

Evaluating E-CRM Effectiveness : A Comparative Study of Public and Private Sector Banks in Bhopal

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Abstract: This paper investigates the effectiveness of Electronic Customer Relationship Management (E-CRM) practices in the banking sector, focusing on public and private sector banks within Bhopal District. The research aims to: (i) understand the customer profile in the study area, (ii) analyse the internet banking systems, and (iii) examine ATM services offered by both bank categories. A structured questionnaire was administered to 400 respondents 200 from nationalised banks and 200 from private banks. The study evaluates E-CRM dimensions including service quality, responsiveness, personalization, security, technological ease of use, and communication. Descriptive statistics, independent/paired t tests, correlation, and regression were employed. Private banks significantly outperform nationalised banks in digital responsiveness, personalization, and technological sophistication, while nationalised banks remain strong in customer trust, reliability, and security. Hypothesis testing confirms a significant gap between the perceived and desired levels of E CRM across bank types. Managerial recommendations are proposed to enhance digital service quality, integrate personalized experiences, and align technological innovations with customer expectations.

Keywords: E-CRM, Banking Sector, Customer Satisfaction, Public Banks, Private Banks, Internet Banking, ATM Services, Bhopal District.

Introduction - Electronic Customer Relationship Management (E-CRM) has become central to competitive advantage in banking, integrating information technologies with customer-centric processes to deliver personalized, efficient, and secure services. In India, nationalised (public) and private sector banks differ in organizational objectives and technology adoption speeds, resulting in observable differences in digital service delivery and relationship practices. This paper compares E-CRM effectiveness across the two sectors in Bhopal District and extends the analysis to include the efficacy of internet banking and ATM services, alongside a detailed customer profile.

Literature Review

CRM research highlights the strategic role of technology-enabled relationship building (Buttle, 2009; Payne & Frow, 2017). With the shift to digital channels, E-CRM leverages data and multi channel interfaces to deliver responsiveness and personalization (Ngai, 2005). The E-SERVQUAL framework (Parasuraman et al., 2005) guides assessment of electronic service quality. Indian studies report private banks leading on technological agility and responsiveness, whereas nationalised banks retain higher trust (Mittal & Garg, 2020; Srinivasan & Moorthy, 2021).

Objectives and Hypotheses

Objectives:

- i.) To understand the profile of the customer in the study area.
- ii.) To analyse the internet banking system provided by Nationalised Bank and Private Bank.
- iii.) To examine the E-Customer Relationship Management Nationalised Bank and Private Bank in Bhopal District.

Hypotheses:

H₀ : There is no significant difference between the perceived level and desired level of E Customer Relationship Management in Nationalised Bank and Private Bank.

H₁ : There is a significant difference between the perceived level and desired level of E-Customer Relationship Management in Nationalised Bank and Private Bank.

Research Methodology: A descriptive-comparative design was used. Primary data from 400 customers (200 public; 200 private) in Bhopal District were collected via a structured questionnaire using five point Likert scales. Stratified random sampling ensured proportional representation by bank type. The instrument captured demographics (customer profile), internet banking and ATM service evaluations, and E-CRM dimensions (service quality, responsiveness, personalization, security, technological ease, and communication). Reliability (Cronbach's $\alpha > 0.85$) and content validity were established.

Analyses included descriptive statistics, independent samples t-tests (between bank types), paired samples t-tests (perceived vs desired E-CRM), Pearson correlations, and multiple regression.

Data Analysis and Interpretation

1.1 Profile of Respondents

Table 1.1: Demographic profile of respondents (percent) add 3 graphs- private, public total

Variable	Category	Public (%)	Private (%)	Total (%)
Gender	Male	60	58	59
	Female	40	42	41
Total		100	100	100
Age (Years)	18-25	15	20	17.5
	26-35	30	40	35
	36-45	25	25	25
	46-60	20	10	15
	Above 60	10	5	7.5
Total		100	100	100
Education	Undergraduate	18	14	16
	Graduate	35	30	32.5
	Postgraduate	40	45	42.5
	Others	7	11	9
Total		100	100	100
Occupation	Service	35	42	38.5
	Business	25	28	26.5
	Student	20	15	17.5
	Homemaker/Retired	20	15	17.5
Total		100	100	100
Monthly Income (INR)	Below 25,000	25	18	21.5
	25,001-50,000	30	28	29
	50,001-75,000	25	32	28.5
	Above 75,000	20	22	21
Total		100	100	100

Source: Data Collected by the Researcher through Questionnaire

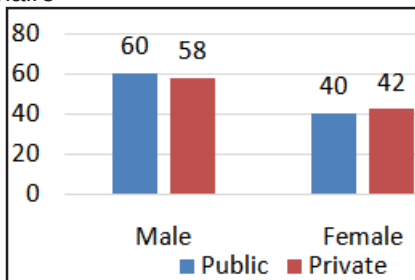


Figure 1.1: Gender profile of respondents

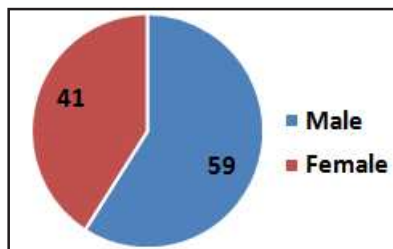


Figure 1.2: Gender profile of respondents (Total)

Percentage)

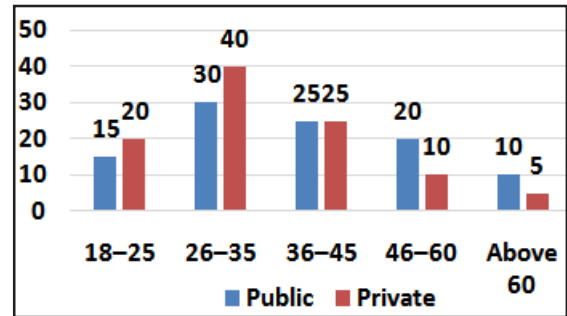


Figure 1.3: Age (Years) profile of respondents

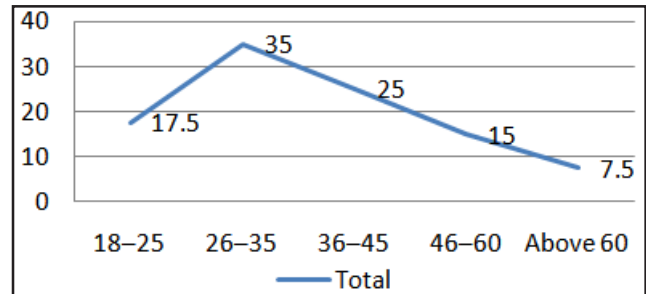


Figure 1.4: Age (Years) profile of respondents (Total Percentage)

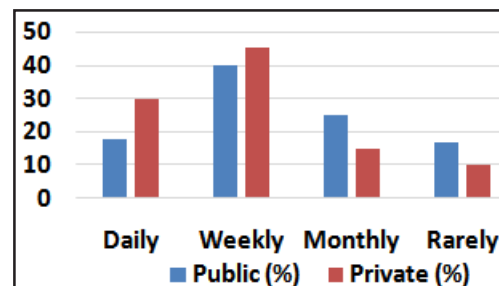
The sample is balanced by gender and concentrated in the 26-45 age group. Most respondents are graduates/postgraduates engaged in service or business occupations a profile consistent with higher digital adoption.

1.2 Internet Banking Systems

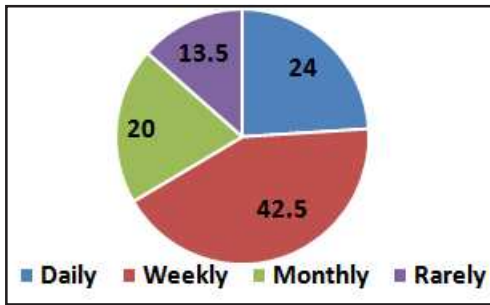
Table 1.2: Frequency of using e banking services

Frequency	Public (%)	Private (%)	Total (%)
Daily	18	30	24
Weekly	40	45	42.5
Monthly	25	15	20
Rarely	17	10	13.5
Total	100	100	100

Source: Data Collected by the Researcher through Questionnaire



Graph1.5: Frequency of using e banking services



Graph1.6: Frequency of using e banking services(Total Percentage)

Table 1.3: Internet banking evaluation (mean scores, 1–5)

Dimension	Public Mean	Private Mean
Website functionality	3.70	4.25
Transaction speed	3.65	4.30
Interface/usability	3.60	4.20
Security/trust	4.15	4.20
Overall internet banking score	3.68	4.25

Source: Data Collected by the Researcher through Questionnaire

Private banks lead on functionality, speed, and usability, while public banks are comparable on perceived security. Differences in overall internet banking scores are statistically significant ($p < 0.05$).

1.3ATM Services

Table 1.4

ATM service evaluation (mean scores, 1–5)

Dimension	Public Mean	Private Mean
Speed/processing	3.85	4.30
Availability (24/7)	3.90	4.35
Uptime/reliability	3.95	4.20
Cash availability	3.80	4.10
Location coverage	4.20	3.80
Overall ATM score	3.85	4.30

Source: Data Collected by the Researcher through Questionnaire

Private banks score higher on speed, uptime, and availability; public banks retain an advantage in location coverage. Overall differences are significant ($p < 0.05$).

1.4 E-CRM Effectiveness

Table 1.5

E-CRM dimensions (mean scores, 1–5)

Dimension	Public Mean	Private Mean	Mean Difference
Service quality	3.78	4.25	0.47
Responsiveness	3.62	4.30	0.68
Personalization	3.55	4.35	0.80
Security & privacy	4.10	4.20	0.10
Technological ease	3.70	4.10	0.40
Communication	3.80	4.15	0.35

Source: Data Collected by the Researcher through Questionnaire

Table 1.6

Overall customer satisfaction

Bank Type	Mean	SD
Public	3.68	0.79
Private	4.32	0.61

Source: Data Collected by the Researcher through Questionnaire

Table 1.7

Independent samples t-test for E-CRM effectiveness (public vs private)

Group	N	Mean	SD	t	p (2 tailed)	Decision
Public	200	3.76	0.82	7.265	0.000	Reject H_0
Private	200	4.23	0.67			

Source: Data Collected by the Researcher through Questionnaire

Table 1.8

Correlation between E-CRM dimensions and satisfaction

Dimension	Pearson-r	p-value	Strength
Service quality	0.722	0.000	Strong +
Responsiveness	0.758	0.000	Strong +
Personalization	0.782	0.000	Strong +
Security & privacy	0.610	0.000	Moderate +
Technological ease	0.689	0.000	Strong +
Communication	0.705	0.000	Strong +

Source: Data Collected by the Researcher through Questionnaire

Table 1.9

Multiple regression: predictors of satisfaction

Predictor	β	t	p	Interpretation
Service quality	0.231	4.128	0.000	Significant
Responsiveness	0.254	5.012	0.000	Significant
Personalization	0.287	5.438	0.000	Highly significant
Security & privacy	0.112	2.316	0.021	Significant
Technological ease	0.176	3.928	0.000	Significant
Communication	0.135	2.755	0.006	Significant

Source: Data Collected by the Researcher through Questionnaire

Model summary: $R = 0.859$; $R^2 = 0.738$; Adjusted $R^2 = 0.731$; $F = 106.482$; $p < 0.001$.

Table 1.10

Paired samples t-test: perceived vs desired E-CRM (combined sample)

Measure	Mean	SD	MeanDiff.	t	p (2 tailed)
Perceived E-CRM	3.95	0.72	-0.30	7.360	0.000
Desired E-CRM	4.25	0.60			

Source: Data Collected by the Researcher through Questionnaire

The significant gap ($t = 7.360$, $p < 0.01$) supports H_0 , indicating customers expect higher E-CRM performance than currently perceived.

Findings:

1. Customers are predominantly young, educated professionals with high digital literacy.
2. Private banks outperform public banks in internet banking functionality, transaction speed, and usability; public banks are comparable on security.
3. Private banks provide superior ATM speed, availability, and uptime, while public banks offer better location coverage, especially in semi urban/rural areas.
4. Across E-CRM dimensions, personalization and responsiveness exhibit the largest gaps in favour of private banks.
5. Satisfaction is significantly higher for private banks; correlations and regression confirm E-CRM dimensions as strong satisfaction drivers.
6. A significant perceived–desired gap in E-CRM exists (paired t-test), underscoring unmet expectations across both sectors.

Conclusion and Recommendations: Private sector banks in Bhopal lead in digital execution especially responsiveness, personalization, and technological ease while nationalised banks retain strengths in trust, security, and service reach. Internet banking and ATM analyses corroborate these patterns. The significant perceived–desired gap highlights the need for continuous E-CRM enhancement.

Recommendations:

1. Public banks should modernize core systems, streamline interfaces, and deploy real time support and analytics;
2. Private banks should complement digital agility with trust building, fairness, and inclusion;
3. Both sectors should conduct periodic E-CRM audits, integrate omnichannel communication, and expand customer education;
4. Regulators can support interoperability and standardized metrics for benchmarking E-CRM quality.

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