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A Study on the Effectiveness of Customer Relationship Management (CRM) Integrated with Business Intelligence at Roots Industries India LTD., Coimbatore

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ABSTRACT

This study investigates the effectiveness of Customer Relationship Management systems when integrated with Business Intelligence tools at Roots Industries India Ltd., Coimbatore. In contemporary business environments, organizations are increasingly adopting data-driven approaches to strengthen customer engagement and support strategic growth. While CRM systems help manage customer interactions and streamline business processes, their true potential is realized when combined with Business Intelligence capabilities that transform raw data into actionable insights. This research examines how these integrated systems function within a manufacturing context, focusing specifically on system usability, data quality, and organizational integration. The study employs a descriptive research design with primary data collected from 120 employees through structured questionnaires using convenience sampling methodology. Secondary data was gathered from company documents, academic journals, and industry publications. Statistical analysis techniques including Simple Percentage Analysis, Chi-Square Test, and Correlation Analysis were applied to interpret the findings. The results demonstrate that well-structured CRM systems supported by high-quality data and seamless integration significantly enhance decision-making processes and customer relationship management practices. Business Intelligence tools further strengthen organizational analytical capabilities, enabling more accurate forecasting, identification of business opportunities, and improved strategic planning. The research confirms that CRM-BI integration positively impacts sales performance through enhanced lead conversion rates, effective sales monitoring, and deeper customer insights.

Keywords: Customer Relationship Management, Business Intelligence, Sales Performance, Data Quality, System Integration, Manufacturing Industry.

INTRODUCTION

Customer Relationship Management refers to the systematic approach organizations use to manage interactions with current and potential customers throughout the customer lifecycle. CRM systems enable businesses to track customer information, analyze purchasing patterns, and develop targeted marketing strategies. These systems have become fundamental tools for organizations seeking to build sustainable competitive advantages through superior customer service and relationship management.

In the modern digital landscape, businesses face increasingly complex market dynamics and evolving customer expectations. To address these challenges effectively, organizations are integrating Business Intelligence capabilities with their CRM systems. Business Intelligence provides the analytical foundation necessary to extract meaningful insights from vast amounts of customer data. This integration enables organizations to move beyond simple data storage toward predictive modeling, strategic forecasting, and informed decision-making.

Despite growing recognition of the value of both CRM and BI systems, many organizations continue to operate these technologies independently. This fragmented approach limits the potential benefits that could be achieved through

strategic integration. The present research addresses this gap by examining how CRM and Business Intelligence can work synergistically to align customer data with broader organizational objectives. The study provides practical insights that can inform better system integration strategies and more effective customer engagement approaches.

Roots Industries India Ltd., established in 1970 and headquartered in Coimbatore, serves as the flagship company of the Roots Group. The company operates in the automotive components manufacturing sector, producing electric horns, backup alarms, disc brake pads, halogen bulbs, and various automotive accessories. Given its extensive customer base across multiple automotive brands, Roots Industries presents an appropriate context for examining how integrated CRM-BI systems function in a complex manufacturing environment.

Research Gap

While existing literature has explored how CRM and Business Intelligence contribute to understanding customer behavior and improving marketing effectiveness, limited research examines their integrated impact on system usability, data quality, and real-time decision support within Indian manufacturing contexts. This study addresses this gap by analyzing these dimensions specifically at Roots Industries India Ltd., providing insights relevant to similar manufacturing organizations.

Company Profile

Roots Industries India Ltd. is a leading manufacturer and supplier of automotive components and related products. With over five decades of industry experience, the company has established a strong market presence both domestically and internationally. The organization serves several prominent automobile brands and maintains a reputation for quality manufacturing and customer service. This operational scale and diversity of customer relationships make Roots Industries an ideal setting for studying the effectiveness of integrated CRM and Business Intelligence systems.

Scope of the Study

The study examines how Customer Relationship Management systems integrated with Business Intelligence tools contribute to organizational effectiveness. It encompasses various dimensions including CRM system usability, data quality and integration, BI tools utilization, and their collective impact on sales performance. The research provides insights that can help manufacturing organizations optimize their technology investments and improve customer relationship management strategies.

Statement of the Problem

Organizations invest significantly in CRM and Business Intelligence technologies with expectations of improved customer relationships and enhanced business performance. However, the actual impact of these systems on operational effectiveness is not always clear or measurable. Many organizations face challenges in effectively utilizing these tools due to issues related to system usability, data quality, integration complexity, or insufficient user training. Understanding how these integrated systems actually perform in real organizational settings is essential for maximizing their value and ensuring that technology investments translate into tangible business improvements

Limitations of Study

The study is subject to several limitations:

- The research is limited to employees involved in CRM operations at Roots Industries India Ltd.
- Findings are based on questionnaire responses which may reflect subjective perceptions rather than objective measures.
- The sample size of 120 respondents, while adequate for statistical analysis, may not capture all variations in user experiences.
- Results depend on the current level of system implementation and user expertise, which may evolve over time.

Research Objectives

The study aims to achieve the following objectives:

- To examine how Customer Relationship Management systems integrated with Business Intelligence tools are utilized at Roots Industries India Ltd.
- To assess the usability and accessibility of CRM systems across different user groups and devices.
- To evaluate data quality, integration effectiveness, and information reliability within the CRM-BI framework.
- To analyze how Business Intelligence tools contribute to sales forecasting, opportunity identification, and strategic planning.
- To determine the relationship between CRM-BI integration and sales performance outcomes.

Hypotheses

H_0: There is no significant relationship between CRM system usability and sales performance.
H_0: There is no significant relationship between data quality and integration and sales performance.

REVIEW OF LITERATURE

Shinde and Sunjita (2020) examined the integration of CRM and Business Intelligence in customer-oriented organizations. Their research developed a functional framework demonstrating that BI-enhanced CRM systems enable decision-makers to access appropriate customer information at optimal times, thereby improving overall organizational performance. The study emphasized that effective integration requires careful alignment of both technological capabilities and organizational processes.

Zhang, Wang, Cui, and Han (2020) investigated factors driving Big Data Analytical Intelligence adoption in organizations. Their findings indicated that organizational culture oriented toward data-driven decision-making, combined with competitive market pressures, motivates firms to implement analytical intelligence systems. The research demonstrated that these systems positively influence CRM performance through enhanced mass-customization capabilities, enabling more personalized customer experiences.

Partanen, Mansouri Jajaee, and Cavén (2020) presented a managerial framework for assessing the type and quality of business intelligence that effective CRM systems can deliver for both operational and strategic decision-making. Their work particularly focused on business-to-business contexts, highlighting how integrated systems support complex B2B relationship management and long-term partnership development.

Habul and Pilav-Velic (2020) emphasized that complementary use of CRM and Business Intelligence provides organizations with a comprehensive understanding of their customers. Their research identified benefits including improved customer profiling, enhanced value detection for different customer segments, and more effective identification of sales and revenue opportunities. The study concluded that integrated approaches yield superior results compared to standalone systems.

Osakwe, Mutelo, and Obijiofor (2023) conducted a comprehensive literature review comparing CRM and BI effectiveness in improving customer satisfaction and organizational performance. Their analysis concluded that integration of these technologies provides synergistic advantages beyond what either system can achieve independently. They recommended that organizations adopt holistic approaches encompassing both technological infrastructure and organizational change management.

Alawiyah and Humairoh (2023) examined how Business Intelligence impacts Customer Relationship Management effectiveness. Their research demonstrated that by processing and analyzing large volumes of customer data, organizations gain valuable insights that improve decision quality, reduce operational costs, and uncover previously unidentified business opportunities. The study emphasized the importance of analytical capabilities in modern CRM implementations.

Rosenbröijer (2024) explored combinations of operative CRM and business analytics, proposing a framework connecting descriptive, predictive, and prescriptive analytics to operative CRM perspectives. This framework contributes to improved decision-making in sales and marketing by providing structured approaches to leveraging analytical insights within customer relationship management processes.

RESEARCH METHODOLOGY

The study employs a descriptive research design to examine the effectiveness of CRM systems integrated with Business Intelligence tools. Descriptive research is appropriate for understanding current system usage patterns, user perceptions, and performance outcomes. This approach enables systematic description and analysis of how these integrated systems function within the organizational context.

Primary data was collected directly from employees at Roots Industries India Ltd. through a structured questionnaire. The questionnaire addressed four key dimensions: CRM system usability, data quality and integration, Business Intelligence tools utilization, and sales performance outcomes. Secondary data was gathered from company records, official documentation, academic journals, industry publications, and relevant websites to provide contextual background and comparative benchmarks.

The research utilized convenience sampling methodology to select participants. The sample consists of 120 respondents from various departments who are actively involved in CRM operations and decision-making processes. This sample size provides adequate statistical power for the analytical techniques employed while remaining practical for data collection within the organizational context.

Three analytical methods were employed: Simple Percentage Analysis to examine demographic characteristics and response distributions; Chi-Square Test to determine whether significant relationships exist between CRM system usability and sales performance; and Correlation Analysis to measure the strength and direction of relationships between data quality variables and sales performance outcomes.

ANALYSIS AND INTERPRETATION

Demographic Profile

The analysis reveals that 76.7% of respondents are male while 23.3% are female, indicating predominant male participation in CRM-related roles at the organization. Regarding age distribution, 55.0% of respondents belong to the 21-30 years age group, suggesting a relatively young workforce that is likely more comfortable with digital technologies and analytical tools.

In terms of job roles, customer service employees constitute the largest group at 45.8%, followed by IT and data analytics professionals at 20.8%. This distribution reflects the operational orientation of the study, with significant representation from employees who directly interact with CRM systems in their daily work. This composition ensures that the research captures perspectives from both system users and technical support personnel.

CRM System Usability

The findings indicate that 34.2% of respondents strongly agreed that the CRM interface is visually appealing and well-organized, while 38.3% strongly agreed that customization options enhance system usability. These positive responses suggest that the organization has invested appropriately in user interface design and flexibility. However, 30.8% expressed neutral opinions regarding seamless cross-device functionality, indicating opportunities for improvement in mobile and tablet accessibility.

Regarding data accessibility, 28.3% of respondents strongly agreed that customer information can be retrieved easily from the system. While this represents a substantial proportion, the relatively modest percentage suggests that data retrieval processes could be streamlined further to improve operational efficiency and user satisfaction.

Data Quality and Integration

Data quality metrics show encouraging results, with 49.2% of respondents rating data duplication and error minimization as excellent. Additionally, 39.2% rated the completeness and reliability of customer information as good. These findings suggest that the organization maintains reasonably strong data quality standards, which is essential for effective CRM and Business Intelligence operations.

Integration effectiveness shows mixed results. While 29.2% rated seamless data sharing across departments as excellent, this proportion suggests room for improvement in cross-functional data accessibility. Data security received positive ratings, with 48.3% of respondents rating security and privacy maintenance as good. Real-time data updates were rated as good by 31.7% of respondents, indicating that the system provides reasonably current information for decision-making purposes.

Business Intelligence Tools Utilization

Business Intelligence adoption shows positive trends. While 25.8% of respondents strongly agreed that BI tools are regularly used for analyzing sales and customer interactions, a notable 51.7% agreed that these tools help identify potential business opportunities. This finding suggests that even when BI adoption may not be universal, users recognize its value for strategic opportunity identification.

Regarding analytical capabilities, 30.0% of respondents agreed that BI tools contribute to accurate sales forecasting. Dashboard usability received strong support, with 35.8% strongly agreeing that reports and dashboards are easy to interpret. Most significantly, 55.0% rated the enhancement of sales strategies through BI insights as excellent, demonstrating clear perceived value from Business Intelligence integration.

Sales Performance

Sales performance metrics show positive outcomes from CRM-BI integration. A significant 38.3% of respondents rated improvements in lead conversion rates as excellent due to integrated CRM and BI capabilities. Sales forecasting improvement and reporting efficiency both received excellent or good ratings from 31.7% of respondents, indicating meaningful enhancements in these critical areas.

Customer relationship management quality also benefited from the integrated approach, with 25.8% reporting that CRM-driven customer insights improve relationship management as good. These findings collectively demonstrate that the integration of CRM and Business Intelligence systems contributes meaningfully to various dimensions of sales performance.

Chi-Square Analysis

The Chi-Square test examining the relationship between CRM system usability and sales performance yielded a p-value of .000, which is statistically significant at the 5% significance level. This result provides strong evidence to reject the null hypothesis. The analysis therefore confirms that a significant relationship exists between CRM system usability and sales performance outcomes. Organizations can confidently expect that investments in improving CRM usability will translate into measurable sales performance improvements.

Correlation Analysis

The Pearson correlation coefficient between data quality and integration variables and sales performance measures is r = .165. This positive correlation indicates that improvements in data quality and integration effectiveness are associated with better sales performance outcomes. While the relationship strength is moderate rather than strong, it nonetheless demonstrates that maintaining high data quality standards and effective integration contributes positively to sales results.

FINDINGS

The research reveals several significant findings:

- The majority of respondents are young professionals aged 21-30 years (55.0%), suggesting strong digital literacy among CRM system users.
- Customer service employees constitute the largest user group (45.8%), reflecting the operational focus of CRM implementation.
- CRM customization capabilities receive strong endorsement (38.3% strongly agreed), indicating effective system flexibility.
- Data quality management is effective, with 49.2% rating error minimization as excellent.
- Security measures receive positive evaluation (48.3% rated as good), building user confidence in the system.
- Business Intelligence tools demonstrate clear value, with 51.7% agreeing they help identify business opportunities.
- BI insights significantly enhance sales strategies (55.0% rated as excellent).
- Lead conversion rates improve substantially through CRM-BI integration (38.3% rated as excellent).
- Dashboard and reporting tools are user-friendly (35.8% strongly agreed on ease of interpretation).
- Statistical analysis confirms a significant relationship between CRM usability and sales performance ($p = .000$).
- Data quality and integration show positive correlation with sales performance ($r = .165$).

SUGGESTIONS

Based on the research findings, the following recommendations are proposed:

- The organization should prioritize improving cross-device compatibility to enable seamless CRM access from mobile devices, tablets, and desktop computers.
- Visual design and navigation structure should be enhanced to improve user engagement and reduce learning curves for new users.
- Data indexing and search capabilities require optimization to facilitate faster customer record retrieval.
- Technical support infrastructure and maintenance schedules should be strengthened to minimize system downtime.
- Automated data validation and cleansing mechanisms should be implemented to further reduce duplication and enhance data integrity.
- Comprehensive employee training programs should be developed to promote effective utilization of Business Intelligence capabilities across all departments.
- Advanced analytical models within BI tools should be developed to generate more accurate and reliable sales forecasts.
- Integration depth between CRM and BI systems should be enhanced to improve workflow efficiency and cross-departmental data sharing.
- Business Intelligence dashboards and reports should be customized for clarity and ease of interpretation to support faster operational decision-making.
- Lead management processes should be enhanced through deeper CRM-BI integration to boost conversion rates and improve customer retention.

CONCLUSION

This research examined the effectiveness of Customer Relationship Management systems integrated with Business Intelligence tools at Roots Industries India Ltd., Coimbatore. The investigation focused on understanding how these integrated systems contribute to organizational performance through improved system usability, enhanced data quality, and better decision-making capabilities.

The findings confirm that well-structured CRM systems supported by high-quality data and effective integration significantly enhance organizational decision-making and customer relationship management practices. Business

Intelligence tools strengthen analytical capabilities, enabling more accurate predictions, identification of business opportunities, and improved strategic planning. The statistical analyses provide strong evidence that CRM-BI integration positively impacts sales performance through increased lead conversion rates, more effective sales tracking, and deeper customer insights.

The Chi-Square test results demonstrate a significant relationship between CRM system usability and sales performance, while correlation analysis confirms a positive association between data quality and sales outcomes. These results underscore the importance of investing in user-friendly system design and maintaining high data quality standards. Organizations that prioritize these aspects are more likely to realize the full potential of their CRM and Business Intelligence investments.

The study recommends that organizations focus on continuous improvement of their technological infrastructure, data reliability, and employee engagement with CRM and Business Intelligence tools. Strategic alignment between these systems is essential for achieving competitive advantage and sustainable business growth. As customer expectations continue to evolve and market dynamics become increasingly complex, the ability to leverage integrated CRM-BI systems effectively will become even more critical for organizational success.

Organizations should view CRM and Business Intelligence integration not merely as a technological upgrade but as a strategic initiative that requires ongoing investment in system development, user training, and organizational change management. When implemented effectively, these integrated systems provide the foundation for data-driven decision-making, enhanced customer relationships, and improved business performance.

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