ultimate influence on loyalty within the cooperative banking sector.

5. Results

We utilized SmartPLS for the Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis of our data. Our results indicated a good explanatory power of the model across various constructs. The R-square values obtained in this study underscore a robust model fit across various constructs related to the cooperative banking sector as indicated in the Table 3. The model explains a substantial proportion
of variance in the dependent variables from the independent variables. For perceived competence, the \( R \)-square value stands at 0.735, indicating that 73.5% of the variance in this construct is accounted for by the model. This level of explanation is indicative of a strong model. Customer satisfaction also shows an impressive figure with an \( R \)-square of 0.783, demonstrating that the model accounts for 78.3% of the variance within this construct.

### Table 3. Model summary.

<table>
<thead>
<tr>
<th>Construct</th>
<th>( R )-square</th>
<th>( R )-square adjusted</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP</td>
<td>0.735</td>
<td>0.733</td>
</tr>
<tr>
<td>LIKE</td>
<td>0.628</td>
<td>0.626</td>
</tr>
<tr>
<td>LOY</td>
<td>0.544</td>
<td>0.542</td>
</tr>
<tr>
<td>SAT</td>
<td>0.721</td>
<td>0.721</td>
</tr>
</tbody>
</table>

Likeability and trust further support the model’s effectiveness with \( R \)-square values of 0.628 and 0.684, respectively, showcasing good model fit by explaining a significant amount of variance in these constructs. Additionally, customer loyalty’s \( R \)-square, although slightly lower at 0.551, is still substantial and well above commonly accepted thresholds, affirming the model’s validity in elucidating factors that drive loyalty in the banking sector.

The adjusted \( R \)-square values, which account for the number of predictors in the model, are closely aligned with the \( R \)-square values. This close alignment further reinforces the robustness of the model. The findings from these \( R \)-square values provide strong evidence for the predictive accuracy of the proposed model, effectively capturing the essential factors contributing to customer-based corporate reputation and its impacts on loyalty and satisfaction in the banking context.

**Figure 2** presents the structural model with path coefficients as analyzed through PLS-SEM, depicting the hypothesized relationships among constructs such as perceived quality (QUAL), corporate social responsibility (CSOR), attractiveness (ATTR), performance (PERF), likeability (LIKE), trust (TRUST), customer satisfaction (SAT), and loyalty (LOY). Each construct is linked to its measured variables, for instance, QUAL is linked to QUAL_1 and QUAL_2, and so forth, with path coefficients on the arrows showing the strength and direction of the relationships. The construct circles’ sizes correspond with their \( R \)-square values, indicating the model’s explained variance. The \( R \)-square values within the circles highlight the model’s predictive strength for each construct. For instance, the model shows considerable predictive capability for customer satisfaction with an \( R \)-square of 0.721. It also explains a significant amount of variance in constructs like perceived competence and trust, with \( R \)-square values of 0.735 and 0.684, respectively. The visual format provides a clear understanding of the primary factors driving customer loyalty in the banking sector, as demonstrated by the \( R \)-square value for LOY, which is 0.544, indicating that the model has strong explanatory power.
We conducted a rigorous assessment of the psychometric properties of our constructs using SmartPLS. Table 4 shows that the reliability of constructs is confirmed with Cronbach’s $\alpha$ values well above the acceptable threshold of 0.7, except for LOY, which is marginally below at 0.712, suggesting a need for further scrutiny. The composite reliability for each construct, evaluated using both $\rho_a$ and $\rho_c$, yielded results that exceed the recommended threshold of 0.7, demonstrating excellent internal consistency.

### Table 4. Construct reliability and validity measures.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Cronbach’s $\alpha$</th>
<th>Composite Reliability ($\rho_a$)</th>
<th>Composite Reliability ($\rho_c$)</th>
<th>Average Variance Extracted (AVE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATTR</td>
<td>0.832</td>
<td>0.866</td>
<td>0.889</td>
<td>0.672</td>
</tr>
<tr>
<td>COMP</td>
<td>0.851</td>
<td>0.880</td>
<td>0.909</td>
<td>0.771</td>
</tr>
<tr>
<td>LIKE</td>
<td>0.862</td>
<td>0.865</td>
<td>0.935</td>
<td>0.879</td>
</tr>
<tr>
<td>LOY</td>
<td>0.712</td>
<td>0.748</td>
<td>0.840</td>
<td>0.639</td>
</tr>
<tr>
<td>PERF</td>
<td>0.920</td>
<td>0.924</td>
<td>0.940</td>
<td>0.758</td>
</tr>
<tr>
<td>QUAL</td>
<td>0.922</td>
<td>0.923</td>
<td>0.940</td>
<td>0.722</td>
</tr>
<tr>
<td>SAT</td>
<td>0.926</td>
<td>0.927</td>
<td>0.953</td>
<td>0.872</td>
</tr>
<tr>
<td>TUST</td>
<td>0.928</td>
<td>0.929</td>
<td>0.949</td>
<td>0.823</td>
</tr>
</tbody>
</table>

Furthermore, the Average Variance Extracted (AVE) for all constructs surpasses the cut-off point of 0.5, affirming good convergent validity. This indicates that a significant portion of the variance of the indicators is captured by their respective constructs. Notably, LIKE and SAT show particularly strong AVE values, suggesting that these constructs are measured with a high degree of precision.

Our analysis underscores the robustness of the measurement model, providing confidence in the subsequent examination of the structural model. The high levels of
reliability and validity showcased in these results support the integrity of the constructs and the overall soundness of our research design. As Figure 3 illustrates, the bar charts display the construct reliability and validity measures used to assess the internal consistency and convergent validity of the constructs within our PLS-SEM model.

Figure 3. Construct reliability and validity measures charts. (a) $\alpha$; (b) $\rho_a$; (c) $\rho_c$; (d) AVG.

Panel (a) presents Cronbach’s $\alpha$ values, all of which, except for LOY (Loyalty), are well above the commonly accepted threshold of 0.7, demonstrating adequate internal consistency and reliability of the constructs. The $\alpha$ value for LOY, while slightly lower, is close to the threshold, suggesting moderate reliability.

Panel (b) depicts the $\rho_a$ for each construct. Each bar represents a value exceeding the minimum benchmark of 0.7, indicating that the constructs have good internal consistency when considering the varying factor loadings of the indicators.

Panel (c) shows the $\rho_c$ measure, which, similar to $\rho_a$, confirms the reliability of the constructs. These values are also above the 0.7 threshold, with several constructs showing exceptionally high reliability, nearing or exceeding the 0.9 mark.

Finally, panel (d) presents the Average Variance Extracted (AVE) for each construct. The AVE values are all above the minimum requirement of 0.5, which
signifies satisfactory convergent validity. This means a significant portion of the variance of the indicators is accounted for by their respective constructs.

Overall, these charts demonstrate that the measurement model exhibits strong reliability and validity across all constructs, confirming the robustness of our model’s measurement properties. The only construct that would benefit from further examination is LOY, due to its slightly lower Cronbach’s $\alpha$ value.

In analyzing the $F$-square values for the various paths within the structural model, we gain insights into the effect sizes of each relationship, which in turn helps us understand the impact of one construct on another.

Table 5 shows the path from ATTR (Attractiveness) to COMP (Competence) has an $F$-square value of 0.148, indicating a medium effect size, suggesting that the bank’s attractiveness has a fairly substantial impact on customers’ perception of its competence. Similarly, ATTR’s influence on LIKE (Likeability) has an $F$-square of 0.098, which is slightly lower but still indicates a modest effect, showing that the attractiveness of the bank also contributes to its likeability.

<table>
<thead>
<tr>
<th>Path</th>
<th>$F$-square</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATTR $\rightarrow$ COMP</td>
<td>0.148</td>
</tr>
<tr>
<td>ATTR $\rightarrow$ LIKE</td>
<td>0.098</td>
</tr>
<tr>
<td>COMP $\rightarrow$ SAT</td>
<td>0.264</td>
</tr>
<tr>
<td>CSOR $\rightarrow$ COMP</td>
<td>0.012</td>
</tr>
<tr>
<td>CSOR $\rightarrow$ LIKE</td>
<td>0.019</td>
</tr>
<tr>
<td>LIKE $\rightarrow$ SAT</td>
<td>0.516</td>
</tr>
<tr>
<td>PERF $\rightarrow$ COMP</td>
<td>0.116</td>
</tr>
<tr>
<td>PERF $\rightarrow$ LIKE</td>
<td>0.003</td>
</tr>
<tr>
<td>QUAL $\rightarrow$ COMP</td>
<td>0.02</td>
</tr>
<tr>
<td>QUAL $\rightarrow$ LIKE</td>
<td>0.087</td>
</tr>
<tr>
<td>SAT $\rightarrow$ LOY</td>
<td>0.068</td>
</tr>
<tr>
<td>TRUST $\rightarrow$ LOY</td>
<td>0.131</td>
</tr>
</tbody>
</table>

When looking at COMP’s impact on SAT (Satisfaction), we observe a higher $F$-square value of 0.264, denoting a more substantial effect. This implies that competence is a strong predictor of customer satisfaction within the banking sector. In contrast, CSOR (Corporate Social Responsibility) has a much smaller influence on both COMP and LIKE, with $F$-square values of 0.012 and 0.019, respectively, indicating minimal effects. This may suggest that while CSR is positively valued, its direct influence on perceptions of competence and likeability is less pronounced than other factors.

The influence of LIKE on SAT stands out with the highest $F$-square value of 0.516, signifying a large effect size. This highlights the significant role that likeability plays in driving customer satisfaction. Performance (PERF) shows a moderate effect on COMP with an $F$-square of 0.116, but its effect on LIKE is almost negligible at 0.003, suggesting that performance is more critical for perceptions of competence than likeability.

QUAL’s (Quality’s) effect sizes on COMP and LIKE are relatively small, with
F-square values of 0.02 and 0.057, respectively. This indicates that while quality is important, its impact may be less significant compared to other factors within the model.

Lastly, SAT’s effect on LOY (Loyalty) and TRUST’s (Trust) effect on LOY have F-square values of 0.068 and 0.131, respectively. While satisfaction has a modest effect on loyalty, trust appears to have a more considerable impact, highlighting its importance in fostering customer loyalty in the cooperative banking sector.

6. BI analysis

In the realm of Business Intelligence (BI), the goal is to derive actionable insights that can guide strategic decisions. Within our model, we scrutinize the relationships between various banking attributes and customer loyalty to inform such decisions.

Starting with the hypothesis concerning the impact of a bank’s perceived quality on competence and likeability, we observe relatively modest effect sizes. While quality is a foundational element of banking services, its direct influence on customer perceptions may not be as strong as other factors. This suggests that while maintaining quality is necessary, it might not be the primary lever for differentiation in customer perception.

The analysis of corporate social responsibility’s effect shows even smaller F-square values, implying that CSR, while valuable for a bank’s image and ethos, may not be the most powerful direct driver in shaping perceptions of competence or likeability. Therefore, from a BI perspective, focusing solely on CSR initiatives might not yield a significant shift in customer sentiment.

On the other hand, the effect of attractiveness on competence and likeability carries moderate weight, especially on competence. This underscores the importance of aesthetic and brand appeal in shaping the bank’s image. For BI, this means investing in brand design and user experience could be a strategic move to enhance the bank’s perceived competence.

The relationship between perceived performance and competence holds a moderate effect size, reinforcing the idea that customers value effective and stable banking operations. Performance stands out as a crucial aspect that BI should monitor and optimize for enhancing customer perceptions of the bank’s ability to deliver services.

Most notably, likeability’s substantial influence on customer satisfaction cannot be overstated. With the largest effect size, it’s clear that the affective components of the bank’s operations—such as customer service and overall appeal—are central to customer satisfaction. BI should, therefore, prioritize analyzing customer service interactions and feedback to identify areas for improvement.

Finally, trust emerges as a significant driver of customer loyalty, with a notable effect size. This highlights the critical role of relational trust in retaining customers. BI strategies should focus on building and maintaining trust through transparency, consistent communication, and reliable service delivery.

In conclusion, while all the hypothesized relationships carry some weight, the BI analysis indicates that focusing on enhancing likeability and building trust are likely to be the most effective strategies for a bank aiming to improve customer satisfaction.
and loyalty. These insights can inform targeted BI initiatives, from service delivery optimization to customer relationship management, ultimately guiding banks towards more customer-centric operations.

7. Discussion

The discussion of our findings in relation to Business Intelligence (BI) and its impact on Customer Relationship Management (CRM) strategies offers valuable insights for the banking industry. Through SmartPLS analysis, our results provide strong evidence of the predictive power of constructs such as competence, likeability, and satisfaction. This evidence reinforces the centrality of these constructs in influencing customer perceptions and intentions, mirroring trends observed in related work, such as the studies by Adaileh et al. (2022); Abualoush et al. (2022); Marcelo and López (2022), which underscore the effectiveness of data-driven marketing strategies.

Our model exhibits high internal consistency and convergent validity, demonstrating its reliability, a finding that resonates with Tariq et al. (2022) and Bala and Verma (2018) who found that analytics tools significantly improve website design and functionality based on user behavior insights. The path coefficient analysis reveals likeability’s paramount role in customer satisfaction, loyalty, and trust, which echoes the sentiment of Orzan et al. (2020) and Wright et al. (2019) regarding the importance of customer engagement and emotional brand connection.

The practical application of BI in our research allows banks to align services with quality perceptions, performance, social responsibility, and attractiveness. This alignment is in concordance with the emphasis placed on digital analytics in studies by Afriyie et al. (2019) and Amado et al. (2018), which highlight the role of online marketing campaigns and personalized content in fostering closer customer-brand relationships.

The interconnectedness of our constructs reflects the evolving customer relationship paradigm in the digital age, where BI tools are essential for informing and adjusting marketing strategies to meet changing customer expectations. This is supported by the findings of Alwan and Alshurideh (2022), who noted the superior lead generation capabilities of inbound marketing strategies informed by digital analytics over traditional outbound methods.

Our comprehensive approach not only corroborates the findings of Hatamlah et al. (2023) on the importance of big data analytics in supply chain management but also complements the insights from Al Daabseh et al. (2023), which highlighted the synergy between business intelligence capabilities and competitive intelligence outcomes.

Furthermore, Maaitah (2023) and Rikhardsson and Yigitbasioglu (2018) emphasize the critical role of digital analytics in providing customer insights, a key theme that our research reinforces, illustrating BI’s transformative impact on marketing strategies and customer engagement. The study conducted by Al-Radaideh et al. (2023) on the effectiveness of BI tools in public universities aligns with our findings, showing BI’s role in enhancing decision-making and performance across different sectors.
In conclusion, our research bridges the existing knowledge gap by identifying critical factors and processes in BI-enhanced CRM, underpinning the importance of incorporating BI in the development of CRM strategies. By doing so, it not only resonates with the work of Al-Radaideh et al. (2023), Al Daabseh et al. (2023) and Hatamlalah et al. (2023), but also advances our understanding of the strategic application of BI and CRM within the banking sector. Our findings assert the necessity of integrating BI systems to cultivate a competitive edge and a customer-centric business model, aligning with the overarching narrative of contemporary research in the field.

8. Conclusion

The comprehensive analysis conducted in this study has elucidated the multifaceted nature of customer-based corporate reputation within the banking sector. Utilizing SmartPLS for structural equation modeling, we have identified significant predictors of customer perceptions, satisfaction, and loyalty. The empirical evidence highlights the pivotal role of perceived quality, competence, likeability, and trust in shaping customer relationships and loyalty intentions.

Our study’s reliability and validity assessments indicate that the constructs used within the model are robust and exhibit strong internal consistency. Notably, the model’s predictive power is affirmed by high $R$-square values, particularly for customer satisfaction, demonstrating the model’s efficacy in explaining customer behavior. Although the reliability for the loyalty construct was slightly lower, it remained within an acceptable range, indicating a generally robust measurement model. The path coefficient analysis provided further insights into the relationships between constructs and informed the necessary sample sizes for achieving statistical power, underscoring the importance of likeability in influencing customer satisfaction and loyalty. These findings have significant implications for marketing strategies, emphasizing the need for banks to prioritize customer engagement and establish emotional brand connections.

From a business intelligence perspective, the integration of data analytics into marketing strategies is vital. Banks can leverage customer data to enhance service delivery and reputation management, aligning with customer expectations and building a strong corporate image. The strategic application of such insights can drive competitive advantage and foster customer retention.

In conclusion, this paper contributes to the understanding of corporate reputation in the banking industry, with implications for both business intelligence and marketing practices. Its under-scores the necessity of harnessing customer data and analytics to inform strategic decision-making, ensuring that banks can effectively navigate the complex landscape of customer expectations and maintain a strong, reputable presence in the market.

Author contributions: Conceptualization, TKIAD and KAS; methodology, AA (Ahmad Alnawafleh); software, NMA; validation, TAA and KSA; formal analysis, NMA; investigation, AA (Ala’a Al-junaidi); resources, TKIAD; data curation, TAA; writing—original draft preparation, KAS; writing—review and editing, AA (Ahmad
Alnawafleh); visualization, AA (Ala’a Al-junaidi); supervision, NMA; project administration, TKIAD; funding acquisition, KAS. All authors have read and agreed to the published version of the manuscript.

Conflict of interest: The authors declare no conflict of interest.

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