



## DECODING THE DNA OF CUSTOMER RELATIONSHIPS: THE ROLE OF MARKETING DIAGNOSTICS IN THE DIGITAL AGE

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### Abstract

As businesses increasingly recognize the importance of effective customer relationship management, building a rich database and managing it sustainably becomes a crucial factor for success. Digital transformation has altered consumer behavior, necessitating the transformation of strategic frameworks for managing customer relationships and precise management of customer data. To implement effective marketing approaches, it is necessary to conduct a CRM system diagnostics that identifies critical customer interaction areas through adequate metrics. This paper examines the main aspects of marketing diagnostics and their contribution to customer relationship management. The research focuses on the nature and development of three main diagnostic tools as fundamental to the diagnostic process in customer relationship management: the RFM-method, the customer lifetime value (CLTV) and the Customer churn prediction model. The possibilities of using machine learning and artificial intelligence in marketing diagnostics and their impact on customer relationship management are discussed. The purpose of the present study is to contribute to a better understanding of the importance of marketing diagnostics for customer relationship management and to highlight the importance of the effective application of diagnostic tools in organizations.

### Key words:

CRM system, marketing diagnostics, customer relationship management

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## **Introduction**

Customer Relationship Management (CRM) has come a long way and today it is a complex business philosophy that combines technology, processes and people to help companies build and maintain long-term and sustainable relationships with their customers. In parallel with technological developments, such as machine learning and artificial intelligence, the potential of CRM grows significantly as new technologies transform the way companies integrate a customer relationship management strategy. Modern technological solutions make it possible to analyze huge amounts of customer data in real time, to identify patterns and trends and to predict consumer behavior. This, in turn, provides an impetus to develop and upgrade hyper-personalization based on individual customer preferences.

Effective implementation of these technologies, however, is not always easy. Companies need to have the right database storage infrastructure, adequate analytics capacity and, last but not least, organizational culture to achieve their effective implementation. CRM diagnostic tools are essential in this process. Traditional marketing diagnostic metrics are evolving technologically through the ever-widening integration of machine learning and artificial intelligence. This enables organizations to make a realistic assessment of their readiness for digital transformation, to identify gaps and opportunities, and to develop a roadmap for the implementation of up-to-date CRM solutions.

Within this study, the main aspects of marketing diagnostics and their contribution to customer relationship management are considered. The research focuses on the nature and development of three main diagnostic tools as fundamental to the diagnostic process in customer relationship management: the RFM-method, the customer lifetime value (CLTV) and the customer churn prediction model. This paper discusses the possibilities of using machine learning and artificial intelligence in marketing diagnostics and their impact on customer relationship management. The objective of this study is to enhance our comprehension of the significance of marketing diagnostics for managing customer relationships and to emphasize the crucial role of implementing diagnostic tools effectively within organizations.

## **2. Limitations of the study**

The concepts of relationship marketing and customer relationship management are not entirely equivalent, although they are associated with the creation of long-term and fruitful relationships with customers. Relationship marketing focuses on personalization and a one-to-one approach, while customer relationship management is a broader approach that includes technologies and processes for managing customer information. These concepts are often used together to achieve better results in customer relationship management.

## **3. From relationship marketing to CRM: evolution of customer knowledge**

New technologies are facilitating new forms of interaction between consumers and business organizations by providing various types of data, such as geographic, demographic, psychographic, and behavioral characteristics (Kotler et al., 2021). The rapid development of technology is radically transforming the marketing decision-making process (Hoffman et al., 2022). Over the past thirty years, the concept of customer relationship management has evolved from a refined subspecies of relationship marketing, which focused on examining interactions in networks of relationships (Gummesson, 2008), to a business philosophy with enriched functionality that involves a set of technological solutions critical to effective business management and digital transformation, supporting sustainable innovation in the organization's business model (Gil-Gómez et al., 2020) (see Table 1).

**Table 1.**

**Selected definitions that reveal different aspects of customer relationship management**

Source	Definition
Berry (1983:25)	“Relationship marketing is attracting, maintaining and – in multi-service organizations – enhancing customer relationships.”
Jackson (1985a:165)	“Relationship marketing is marketing to win, build and maintain strong lasting relationships with industrial customers“.
Morgan & Hunt (1994:22)	“Relationship marketing refers to all marketing activities directed to establishing, developing, and maintaining successful relational exchanges.“
Porter (1993:14)	“Relationship marketing is the process whereby both parties – the buyer and provider – establish an effective, efficient, enjoyable, enthusiastic and ethical relationship: one that is personally, professionally and profitably rewarding to both parties“.
Ballantyne (1994:3)	“An emergent disciplinary framework for creating, developing and sustaining exchanges of value, between the parties involved, whereby exchange relationships evolve to provide continuous and stable links in the supply chain.“
Lusch & Vargo (2006a:xvii–xviii)	“Marketing is the process in society and organizations that facilitates voluntary exchange through collaborative relationships that create reciprocal value through the application of complementary resources.“
Groenross (2007:29)	“(The purpose of) ... marketing is to identify and establish, maintain and enhance, and when necessary terminate relationships with customers (and other parties) so that the objectives regarding economic and other variables of all parties are met. This is achieved through a mutual exchange and fulfilment of promises.“
Gummesson (2008)	“Relationship marketing is interaction in networks of relationships“.
Stanimirov (2013:32)	“Customer relationship management can be seen as a comprehensive strategy and process of attracting, retaining and partnering with pre-selected customers, the purpose of which is to create added value for both the company and the customers.“
Alam et al. (2019)	“Customer Relationship Management (CRM) is the process of creating and maintaining long-term relationship between a company and its customers for a positive sum game.“
Gil-Gomez et al. (2020)	“CRM is a set of technological solutions, key to effective business management, the benefits of which are critical to the success of the organization. These solutions can be seen as "green" information technologies, oriented towards digital transformation and supporting sustainable innovation in the organization's business model.“

*Source: Adapted by Gummesson (2008:329)*

After 2020, relationship marketing, and in particular, permission marketing, evolve into experience marketing. Customer Relationship Management is focused on hyper-segmentation and hyper-personalization. Green technologies, artificial intelligence and machine learning are used to process and analyze vast arrays of customer databases that are collected through omnichannel marketing and social networks. Stanimirov (2013) considers customer relationship management as both a large-scale methodology and technology in three main directions: as database marketing, marketing process and as a technological solution. This methodology is also a key tool for business model innovation, directing the efforts of small and medium enterprises towards economic, social and environmental sustainability (Gil-Gomez et al., 2020). This requires interconnected integration of people, activities and processes through appropriate technology, namely - the customer relationship management system (CRM-system).

#### **4. Role of organizational and marketing diagnostics in customer relationship management**

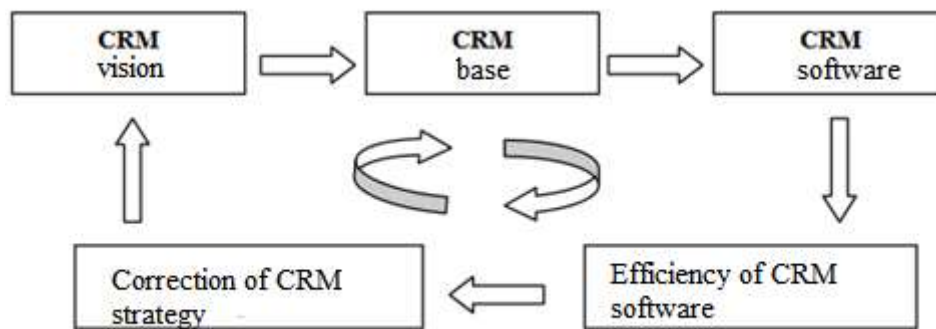
Organizational diagnostics is a method used to analyze the organization in order to identify organizational deficiencies and possible solutions (Janičević, 2010); an intervention that provides information about the various subsystems and processes of the organization in order to improve performance (Beckhardt 1975, Lundberg 2008); but also a management tool used to promote organizational development and change in order to achieve desired sustainability (Zhang, Schmidt, & Li, 2016). Organizations use the information obtained to improve organizational effectiveness and sustainability. Without a good and effective mechanism for performing diagnostics, organizations become information processing units, with the risk that it may not be applicable to the basic needs of the organization (Muriithi, 2020).

While organizational diagnostics focuses on the internal structure of the organization to detect problems and propose solutions, marketing diagnostics analyzes the external market and customers to determine their competition, needs and preferences. In the context of customer relationship management, marketing diagnostics is part of organizational [...] and is necessary to determine the needs and preferences of customers, and through organizational diagnostics, problems in the functioning of the organization are identified that may affect the interaction with customers. Uzunova (2012) defines marketing diagnostics as "a process of dynamic planning activities and operations for changes, signaling and protecting the scope and duration of violated business interests of the company by product-markets" (Uzunova, 2012:76). In the short term, marketing diagnostics performs a function of timely identification of conflicts in the organization horizontally and vertically and their resolution. In a long-term aspect, it helps to specify priority elements of the organization's marketing architecture and direct resources for their improvement and/or transformation.

Marketing diagnostics answers the questions of what needs to be changed and why (Spector, 2007) by collecting data, feedback and institutionalizing the decisions made, providing the basis for determining and evaluating possible future courses and resources to improve performance. Through the diagnostic approach, management can quickly, clearly and comprehensively identify the tools for implementing strategic decisions. The skillful and effective determination of the strategic direction in conditions of changes in the dynamic business environment is a key factor for the success of organizations. In the conditions of over-consumption and fierce competition, the timely adaptation of the customer relationship management strategy requires a methodical diagnosis of business processes, as well as a qualitative analysis to suggest practical mechanisms for adaptation and structural improvements. In some cases, even customization is unable to help properly diagnose the CRM system, which can lead to wasted resources, reduced productivity (Muriithi, 2020) and general organizational inefficiency. Diagnosing allows organizations to assess their readiness for change (Meaney & Pung, 2008), as well as implement the necessary corrective measures to ensure the organization's stability and growth potential.

#### **5. Specifics of the diagnostic process in customer relationship management**

The diagnostic process of the CRM system needs to examine and measure the degree of integration and implementation of the principles of the adopted CRM strategy. This represents the *macro framework* of the diagnostic process in customer relationship management. Stanimirov (2017) proposes a conceptual model for tracking the effectiveness of the CRM-strategy, which integrates and dynamizes the descriptive model of the CRM-diamond of Mack, Mayo and Khare (2005). By following the macro framework of the diagnostic process as a navigation map through micro-level processes, possible deviations from the general line of strategic development caused by subjective factors are minimized.

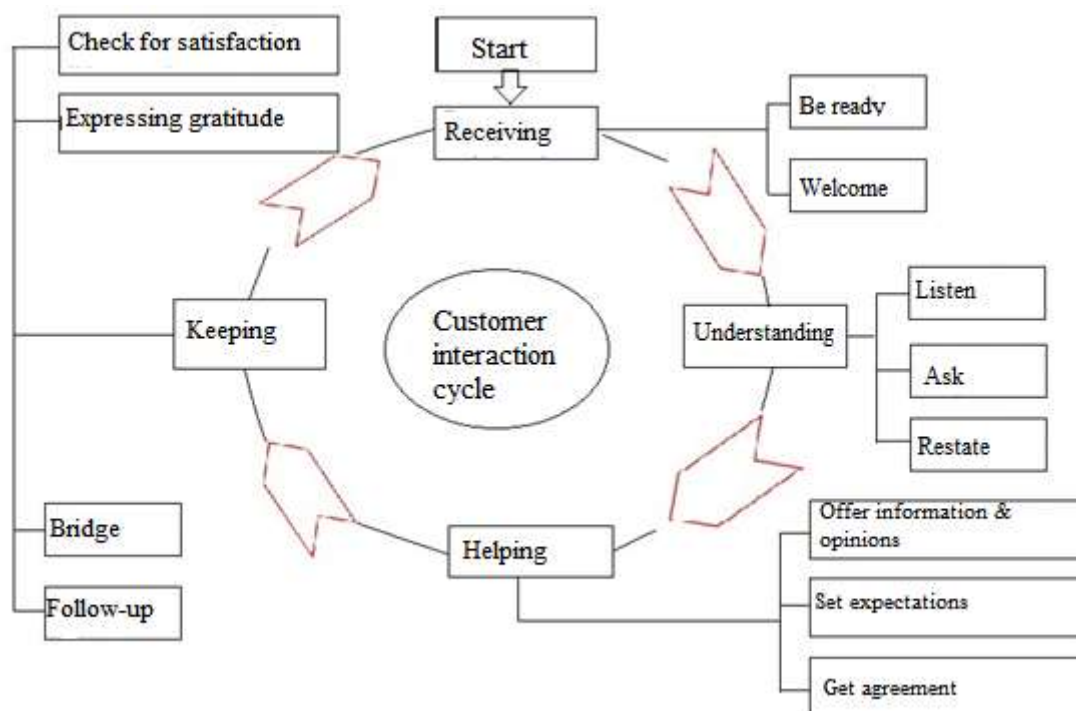


**Figure 1. Conceptual model for strategic CRM process**

*Source: Stanimirov, E. (2017:44)*

For the successful diagnosis of the customer relationship management system in an organization, it is necessary to answer the question of how adequate the adopted CRM strategy is for the target market. For this purpose, it is necessary to examine the management of customer knowledge and establish its effectiveness. Customer knowledge management systems store a large volume of databases that help profile and segment an organization's customers. A key objective of customer knowledge management is their profiling and identification of strategically important customers or groups of customers. Through customer relationship diagnostics, one can predict the possible actions they are likely to take based on their past behavior patterns. This metric is useful to the marketing team in developing strategies to improve consumer purchase index, customer satisfaction, and enables flexible offers for a specific customer in real time.

The *micro-framework* of the diagnostic process involves diagnosing all contact points with the customer through customer journey mapping, which is a critical first step in implementing a customer-centric CRM strategy. To select the right metrics for diagnostics, it is essential to identify the critical customer interaction points that align with the organization's business model. Alam (2022) proposes a "customer interaction cycle," which facilitates the definition of key interaction areas, depending on the adopted business strategy (Figure 2). From the graphical representation of the customer interaction cycle, it is evident that customer retention is a function of the feedback received, which should be proactively sought by the organization. Obtaining customer feedback is a challenging process because customer opinion is typically gathered about the product as a whole and cannot be readily translated into a quantitative value. Organizations should design their customer relationship management strategies to measure customer satisfaction continuously and improve their product based on the feedback received. For instance, opening a hotline to encourage customers to provide their opinion about specific products based on a pre-prepared questionnaire, which may also be available in paper form in the company's front offices, are useful tools for obtaining feedback (Mourtzis et al., 2018).



**Figure 2. Customer interaction cycle**

*Source: Alam (2022)*

Handling continuous customer feedback is a key indicator of the health of the relationship between the parties. The satisfaction check should not be considered as the last element of the customer interaction cycle, but should be carried out periodically at each point of contact, using adequate tools according to the specific communication channel. Regardless of the number of touchpoints identified in the customer interaction cycle, organizations must focus on transforming each touchpoint into a step in the customer journey (Lattuch et al., 2023).

## 6. Key diagnostic methods in customer relationship management

The RFM (Recency, Frequency, Monetary) user profiling method was implemented in the 1990s and is still functional. The parameters on which the method is based are: 1) how much time has passed since the customer's last order; 2) frequency of purchases for a selected period of time; 3) average value per transaction. The general idea of the RFM-method is to group customers based on their RFM scores. The resulting customer groups are related to their purchasing behavior. The method traces in detail the pattern of behavior of a specific customer or group of customers for a given period, taking into account a change in its characteristics or the transition from one profile to another (Patel et al., 2017). The higher the value of the RFM indicator for a particular customer, the more valuable it is to the organization. Lee (2012) recommends combining the RFM method with positioning strategy and using data mining to segment and classify loyal customers. Zhang et al. (2013) suggest adding a new parameter when applying the RFM-method and transforming it into RFMC, where C stands for clumpiness. Data clustering is typically defined as an unusual cluster of activities clustered together or the degree of discrepancy in the frequency of a parameter (e.g. purchase frequency) that is considered a marker in identifying a profitable customer. Ignoring data aggregation can lead to misinterpretation of customer information. Accounting for data aggregation increases the predictive value of the method and assists the marketing team in identifying potential customers of high value to the organization. In addition, the proposed update of the RFM-method helps to adapt and optimize loyalty programs.

The concept of customer lifetime value (CLTV) can be defined as the present value of the customer,

based on the expected cash flows from the interaction with him (Gupta et al., 2006; Krstevski and Manceski, 2016). Calculating this parameter through various machine learning calculation models provides organizations with a deep understanding of each customer that helps allocate resources to retain high-value customers and increase their lifetime value. According to recent studies, the deep neural network (DNN) model outperforms other models with 71% accuracy (Kumaran et al., 2022; Mandal, 2023). The improved CLTV and segmentation forecasting model helps businesses plan and implement relevant CRM strategies such as customer profitability analysis, cross-selling and hyper-personalization.

The customer churn prediction model is another important indicator in CRM system diagnostics. By analyzing specific factors affecting customer churn and ranking them by importance, various metrics may be created to evaluate customer behavior. Based on them, a model for predicting the outflow of customers may be developed, which is implemented further in the CRM system. Ahn et al. (2006) derive several determinants of customer churn that are measured and evaluated in forecasting. These are: customer satisfaction, switching costs, product usage patterns (by frequency, duration) and customer status. A change in customer status, for example, may explain the relationship between the determinants of churn and the likelihood of churn. Therefore, some churn determinants may directly or indirectly affect customer churn by changing customer status (Baron & Kenny, 1986). Moreover, the degree of customer loyalty is equivalent to the difference between a unit and the churn rate (Hossemi & Tarokh, 2011).

Machine learning and artificial intelligence are deeply embedded as technologically-diagnostic methods for CRM-system verification and improvements. New technologies provide companies with the opportunity to get a more detailed picture of their customers and optimize customer interaction. For example, AI-powered chatbots can improve customer service by providing round-the-clock support, while machine learning algorithms can analyze vast amounts of customer data to identify trends and patterns that might not otherwise be apparent at first glance (Krstevski, 2016; Kumaran et al., 2022; Zhang, 2016). By utilizing the capabilities of machine learning and artificial intelligence, organizations can efficiently calculate crucial customer experience metrics like the net promoter score (NPS) (Schmidt-Subramanian, 2019), customer satisfaction score (CSAT), and Customer Effort Score (CES). This approach not only reduces the processing and analysis time of customer data but also yields accurate predictions of consumer behavior with minimal bias.

## 7. Conclusion

Global business trends, including digitization, are accelerating the transition to a service economy in developed markets. This reinforces the role of sustainable customer relationships as a source of competitive advantage for companies. Customer database management is the most important strategic resource and an essential element of sustainable competitive advantage (Gil-Gomez et al., 2020). Both innovation and competitiveness require effective data management through sustainable and regular diagnostic methodology. Innovation and accumulation of customer knowledge are irreversible and inseparable (Mothe et al., 2010) as they are part of the process of continuous improvement of the customer experience, which is at the core of the customer interaction cycle in the relationship management system.

Effective diagnostics of customer relationship management is a key success factor for organizations. It needs to be a continuous process to enable the organization to capture all relevant data necessary to improve financial performance in a long run. The study highlights the importance of a holistic approach to customer relationship management that includes both internal and external diagnostic methods. Implementing key diagnostic methods - RFM, CLTV and the churn forecasting model - is essential for successful customer relationship management. These diagnostic tools are fundamental in customer relationship diagnosis and analysis and help identify problems and opportunities for improvement. Future research could focus on the development and implementation of new diagnostic methods to enhance customer relationship management practices. Further exploration of the relationship between organizational and marketing diagnostics and their impact on customer satisfaction and loyalty would be valuable. It would also be useful to investigate the effectiveness of different diagnostic methods in different organizational contexts and industries. It would also

be of interest to explore how new technologies can be used to improve diagnostic methods in customer relationship management.

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