



Educational empowerment for marketing staff: Linking customer relationship orientation, digital banking, and R&D cooperation in Bank BJB

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ABSTRACT

This study investigates how Customer Relationship Orientation (CRO) and Digital Banking Orientation (DBO) influence Marketing Performance (MP) in Bank BJB, with Marketing Research and Development Cooperation (MRDC) as a moderating variable. Distinct from prior studies, this research introduces an educational perspective emphasizing how marketing staff empowerment through education, digital literacy, and continuous learning strengthens organizational adaptability and competence. Using a quantitative explanatory method, data were collected from 316 marketing personnel proportionally selected from 1,762 employees across Bank BJB's regional branches. Data were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS). The findings reveal that both CRO and DBO significantly enhance marketing performance, demonstrating that customer-focused and digitally adaptive strategies are essential for sustaining competitiveness in the banking sector. Moreover, MRDC strengthens these relationships by facilitating the translation of customer insights and technological innovation into more effective marketing strategies. The findings suggest that education-based empowerment, including training in digital banking systems, customer analytics, and R&D collaboration, is vital to develop marketing competence. Therefore, organizational learning and educational interventions should be institutionalized to foster innovation, responsiveness, and long-term performance in the banking sector.



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INTRODUCTION

The rapid digital transformation in the banking industry has reshaped how a business works and responds to customer expectation (Nazaritehrani & Mashali, 2020). Banks are no longer competing solely on financial products and branch networks but also on digital service quality, personalization, and responsiveness (Mir et al., 2022). Regional banks, such as Bank BJB, face increasing pressure to enhance marketing performance through focusing on customer and digital technology. In this context, the alignment between Customer Relationship Orientation (CRO) and Digital Banking Orientation (DBO) becomes crucial to sustain market relevance and customer loyalty (Paşcalău et al., 2024; Royo-Vela et al., 2024). While customer orientation emphasizes long-term relationship building and trust, digital orientation enables banks to leverage technology for service innovation, data analytics, and real-time engagement (Juliana et al., 2024; Rahman et al., 2024). The synergy between these orientations reflects the readiness of regional banks to compete in an increasingly digital marketplace (Chauhan et al., 2022; Chen, 2020).

Despite the growing recognition of digital transformation and customer relationship management, the integration of *Marketing Research and Development Cooperation* (MRDC) within marketing strategy models remains underexplored (Paiva et al., 2020; Zatonatska et al., 2022). Prior studies have primarily examined R&D cooperation in manufacturing or product-based industries, focusing on innovation output and technological advancement (Chirumalla et al., 2018; Nijssen & Ordanini, 2020; Yang et al., 2022). However, in service industries like banking, MRDC may function differently. It enables marketing units to interpret research insights, co-create digital solutions, and refine customer-oriented strategies (Nazaritehrani & Mashali, 2020). The limited empirical investigation into how R&D collaboration enhances marketing outcomes represents a theoretical and

managerial gap that this study aims to address. Specifically, the interaction between marketing and research units can strengthen the implementation of customer and digital orientations, thereby improving marketing performance (Abidin et al., 2022; Juliana et al., 2024; Paşcalău et al., 2024).

Marketing in the banking sector serves a strategic function to attract and retain customers, introduce new products and services, and respond to changing consumer behavior (Rosário & Casaca, 2023). Achieving strong marketing performance is essential for sustaining competitiveness, especially amid digital transformation and shifting customer expectations (Bueno et al., 2024; Ramdan et al., 2023). In Indonesia, banks face growing competition from fintech and digital banks that offer faster and more user-friendly services (Kharisma, 2020). Customers increasingly demand personalized and digital experiences, requiring adaptive and innovative marketing approaches (Royo-Vela et al., 2024). Hence, marketing strategies must integrate market understanding and responsiveness to external changes (Mir & Bhat, 2022), supported by proactive value creation and cross-functional collaboration (Alsmadi, 2024).

Beyond strategic alignment, marketing success in the digital banking era increasingly depends on the educational empowerment of employees. As marketing personnel are at the forefront of customer interaction and digital adaptation, they must continuously upgrade their competencies through structured learning. Educational initiatives such as digital literacy programs, innovation labs, and cross-functional workshops enable staff to understand both technological tools and customer insights. In the context of Bank BJB, empowering staff through education aligns with the principles of organizational learning (Isaac & Michael 1981), where knowledge transformation becomes a source of sustained competitiveness. Through continuous education, marketing teams can bridge theory and practice, translating Customer Relationship Orientation (CRO) and Digital Banking Orientation (DBO) into innovative, customer-centric outcomes supported by strong R&D collaboration.

Modern marketing is closely linked with research and development (R&D) functions to enhance innovation and product relevance (Campanella et al., 2020; Paiva et al., 2020; Zatonatska et al., 2022). Marketing–R&D cooperation ensures faster responses to market dynamics through data-driven insights (Nijssen & Ordanini, 2020). This cooperation requires strong strategic orientations such as Customer Relationship Orientation (CRO), which fosters loyalty and trust (Alam et al., 2021; Paşcalău et al., 2024), and Digital Banking Orientation (DBO), which guides banks in adapting to technological change (Juliana et al., 2024; Liyanaarachchi et al., 2020). Despite progress in global banking institutions (Dadoukis et al., 2021; Eriksson et al., 2020), research in emerging economies remains limited. In Indonesia, regional banks like Bank BJB still struggle to expand coverage and sustain performance amid digital competition (Amanda, 2023; Anwar et al., 2019; Kharisma, 2020; Syahyono et al., 2020).

From the theory, Customer Relationship Orientation (CRO) plays a vital role in the banking industry, where continuous interaction with customers directly affects trust, comfort, and security (Hosseini & Aali, 2021). Banks with a strong CRO approach manage relationships not only as financial transactions but as long-term partnerships. Through proactive service, personalized financial solutions, and systematic data management using Customer Relationship Management (CRM) systems, CRO strengthens loyalty, retention, and the adoption of digital banking services. CRO and CRM are interrelated, as both aim to build and sustain valuable customer relationships (Mudjahidin et al., 2024; Ngo et al., 2024; Paşcalău et al., 2024). Empirical evidence suggests that CRO enhances marketing performance by reinforcing loyalty, utilizing customer insights, and fostering sustainable value creation. Hence, the first hypothesis is proposed:

H1: Customer Relationship Orientation has a positive effect on Marketing Performance.

Digital Banking Orientation (DBO) has emerged as a critical driver of marketing performance amid global digital transformation (Sunmola & Javahernia, 2021). DBO enables banks to deliver faster, more relevant, and customer-centric services, enhancing marketing effectiveness, customer acquisition, and business growth. Digital transformation has reshaped industries, influencing how organizations operate and how consumers value speed, convenience, and service quality (Kolodiziev et al., 2021). By leveraging technology for innovation, data integration, and connectivity, banks strengthen

competitiveness and long-term performance (Kitsios et al., 2021). Thus, the second hypothesis is proposed:

H2: Digital Banking Orientation has a positive effect on Marketing Performance.

Then, the Marketing R&D Cooperation (MRDC) aligns product innovation with customer needs through synergy between marketing and R&D (Chirumalla et al., 2018; Nijssen & Ordanini, 2020; Paiva et al., 2020). Here, MRDC represents collaborative interaction between marketing and R&D divisions to integrate market insights into innovation activities. In service industries, this cooperation fosters mutual understanding between customer needs and technological possibilities. MRDC allows marketing units to utilize research findings to design more relevant digital services, while R&D units benefit from customer feedback that guides innovation priorities. Such cooperation strengthens the implementation of strategic orientations and magnifies their impact on performance (Guerola-Navarro et al., 2024; Schiebler et al., 2025). Within Bank BJB, MRDC may enhance the effectiveness of CRO and DBO by translating insights into adaptive marketing strategies and technology-based service improvements, hence,

H3: Marketing Research and Development Cooperation has a positive effect on Marketing R&D Cooperation.

H3a: Marketing Research and Development Cooperation strengthens the positive effect of Customer Relationship Orientation on Marketing Performance.

H3b: Marketing Research and Development Cooperation strengthens the positive effect of Digital Banking Orientation on Marketing Performance.

This study aims to analyze the influence of Customer Relationship Orientation (CRO) and Digital Banking Orientation (DBO) on the marketing performance of regional banks in Indonesia, particularly Bank BJB, as well as to examine the role of Marketing Research and Development Cooperation (MRDC) in strengthening the influence of these two orientations on marketing performance amid the dynamics of digital transformation in banking.

RESEARCH METHODS

This study applied a quantitative research design to analyze the data. Data were collected through an online survey distributed across all Bank BJB branches, using a structured questionnaire as the main instrument. The analysis involved both descriptive and inferential approaches: the former to describe the characteristics of each variable, and the latter to test the hypothesized relationships within the proposed model. Based on the research objectives and model structure, inferential analysis employed Structural Equation Modeling–Partial Least Squares (SEM-PLS) to estimate and predict the inter-variable relationships, including evaluations of the measurement and structural models, followed by hypothesis testing through the bootstrapping procedure.

The study population consisted of all 1,762 marketing personnel of Bank BJB in Indonesia. Using proportional random sampling by region and the Isaac and Michael (1981) formula, a sample of 316 respondents was obtained. Data were collected using a 7-point interval scale questionnaire, with each item assessed for validity and reliability prior to distribution.

The Customer Relationship Orientation (CRO) variable was measured through three dimensions: People, Process, and Technology. Digital Banking Orientation (DBO) was assessed through four dimensions: Strategic Digital Commitment, Digital Capability Development, Customer-Centric Digitalization, and Digital Innovation Orientation. As a mediating variable, Marketing Research & Development Cooperation (MRDC) included four dimensions: Strategic Alignment, Information Sharing and Communication, Joint Decision-Making, and Responsiveness to Market Feedback. Lastly, Marketing Performance (MP) as the endogenous variable comprised four dimensions: Sales Turnover, Sales Increase, Sales Return, and Area Coverage.

RESULTS AND DISCUSSION

The results display the evaluation of measurement model and structural model. The initial stage involves evaluating the measurement model to determine how well each indicator represents its corresponding latent construct. This phase assesses convergent validity through outer loading values and the Average Variance Extracted (AVE), along with construct reliability using Cronbach's Alpha and composite reliability coefficients. In addition, discriminant validity is verified using the Fornell-Larcker criterion to confirm that each construct is empirically distinct from the others.

Table 1. Convergent Validity

Variable	Construct	Loading	CR	AVE	Result
Customer Relationship Orientation (CRO)	CRO1	0.884	0.873	0.798	Valid & Reliable
	CRO2	0.887			
	CRO3	0.909			
Digital Banking Orientation (DBO)	DBO1	0.881	0.873	0.724	Valid & Reliable
	DBO2	0.858			
	DBO3	0.844			
	DBO4	0.821			
Marketing R&D Cooperation (MRDC)	MRDC1	0.880	0.893	0.758	Valid & Reliable
	MRCD2	0.865			
	MRCD3	0.884			
	MRCD4	0.854			
Marketing Performance (MP)	MP1	0.865	0.889	0.750	Valid & Reliable
	MP2	0.859			
	MP3	0.884			
	MP4	0.856			

Table 1 displays the results of the convergent validity test for all constructs. All loading values exceed 0.80, showing that each indicator strongly represents its corresponding latent variable. The Composite Reliability (CR) values range from 0.873 to 0.893, surpassing the minimum threshold of 0.70, which indicates strong internal consistency. Likewise, the Average Variance Extracted (AVE) values fall between 0.724 and 0.798, exceeding the 0.50 criterion and confirming adequate convergent validity. These findings demonstrate that the constructs of Customer Relationship Orientation (CRO), Digital Banking Orientation (DBO), Marketing R&D Cooperation (MRDC), and Marketing Performance (MP) are valid, reliable, and suitable for further structural model analysis (Hair Jr et al., 2021). Overall, these findings confirm that all measurement items for CRO, DBO, MRDC, and MP fulfill the criteria for convergent validity.

Table 2. Discriminant Validity

Fornell-Larcker	CRO	DBO	MRDC	MP
CRO	0.893			
DBO	0.740	0.851		
MP	0.715	0.826	0.866	
MRDC	0.749	0.809	0.832	0.871

Table 2 presents the discriminant validity results using the Fornell-Larcker criterion. The square roots of the AVE values (diagonal elements) are higher than the corresponding inter-construct correlations in each column and row. This indicates that each construct Customer Relationship Orientation (CRO), Digital Banking Orientation (DBO), Marketing R&D Cooperation (MRDC), and Marketing Performance (MP) is empirically distinct. The results confirm that no excessive overlap exists among the constructs, meaning that the measurement model fulfills the discriminant validity requirement and that each construct measures a unique concept in the model.

Table 3. Coefficient of Determination (R-Square)

Model	R Square	R Square Adjusted
Marketing Performance (MP)	0.766	0.762

Table 3 shows that the R^2 value for Marketing Performance (MP) is 0.766, with an adjusted R^2 of 0.762. This indicates that Customer Relationship Orientation, Digital Banking Orientation, and Marketing R&D Cooperation together explain 76.6% of the variance in Marketing Performance, suggesting the model has strong explanatory power and substantial predictive relevance.

The complete model, encompassing both the measurement and structural components, is illustrated in Figure 2 as generated through SmartPLS analysis.

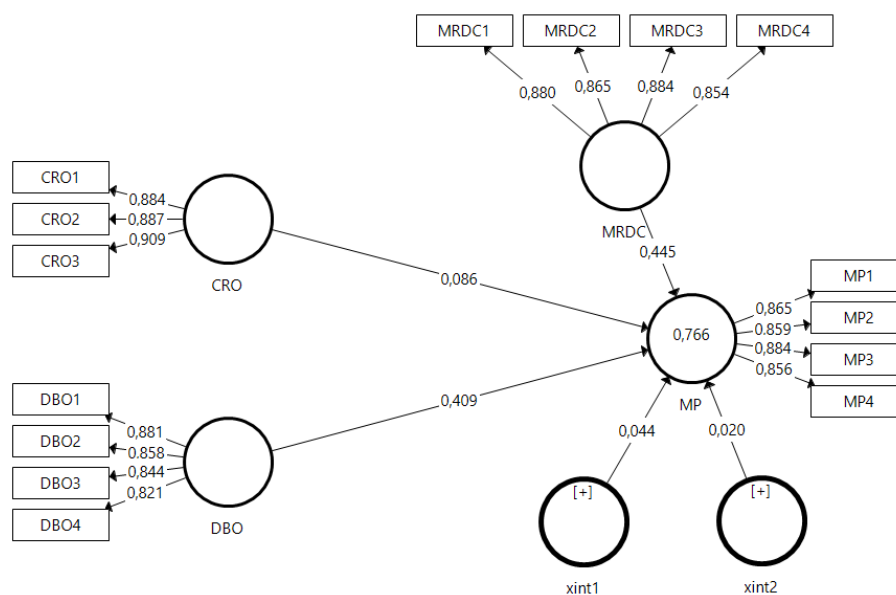


Figure 1. Complete Model

Figure 1 shows the complete research model produced through Partial Least Squares–Structural Equation Modeling (PLS-SEM) analysis using SmartPLS, which includes a measurement model and a structural model. The measurement model describes the relationship between latent constructs, namely Customer Relationship Orientation (CRO), Digital Banking Orientation (DBO), Marketing Research and Development Cooperation (MRDC), and Marketing Performance (MP) with their respective indicators. The outer loading value for each indicator shows the level of convergent validity, where all indicators have relatively high values, reflecting the ability of the indicators to adequately represent the latent constructs.

Meanwhile, the structural model in Figure 1 shows the direction and strength of the influence between the latent constructs tested in this study. The direct relationship between CRO and DBO on marketing performance (MP) is indicated by the path coefficient, while MRDC acts as an independent variable and a moderating variable that strengthens the influence of CRO and DBO on marketing performance. The coefficient of determination (R^2) value in the marketing performance construct shows the proportion of marketing performance variation that can be explained by CRO, DBO, and MRDC. Thus, Figure 1 provides a comprehensive overview of the conceptual framework and empirical relationships between the variables underlying the hypothesis testing in this study.

Table 4. Structural Model Results (Path Coefficients)

Hypothesis	Path	β	t-value	p-value	Result
H1	CRO \rightarrow MP	0,086	2,070	0.039	Supported
H2	DBO \rightarrow MP	0,409	7,788	0.000	Supported
H3	MRDC \rightarrow MP	0,445	8,145	0.000	Supported
H3a	xint1 (CRO \times MRDC) \rightarrow MP	0,044	2,929	0.004	Supported
H3b	xint2 (DBO \times MRDC) \rightarrow MP	0,020	1,467	0.143	Not Supported

Table 4 presents the path coefficients of the structural model, showing that four of the five tested hypotheses are supported. Customer Relationship Orientation (CRO) significantly influences Marketing Performance ($\beta = 0.086$, $p = 0.039$), indicating that relationship-based strategies contribute positively to performance outcomes. Digital Banking Orientation (DBO) also has a strong and significant impact ($\beta = 0.409$, $p = 0.000$), emphasizing the importance of digital adaptation. Marketing R&D Cooperation (MRDC) demonstrates the highest effect ($\beta = 0.445$, $p = 0.000$), highlighting its central mediating role. The interaction between CRO and MRDC (H3a) is significant ($\beta = 0.044$, $p = 0.004$), implying that cooperation strengthens CRO's effect. However, the DBO–MRDC interaction (H3b) is insignificant ($p = 0.143$), suggesting no moderating influence in that pathway.

The positive effect of Customer Relationship Orientation (CRO) on Marketing Performance (H1, $\beta = 0.086$, $p = 0.039$) is consistent with relationship-marketing theory and empirical studies showing that long-term customer focus builds trust, loyalty, and repeat business (Rosário & Casaca, 2023; Alam et al., 2021). Although the path coefficient is modest, it indicates CRO contributes incremental value to performance by improving customer retention and enabling effective cross-selling mechanisms emphasized by Guerola-Navarro et al. (2024) and Eriksson et al. (2020). In banking, where services are experience-based, CRO translates into higher perceived value and better client lifetime outcomes, which in turn lift marketing indicators such as retention and sales growth.

Digital Banking Orientation (DBO) shows a strong and significant effect on Marketing Performance (H2, $\beta = 0.409$, $p < 0.001$), reflecting how digital readiness amplifies marketing reach, responsiveness, and personalization. This finding aligns with literature on digital transformation and service competitiveness (Kitsios et al., 2021; Bueno et al., 2024). Digital capabilities enable data-driven segmentation, faster campaign execution, and improved customer journeys (Chauhan et al., 2022; Chen, 2020; A. A. Mir & Bhat, 2022), which are powerful drivers of marketing effectiveness in an environment where fintech and neobanks raise customer expectations (Kharisma, 2020). Thus, DBO's larger coefficient signals that technological orientation is a primary performance lever for Bank BJB.

Marketing R&D Cooperation (MRDC) also has a substantial direct effect on Marketing Performance (H3, $\beta = 0.445$, $p < 0.001$). This supports open innovation and ambidexterity perspectives: cooperation between marketing and R&D enhances the market relevance of innovations and accelerates commercialization (Campanella et al., 2020; Paiva et al., 2020). MRDC provides systematic channels for customer insights to inform product/service design, improving fit and adoption (Nijssen & Ordanini, 2020; Chirumalla et al., 2018). In banking, such collaboration permits rapid tailoring of digital features to customer needs, explaining its strong explanatory power for marketing outcomes.

The positive moderating effect of MRDC on CRO \rightarrow MP (H3a, $\beta = 0.044$, $p = 0.004$) indicates that marketing–R&D collaboration magnifies the benefit of customer orientation. Theoretically, when CRO and MRDC coexist, firms can translate relational insights into tangible service improvements and personalized digital solutions, strengthening the CRO \rightarrow performance pathway (Guerola-Navarro et al., 2024; Paiva et al., 2020). This synergy reflects absorptive-capacity arguments: cooperation enhances the firm's ability to recognize and exploit external customer knowledge, thereby turning relationship assets into superior marketing results (Nijssen & Ordanini, 2020).

By contrast, the interaction DBO \times MRDC on MP (H3b, $\beta = 0.020$, $p = 0.143$) is not supported. Several explanations are plausible. First, digital orientation may already deliver strong direct benefits (large β), leaving limited incremental gain from MRDC in the short term a ceiling effect (Kitsios et al., 2021). Second, digital initiatives often require specialized technical pipelines and agile development that sit outside traditional marketing–R&D cooperation structures; hence MRDC as measured may not

align with the operational processes that scale digital solutions (Dadoukis et al., 2021; Alsmadi, 2024). Third, mismatches in timing or capabilities between R&D teams and rapid digital deployment can weaken moderating effects (Yang et al., 2022).

This study has several limitations that need to be considered when interpreting the results. First, this study did not consider boundary conditions such as the level of digital infrastructure maturity, organizational ambidexterity, and the level of R&D function routinization, which could potentially affect the effectiveness of Marketing Research and Development Cooperation (MRDC) in strengthening the influence of Digital Banking Orientation (DBO) on marketing performance. The absence of these variables may explain why the moderating role of MRDC in the DBO–marketing performance relationship has not been proven to be significant. Second, the measurement of MRDC in this study is still general and does not specifically capture the mechanisms of digital project management, cross-functional work structures, and agile collaboration dynamics, which are increasingly relevant in the development of digital banking services. This has the potential to limit the model's ability to explain the contribution of MRDC to fast-paced, technology-based digital initiatives. Third, this study uses a cross-sectional design, so it is not yet able to capture the dynamics of changes in digital orientation, R&D collaboration, and marketing performance in the long term. Therefore, the dynamic causal relationship between variables cannot yet be explained comprehensively.

Practically, results suggest Bank BJB should sustain CRO and invest in MRDC to extract relational insights into marketable innovations, while refining the governance of digital projects so that R&D collaboration more effectively supports digital banking initiatives. Future research should unpack boundary conditions such as the maturity of digital infrastructure, organizational ambidexterity, and R&D routinization that determine when MRDC strengthens DBO's impact (Sunmola & Javahernia, 2021; Paşcalău et al., 2024). This nuanced approach would reconcile the strong direct role of DBO with the conditional value of cross-functional cooperation.

CONCLUSION

This study concludes that Customer Relationship Orientation (CRO), Digital Banking Orientation (DBO), and Marketing Research and Development Cooperation (MRDC) significantly contribute to enhancing marketing performance within the banking sector. The findings confirm that CRO strengthens customer relationships and loyalty, DBO drives responsiveness and service innovation, and MRDC facilitates synergy between market needs and product development. Moreover, MRDC effectively moderates the relationship between CRO and marketing performance, showing that cross-functional collaboration enhances the translation of customer insights into impactful innovations. However, the moderating effect of MRDC on the DBO–performance relationship was not significant, suggesting that digital initiatives may follow different operational mechanisms beyond traditional marketing–R&D cooperation. Overall, the research bridges customer-oriented and innovation-driven strategies, reinforcing the role of collaboration and digital orientation as complementary levers of competitive performance in regional banks.

Despite its contributions, this study has several limitations. First, it focuses exclusively on marketing personnel from Bank BJB branches, which may not fully represent the perspectives of other departments, such as product development or IT divisions, that also shape digital transformation outcomes. Second, regional disparities in infrastructure, digital literacy, and local customer behavior could introduce response bias, limiting generalizability across branches. Third, the cross-sectional design restricts causal inference regarding long-term performance effects. Future research could expand the scope by including multi-level respondents from different organizational functions and comparing multiple regional or national banks. Longitudinal or mixed-method approaches could also reveal how CRO, DBO, and MRDC evolve over time and interact with contextual factors such as innovation culture, regulatory changes, and technological readiness. By exploring these extensions, future studies can deepen the understanding of how relational and digital orientations jointly sustain competitiveness in the rapidly transforming banking world.

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