DESIGN AND IMPLEMENTATION OF A CRM SYSTEM TO OPTIMIZE BUSINESS PROCESSES OF A TRADING COMPANY

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Abstract. This paper aimed to formulate recommendations for implementing CRM systems for trading companies in the small and medium-sized enterprise segment. A content analysis of current documents was used to analyze the types and forms of CRM systems used in these companies. The essential functions a CRM system must contain were identified through structured interviews. The central part of the paper deals with the development and implementation of the CRM system. The current system was analyzed using the HOS 8 method, and its effectiveness was described. The results show that the system could be more efficient and balanced; based on these findings, it was decided to implement a new CRM system. The HOS 8 method was followed by a GAP analysis, which compares the current state of the CRM system with the expected (desired) state. Using the GAP analysis, the process of implementing the CRM system was carried out. The results of this work can be mainly used in trading companies with frequent and continuous contact with customers. However, the above analysis and procedures can also be applied to other types of firms. There are opportunities for further research in modern CRM systems such as automation, digitalization, and Artificial Intelligence. These areas will bring added value to firms and increase their competitiveness.

Keywords: Customer Relationship Management; CRM conceptual model; optimization of company processes; CRM system implementation; company performance; customer orientation

1. Introduction

It is necessary to design and continuously improve business processes and communication channels in the business environment to maximize profits, increase business value, and ensure exceptional customer experience at all levels of communication. To maintain a competitive advantage, it is crucial to strengthen profitable relationships, increase customer loyalty, increase revenue, and improve sales performance. Business performance is the main objective of any business and is a top priority for managers (Gavurova et al. 2022; Dvorsky et al., 2021). Customer Relationship Management (CRM) capabilities are known in the literature as an important factor affecting business performance.

However, there are significant differences between companies, given the market environment in which they operate or the nature of the products they sell (Trif et al., 2019). Empirical tests show that the) operational benefits of CRM are reflected in high corporate revenue per employee, which leads to high profitability; the strategic benefits of CRM are reflected in high customer satisfaction, which also leads to high profitability and market valuation (Li et al., 2019).

Not all approaches to implementing CRM systems are effective. Social CRM has a positive direct effect on innovation performance and customer engagement, but surprisingly, customer engagement does not directly affect corporate performance (Hakimi et al., 2023). The effectiveness of using social CRM varies depending on the size of the firm, its innovativeness, the industry, and the market in which it operates. CRM capabilities have only been proven to mediate the relationship between social CRM and firm performance indirectly (Foltean et al., 2019). In the future, social CRM is expected to become increasingly prevalent to achieve better performance and focus on a firm's ability to capture, generate, organize, and integrate information from customer engagement on social media to maintain and improve customer relationships and its financial results (Yasiukovich & Haddara, 2021). Kim, Hyun, and Zhan (2019) describe that most of the current literature on social CRM in small and medium-sized enterprises tends to focus on the use and maintenance phase, while issues related to adoption, acquisition, and implementation decisions are much less represented.

Powel et al. (2018) describe the characteristics of the micro and macro environments in which CRM is used in both customer engagement and overall corporate performance and discuss the human versus machine capability of CRM support. But as Pour et al. (2018) state in their study, although CRM has been at the top of management tools in recent years, they conclude their research by stating that the relationship between CRM and innovation, as well as the relationship between innovation and firm performance, has been confirmed, while the relationship between CRM and firm performance has not been verified. The interaction of these areas improves corporate performance, and despite the massive investment in CRM, its impact on business could be clearer. CRM affects the sales process (opportunity creation, opportunity management, and relationship management) and causes significant differences in sales processes. Companies with high efficiency and CRM help in opportunity creation and relationship management with the development of technologies such as Web 2.0 and cloud computing (Rodriguez et al., 2018). Suoniemi et al. (2022) describe the extent to which CRM consultants improve the quality of the CRM system, and, ultimately, the corporate performance depends mainly on the user interface, which acts as a key facilitating mechanism for dealing with complexity, application, and uncertainty of requirements. The user interface is also related to the possibility of using mobile devices to work with CRM systems: Markovets et al. (2021) describe the algorithms for mobile application development, in particular, the authorization/authentication algorithm and the algorithm for executing possible SQL queries on the back end of the CRM system. Mobile applications are related to the current concept – artificial intelligence that integrates with CRM systems and can analyze large volumes of customer data (Andronie et al., 2021; Dijmărescu et al., 2022; Lazaroiu et al., 2022). From a CRM perspective, companies must store and analyze customer data to understand their needs (Chatterjee et al., 2021). Although CRM technology implementation initiatives often fail, most research focuses on user-related reasons for low success rates, but system quality also plays a significant role in mediating the effects of IT capabilities at the firm level (Suoniemi et al., 2021; Fedorko et al., 2018).

Business analytics (BA) is becoming increasingly important in a rapidly changing business environment, and the strong link between the IT environment and the use of business analytics is evident in the context of CRM (Nam et al., 2019). Boujena et al. (2018) state that customer relationship management is becoming a hot topic in both academic and business environments, and with the help of technology, predictive analytics in CRM is becoming an important tool in the marketer's toolbox. It is a process where vast volumes of historical customer data are used to predict future customer behavior, enabling marketers to make decisions based on their knowledge rather than what they think.

The paper aims to formulate recommendations for implementing CRM systems in trading companies operating in the segment of small and medium-sized enterprises in the Czech Republic. Sustainable customer relationship management combines business strategy, customer-oriented business processes, and computer systems that seek to integrate sustainability into customer relationship management (Ferrer-Estévez & Chalmeta, 2022).

The first research question focuses on identifying the systems that companies use:

RQ1: What forms (types) of CRM and what CRM systems do trading companies use in the SME segment?
To analyze the main functions and tools that firms use in CRM systems, the second research question is formulated:

RQ2: What are the key functions a CRM system should provide to successfully support business activities and improve customer experience?

In practice, CRM system implementation is slow or not meeting the company's expectations. Successful implementation depends on several factors, such as alignment between the firm's CRM strategy and programs and its broader marketing strategy and intra- and inter-organizational collaboration and coordination between those involved in the implementation. Management support for implementing CRM systems is also essential (Bohling et al., 2016). The above leads to the last research question, number three:

RQ3: What is the optimal procedure for implementing and deploying a CRM system?

2. Literature Review

In the era of e-commerce, the implementation of customer relationship management is a complex system process, which must be carried out by specific concepts and requirements and in steps suitable for society, customers, and enterprises (Bartók et al., 2021; Dabija et al., 2022). Companies should adhere to the "customer-oriented" business philosophy and use information technology to implement data analysis (Lv, 2021; Skare et al., 2023a). In the competitive environment of small and medium-sized companies, a smart approach to customer relationship management (CRM) is increasingly appreciated. However, it is difficult to select the appropriate CRM software, so one possible selection method is based on Multi-Criteria Decision Analysis (MCDM) and cost-benefit analysis (Cricelli et al., 2020). In the era of COVID–19, many business processes (customer communication and sales support) have moved to the online environment (Waliszewski & Warchlewska, 2021; Belas et al., 2022). Using descriptive and regression analysis, it was found that modern marketing communication tools have an impact on increasing the innovativeness of enterprises (Krchova & Hoesova, 2021; Skare et al., 2023b). According to Claybaugh et al. (2023), employees who work with a CRM system perceive the technology they use and evaluate the relational elements of the exchange relationship. The authors also propose a model that includes two technology components (positive prior experience and technology quality) and four relational constructs (reputation, trust, risk, and overall relational satisfaction) and analyze how these factors influence loyalty to the customer relationship management system provider.

According to Pohludka and Stverkova (2019), there has been an upward trend in recent years to focus on the customer and their needs. From this perspective, a fully functional CRM system can be considered a competitive advantage for both multinational and small and medium-sized enterprises. Melovic et al. (2022) discussed the factors influencing electronic customer relationship management (e-CRM). Based on a questionnaire survey, they explain the importance of technical, organizational, and environmental factors, whose assimilation depends on the successful use of CRM software. According to Whitaker et al. (2020), there is a gradual increase in the proportion of firms that use outsourcing for CRM solutions. The research was conducted between 2011 and 2022 on 150 North American small firms through a questionnaire survey. Similarly, Viana et al. (2020) report that outsourcing to SMEs in Germany is expanding due to the development of social CRM and its integration of social media data into CRM

tools to improve customer insight. The results show that German SMEs' outsourced services enhance customer satisfaction by focusing on core business, service quality, and cost reduction.

Since CRM tools are very expensive for small companies, Cruz et al. (2017) describe the possibility of using Open-Source CRM systems, which are without acquisition costs and are viable for small companies. The major Open-Source CRM systems include SugarCRM, Vtiger, Open CRX, and Odoo. Open-source software solutions are vital for SMEs as they allow easy access to reusable software. With the rapid increase in popularity of cloud technologies, public clouds also cost-effectively cater to the computing requirements of SMEs, as users can dynamically access on-demand resources according to their needs (Schork et al., 2019). Another advantage of using Open-Source is the ability to use existing CMS (Content Management System) such as WordPress, Joomla, or Drupal that are already used in companies and extend them with CRM modules. SMEs can use open-source software modules to cover more business areas with modern ICT solutions (Skulimowski, 2016).

The use of social media as a communication channel and source of data to understand customer needs is essential to keep companies alive in a constantly competitive market. The massive production of user-generated content is seen as a powerful resource of information about customer behavior, which enables the innovation of existing approaches. This has led to the emergence of a concept known as social CRM (Junior et al., 2020; Chovanová Supeková et al., 2023). Social customer relationship management is a new paradigm in the e-business environment. It enables businesses to collaboratively manage customer expectations through social technologies, combining social media capabilities with traditional CRM software to allow companies to engage their customers better (Pour & Hosseinzadeh, 2021). Another form of use is Mobile CRM. Research results show that Mobile CRM plays an important role in adopting traditional CRM and sales performance when sales process and collaboration capabilities are involved (Rodriguez & Boyer 2020). The basic marketing components include sales evaluation, customer satisfaction analysis, and segmentation (Langerová et al., 2021).

Marketing automation systems represent a type of management information systems (MIS) used in CRM. One of the tools is email marketing, whose basic function is to send emails. There is a correlation between the size of the database, email open rate, and email click-through rate. Research by Georgescu and Teiu (2021) showed a significant increase in the use of email marketing and strong correlations between the indicators used. Marketing automation is further enhanced using chatbots – a targeted online conversation with human end-users that influences user experience and satisfaction (Sohail et al., 2021). As also described by Brandtzaeg Folstad (2017), there is a growing interest in chatbots and machine agents that serve as a natural language user interface for data and service providers. In their questionnaire survey, they identified key motivating factors for using chatbots: productivity, effective help, or information. Web mining (an analytical methodology for extracting data from web portals), used to automatically collect information from clients' websites for customer relationship management systems, emerges as another suitable environment for customer data mining (Baumer & Buff, 2019).

Tazkarji and Stafford (2020) discuss the high failure rate of CRM system implementation, stating that many factors contribute to CRM implementation failure. According to the authors, the main categories of People and Technology are complicated and require organizational collaboration. In contrast, factors in the Processes category are more manageable because they can be addressed before CRM implementation. Therefore, when implementing a CRM system, successful management of the implementation project, perception of specific offerings, reliability and assurance, and services provided by CRM consultants are necessary (Gonzalez-Benito et al., 2017). Based on the study by Zhao and Li (2016), CRM implementation has 16 critical success factors. In the literature search, they develop relevant hypotheses. Their results show that the main success factor for CRM implementation is top management support and involvement. Some differences were found between consultants' and practitioners' responses for 4 critical success factors, specifically project manager's skills, education and training, project scope management, and staff attitude. In addition, the study's results suggest that some of the more important critical success factors of implementation do not belong to the CRM system's quality aspect but to the CRM project's scope

aspect and the organizational characteristics aspect. Habul et al. (2017) empirically analyzed successful CRM implementation. Based on the results of two online questionnaires, they concluded that an important requirement placed on CRM is the involvement of employees in CRM implementation and the involvement of external experts; this suggests that a lack of vision, leadership, and training of employees often leads to unsuccessful implementation.

As stated by Chromcakova and Starzyczna (2019), the components of CRM, barriers to implementation, and the use of customer relationship management by size are often discussed, as evidenced by their research conducted in 2014-2017 in the Czech Republic. The results show significant differences in the use of CRM depending on the size of the company and the business sector. Adamkovic (2015), in his study conducted in the Czech Republic, focused on small businesses and investigated the suppliers, time, and financial availability of the tools offered and flexibility to customer requirements. The study revealed a limited number of suppliers and limited required functionality of CRM systems. Sebjan et al. (2016) investigated how organizational orientation (process, innovation, and technology) as critical organizational factors influence attitudes towards using IS and CRM analytical tools. Their results show that all critical organizational factors, namely process, technology, and innovation orientation, have a positive influence on attitudes towards the use of IS and CRM analytical tools, with innovation orientation being of particular importance, having the strongest influence on attitudes towards the use of IS and CRM analytical tools. AlQershi et al. (2020), who examined the interaction of human capital and CRM on the performance of SMEs, found that key customer focus, technology-based CRM, and CRM knowledge management are effective factors influencing performance but not CRM organization tools. It was also found that human capital has no moderating effect on the relationships between key customer focus, knowledge management, and performance. However, it plays a role in moderating the relationship between performance and CRM organization.

Junior and Ramirez (2021) described the experience of defining a new customer relationship management system in an internal sales department where an outdated CRM system was being replaced using a Probe Methodology (PM) approach. The results showed that PM can help identify the specific software environment's main characteristics, usage patterns, and problems. In addition, it was possible to determine how users adapted to overcome the difficulties encountered when interacting with the system and provided valuable insights for CRM development. As reported by Khanh et al. (2022), who collected data based on a structured questionnaire survey with 241 valid responses, correlation analysis and structural equation modeling were used to investigate the causal relationships between organizational factors, customer, orientation, knowledge management, data quality, and CRM strategy. The result shows that organizational factors impact the success of e-CRM. However, more attention needs to be paid to other factors that influence customer orientation, followed by knowledge management and technology. Other factors, such as data quality and CRM strategy, indirectly affect the success of e-CRM.

3. Methodological approach

3.1 Data

The first research question will be answered using content analysis of documents from Web of Science and Scopus, which provide secondary data. In addition, current scholarly publications, such as "Customer Relationship Management - Concept and Technologies" (2019) and "Connected CRM - Implementing a Data-Driven, Customer-Centric Business Strategy" (2014) are considered. Data is also obtained from research by Gartner, a company focusing on CRM systems. The second and third research questions will be answered by conducting two interviews. The first interview is performed with the owner of MediLR s.r.o., the Czech Republic. The questions in the interview concern the strategy of building customer relationships, the evolution of customer communication, and the future expectations in the field of relationship management.

The second interview is conducted with the head of the consulting and development team of an ERP/CRM system supplier. This interview compares theoretical knowledge with practical experience and determines the current and

future status of CRM software in small and medium-sized companies. Data from the IS/CRM system of MediLR s.r.o. is analyzed as part of the research. Overall, this research aims to provide a deeper insight into the issues of building customer relationships and CRM software development in SMEs.

3.2 Methods

The content analysis of the documents to cover the first research question is based on identifying appropriate keywords to be searched on Web of Science, Scopus, Gartner (www.gartner.com), and G2 (www.g2.com) websites. Czech sources include, in particular, www.crm.cz, www.crmforum.cz, and www.systemonline.cz. The main keywords for the first research question are CRM Capability, CRM Software, Relationship Management, CRM Systems, Relationship Marketing, CRM Selection, Small and Medium Enterprises (SMEs), and their combinations. The second and third research questions are addressed in the form of a case study based on a questionnaire survey conducted with the owner of the business MediLR s.r.o. The purpose is to discover what key features a CRM program should have to support business activities and improve customer experience successfully. This investigation is followed by a structured interview with the head of the development department of a company that creates ERP/CRM systems. For the third research question regarding the optimal implementation and deployment of a CRM system, a content analysis of documents on Web of Science and Scopus portals is conducted at the theoretical level using the main keywords such as CRM System, CRM Implementation, Factors Affecting Successful Implementation, Small and Medium Enterprises (SMEs).

The HOS 8 method describes the environment and determines the effectiveness of the CRM software use. The basis for its processing is a questionnaire survey. The HOS 8 method comes from Koch (2010). The essence of this method is to get an overview of the surveyed program. The method aims to assess the existing CRM program and examine different areas' levels. The areas evaluated include Hardware (HW), Software (SW), Orgware (OW), Peopleware (PW), Dataware (DW), Customers (CU), Suppliers (SU), and Management Systems (MA). A questionnaire is created for each of the above areas (Appendix 4), containing 10 questions for each area. Answers will be a choice between yes, rather yes, partly yes, rather no, and no, with the following scores for each of the options: yes - 5, rather yes - 4, partly yes - 3, rather no – 2, and no - 1. A questionnaire (Annex 4) is created for each of the above areas, containing 10 questions for each area. Answers will be a choice between yes, rather yes, partly yes, rather no, and no, with the following scores: yes - 5, rather yes - 4, partly yes - 3, rather no – 2, and no - 1. For each area, the value of u_i is calculated using the equation (1):

$$u_i = \left[\frac{\sum_{j=1}^{10} u_{ij} - MAX_i - MIN_i}{8} + 0.5 \right] \tag{1}$$

The resulting value u_i can take the following values:
$u_i = 1$ – indicates a very low level of the area, $u_i = 2$ – indicates a low level of the area, $u_i = 3$ – indicates a medium level of the area, $u_i = 4$ – indicates a high level of the area and $u_i = 5$ – indicates a very high level of the area.
The aggregate state of the system is then found using the equation $u = min(u1, u2, ..., u8)$.

We are looking for the smallest value of the region. This is followed by the determination of the balance of the system, which can take the following values: fully balanced program, balanced program, and unbalanced program. For a completely balanced model, $ui = u$. A balanced program is the one where for all $ui: (u_i - u) \le 1$ and at the same time: $\sum_{i=1}^{8}(u_i - u) \le 3$. The last state, an unbalanced program, is the one for which $\sum_{i=1}^{8}(u_i - u) \ge 4$. The balance of the system can take the following values: fully balanced program (r = 1), balanced program (r = 0), and unbalanced program *(r = -1)*. The last area examined deals with the importance of the system for companies, which can again take three values (v). For *v = -1,* it means that the program is not important for the firm's operation, as there is no increase in production, profit, or labor savings. This means that the firm can work without the system program. For *v = 0*, the state means that the program is important to the firm's operation, but its short-term failure

will not affect the firm's operation, profit, or customer satisfaction. The last value, when *v = 1,* indicates that the program is critical to the firm's operation, and even a short-term failure will affect the firm's operation, profit, or customer satisfaction (Koch, 2010). After all areas have been evaluated, a graphical representation is made based on a table, where each area is described in the first column, the second column contains the final evaluation, and the third column contains the verbal evaluation. The graph consists of 8 semi-axes; each semi-axis is labeled with five points, i.e., the values that each area can take on, and then the points will be connected to form an octagon showing the values of all the areas examined. The graphical processing is carried out in Corel's program Corel Draw version 19.

The second method, which builds on the HOS 8 method and uses its results, is the GAP analysis. GAP analysis compares the current state with the expected (desired) state. The GAP analysis covers the following areas: identification of objectives and requirements, identification of a reference state, identification of the current state, comparison of the reference and current state, identification of actions to address the deficiencies, implementation planning, implementation, monitoring, maintenance, and training. Using GAP analysis, the third research question is addressed and answered.

4. Result and Discussion

RQ1: What forms (types) of CRM and what CRM systems do trading companies use in the SME segment?

The basic classification of CRM in the literature is divided into three main parts: analytical, operational, and strategic. Analytical CRM (Customer Relationship Management) is an approach to customer relationship management that focuses on collecting and analyzing customer data to understand their needs and behaviors better. Analytical CRM uses various methods and technologies, such as statistical modeling, data warehouses, and data visualization tools. Figure 1 describes basic data processing using analytical CRM.
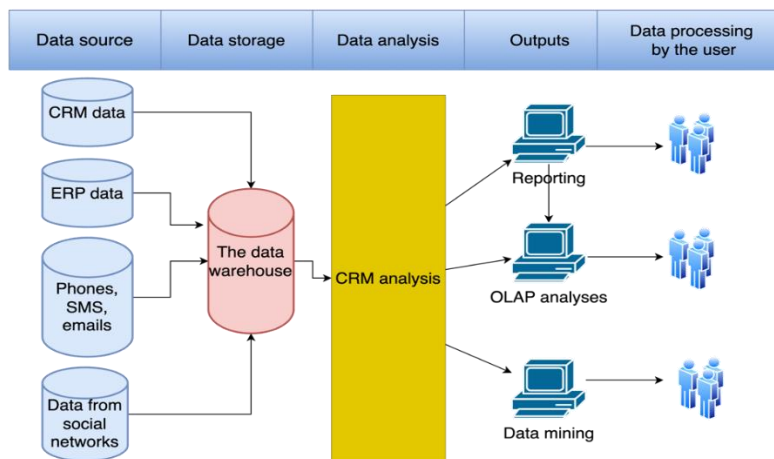

Figure 1. Basic data – analytical CRM
Source: Authors

Operational CRM (Customer Relationship Management) focuses on processing and analyzing customer data to maximize customer satisfaction and loyalty. Operational CRM primarily addresses issues related to using customer information to improve sales, marketing, and service delivery. Specifically, operational CRM deals with the collection, organization, and analysis of customer information, such as information about their purchases, previous inquiries, preferences, complaints, feedback, etc. This information is then used to provide personalized services,

offer products, and improve customer satisfaction. The main functions of operational CRM include customer contact management, marketing campaigns, sales management, and customer support management.

Strategic CRM is an approach to customer relationship management that focuses on planning and implementing long-term strategies to improve the customer experience and strengthen customer relationships. This approach is based on collecting and analyzing customer data to identify their needs and preferences and create personalized offers and services. Strategic CRM involves several phases, including data collection, data analysis, strategy planning and implementation, and follow-up monitoring of results.

In recent years, new CRM systems have emerged, namely Social CRM and Mobile CRM. Social
CRM is focused on tracking and analyzing customer behavior on social media. This type of CRM helps companies create targeted advertising campaigns based on customer preferences and habits. Mobile CRM allows users to access customer information through mobile devices such as smartphones or tablets. This type of CRM is ideal for marketers who need to access customer information on the go.

CRM systems fall into three main categories based on where the data is stored: on-premises, cloud, and hybrid.

On-premises CRM systems reside directly in a company's facility and are run internally. This type of system allows companies complete control over data and storage but requires investment in infrastructure and technology to run the system. Cloud-based CRM systems are hosted on third-party servers and are accessible via the Internet. This type of system allows firms to deploy it easily and quickly without owning the infrastructure for data storage. Still, it also needs to be improved in terms of data control. The last group is hybrid systems, which combine the benefits of on-premises and cloud-based systems. Data is stored on an internal server in the company's environment.
The use of CRM systems by small, medium-sized, and large companies is shown in Figure 2.
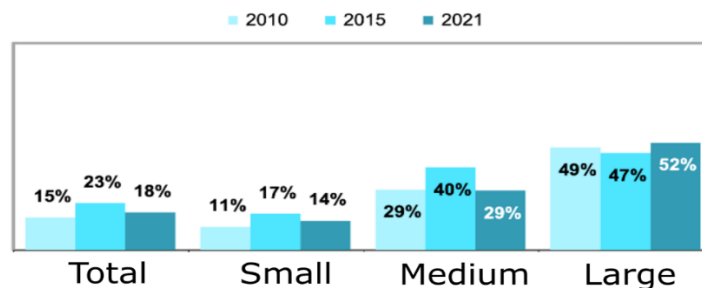

Figure 2. Using CRM systems to manage and use customer information.
Source: Czech Statistical Office (2021)

According to the results of the Gartner survey conducted in 2022, 84 % of respondents stated they use the Salesforce platform, with the majority of them (64 %) saying they use different CRM platforms for back-end master data management functions and customer engagement; when selecting a CRM platform, respondents consider "platform capabilities" as the most important factor (73 %), along with "product strategy and vision" (44 %) as the second most important factor (Gartner, 2022). What CRM systems companies use depends on their area, size, or B2B or B2C orientation. Gartner's research focuses mainly on the B2B market, but as the author states, the research results apply to B2C markets of all sizes. Gartner's latest study on CRM software from 2022 displays using the Magic Quadrant, where the quadrants are described as Challengers, Leaders, Niche Players, and Visionaries. The individual quadrants are defined as follows: Challengers - perform reasonably well or can dominate a large segment but do not have a roadmap that matches Gartner's view of how the market will evolve. Leaders - perform reasonably well today and are well positioned for tomorrow; Niche players - focus relatively successfully on a small segment

or are unfocused and do not innovate or outperform others; and Visionaries - understand where the market is going or have a vision for changing market rules but do not perform well or do so inconsistently. Figure 3 describes Gartner's magic quadrant.

Figure 3. Magic Quadrant
Source: Gartner (2022)

Table 1. Top 5 rated CRM systems by popularity

Position	Name of CRM SW	websites
1.	Salesforce Sales Cloud	https://www.salesforce.com
2.	HubSpot Sales Hub	https://www.hubspot.com/products/sales
3.	Zoho CRM	http://www.zoho.com/crm/
4.	Pipedrive	https://www.pipedrive.com/en/features
5.	Dynamics 365 Sales	https://dynamics.microsoft.com/en-us/sales/overview/

Source: Authors

RQ2: What key functions should a CRM system provide to support business activities and improve customer experience successfully?

Based on the structured interviews with the owner of the company and the head of the consulting and development team of the company selling ERP/CRM and comparing the features offered by the main CRM systems to the companies, the following key features have been identified: contact management, sales management, data analysis, automation, integration, mobile access, personalization, sales performance tracking, customer support, and data security. The most common CRM system features are shown in Figure 4.
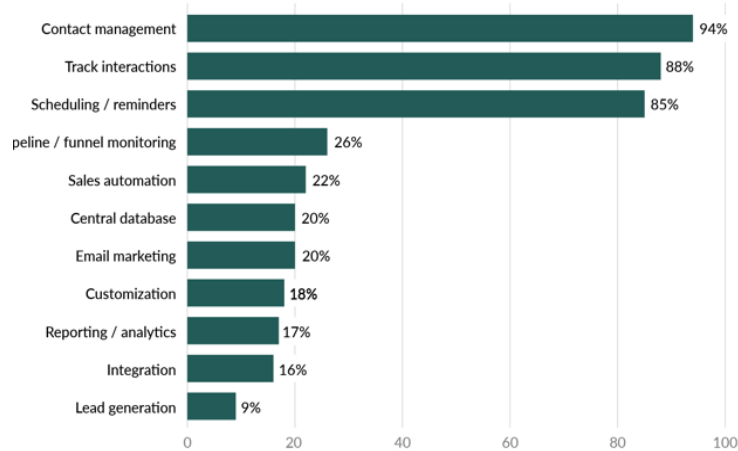
Figure 4. The most used functions of CRM systems
Source: https://www.softwareadvice.com/resources/crm-trends-2019/

Other features include task organization, business case management, intra-company (internal) communication, automatic notifications, or synchronization with calendars (e.g., Google Calendar, Outlook, deadline tracking).

RQ3: What is the optimal procedure for implementing and deploying a CRM system?

In the first part of this chapter, the HOS 8 method is proposed, which assesses the current system in eight areas and identifies the levels of each area. The HOS 8 method is followed by a GAP analysis that compares the current state with the expected (desired) state. The GAP analysis is used to implement the CRM system.

Evaluation of the HOS 8 method

The HOS 8 method is evaluated based on a questionnaire the company's CEO completed. The HOS 8 method uses the conversion of nominal values to ordinal values. The interviewee is not familiar with the principle of questionnaire evaluation. The questions for each area and the answers are given in Annex 3 – Questionnaire for the HOS 8 method by area. For each question, only one option can be selected. The individual options are scored as follows: Yes – 5, Somewhat Yes – 4, Partially Yes – 3, Somewhat No – 2, and No -1. The method of evaluation of the HOS 8 method is described in the Data and Methods chapter. For an illustrative example with specific data for calculating values, the first area HW - hardware was chosen. To calculate the value of u_i for each specific area, the formula $u_i = \left[\frac{\sum_{j=1}^{10} u_{ij} - MAX_i - MIN_i}{8} + 0.5 \right]$ is used. In this case, for the first region, $ui = 4 + 4 + 4 + 3 + 4 + 4 + 1 + 2 + 4 + 5 = 35$, $MAXi = 5 \ and \ MINi = 1$. After substituting its value to the above formula, the result is $u_{iHW} = \left(\frac{35-5-1}{8} \right) + 0.5$, i.e., 4 after rounding. If the calculation does not produce a whole number, the result will be rounded to a whole number. The following table shows the results for each area and the completed formula for the calculation u_i.

Table 2. Calculation of u_i for different areas of the HOS 8 method

Area	U_i area	Evaluation result
HW	$u_{iHW} = \left(\dfrac{35 - 5 - 1}{8}\right) + 0.5$	4
SW	$u_{iSW} = \left(\dfrac{15 - 3 - 1}{8}\right) + 0.5$	2
OW	$u_{iOW} = \left(\dfrac{28 - 5 - 1}{8}\right) + 0.5$	3
PW	$u_{iPW} = \left(\dfrac{24 - 4 - 1}{8}\right) + 0.5$	3
DW	$u_{iDW} = \left(\dfrac{25 - 5 - 1}{8}\right) + 0.5$	3
CU	$u_{iCU} = \left(\dfrac{25 - 4 - 1}{8}\right) + 0.5$	3
SU	$u_{iSU} = \left(\dfrac{22 - 4 - 1}{8}\right) + 0.5$	3
MA	$u_{iMA} = \left(\dfrac{36 - 5 - 2}{8}\right) + 0.5$	4

Source: Authors based on calculation

The above values suggest that the SW area has the lowest rating – 2, i.e., $u_i = 2$ means a low level of the area. The areas OW, PW, DW, CU, and SU have a rating $u_i = 3$, indicating a medium area level. The HW and MA areas have a rating of 4, i.e., high level.

After evaluating the individual areas, it is possible to express a detailed and comprehensive status of the CRM system under study. The detailed state can be expressed by the vector $m = (u_1, u_2...u_8)$, where m describes the system's detailed state, consisting of an eight-membered vector and is denoted by u_1 to u_8 referring to each area. The formula can be broken down into the following form: $m = u_{HW}, u_{SW}, u_{OW}, u_{PW} u_{DW}, u_{CU}, u_{SU}, u_{MA}$. The aggregate state of the system corresponds to the lowest region. This can be defined using the relation $u = min (u_1, u_2...u_8)$. Using a verbal expression, the aggregate state can be defined using Table 8. In this case, the aggregate system state corresponds to u = 2. The lowest value is in the SW – software domain.

The relevance and balance of the system is also evaluated. The HOS 8 method uses three categories: fully balanced system, balanced system, and unbalanced system. In a fully balanced system, all examined categories are equal. This condition is almost non-existent. An utterly balanced system can be described using the relation $u_i = u$. A balanced relation can be described using the formula $(u_i - u) \leq 1 a \sum_{i=1}^{8} (u_i - u) \leq 3$. The last category, an unbalanced system, can be described as a system that is not balanced or completely balanced. It is a system where different values of (2,3,4) are obtained for at least three regions. The letter r is used to characterize the balance of a system and takes the following values: $r = 1$ – a completely balanced system, $r = 0$ a balanced system, and $r = -1$ an unbalanced system. In this case, it is an unbalanced system because according to the above formula $(u_i - u) \leq 1 a \sum_{i=1}^{8} (u_i - u) \leq 3$, the above conditions are not met and it follows that $r = -1$.

Graphical representation of system states

The Data and Methods chapter described the values' graphical representation. The description is the basis for the graph in Figure 4. The graph contains eight semi-axes, each representing one studied area, i.e., HW, SW, OW, PW DW, CU, SU, and MA. On each semi-axis, five levels (1-5) represent the values that can be taken. The resulting values are marked on the semi-axes and then connected by solid lines to form an octagon. This octagon is labeled with an arrow - Current State. The meaning of the system is represented by a circle with radius 2 corresponding to the importance of the system. The circle is marked in dashed red. The recommended state of the system is an octagon of radius 2 marked in green. The graph shows the values $m = (4,2,3,3,3,3,3,4)$, $u=2$ and $v= -1$.
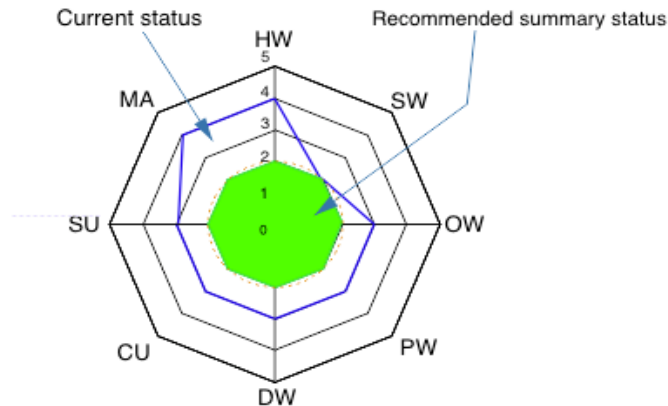

Figure 4. Graphical representation of system states and values
Source: Authors based on calculated values

CRM system implementation

The CRM system will be implemented using the GAP analysis described in the Data and Methods chapter. The GAP analysis aims to compare the current state of the CRM system with the expected state (desired) state, i.e., a system that meets all the requirements for a modern CRM system. The implementation of the new CRM system will be carried out based on an implementation study.
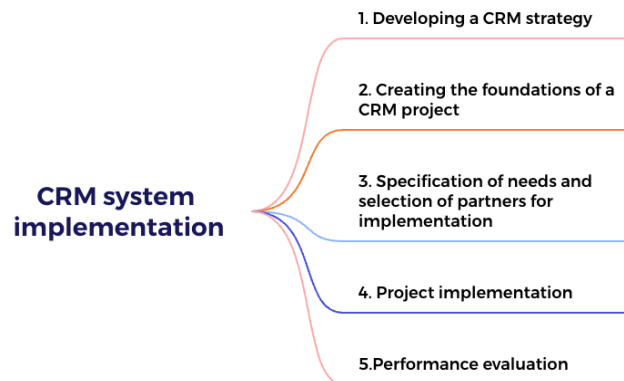

Figure 5. CRM system implementation phase
Source: Authors according to Customer Relationship Management - Concepts and Technologies (2019)

Figure 5 describes the 5 main processes of CRM system implementation (creating a strategy, creating a project foundation, specification of needs and selection of partners, project implementation, and performance evaluation).

Conclusions

The analysis and identification of forms and types of CRM systems used in small and medium-sized enterprises firms was carried out using literary research mainly from online sources, such as Web of Science, Scopus, and other professional publications dealing with CRM systems. After analyzing keywords (CRM Capability, CRM Software, Relationship Management, CRM Systems, Relationship Marketing, CRM Selection, Small and Medium-sized Enterprises (SMEs) related to CRM systems, 15 sources were searched and, on their basis, all forms and types of CRM systems used by trading firms in the SME segment were described. The analysis showed that the main classification of CRM systems is as follows: analytical, operational, and strategic CRM systems. In addition to this classification cited in the literature, new forms of CRM, such as collaborative, social, and mobile CRM, emerged. Using content analysis, it was possible to answer the first research question: Which forms (types) of CRM systems and which CRM systems do trading companies use in the SME segment?

When using CRM systems, it is important to know and understand the main features that a CRM system should contain. Through structured interviews with the business owner and the head of the consulting and development team of the company supplying the ERP/CRM systems, all the key functions of a modern CRM system were identified and confirmed. The key features include contact management, sales management, data analysis, automation, integration, mobile access, personalization, sales performance tracking, customer support, and data security. In addition, the respondents also mentioned modern CRM system trends such as Social CRM or automation of routine tasks and activities. Based on the structured interviews, it was possible to answer the second research question: What key features should a CRM system provide to support business activities and improve customer experience successfully?

After identifying the types of CRM systems and the requirements for each function of the CRM system, the company can decide to implement such a system. The process of implementing a CRM system is divided into two parts: the identification of the current state and the implementation of a new CRM system. The HOS 8 method was chosen to describe the environment and determine the effectiveness of using the given CRM system. The method includes 8 areas, and 10 questions were created for each area. To evaluate the questionnaire, it was necessary to convert the verbal answers into ordinal values to assign a specific value for each of the 8 areas. In the SW – Software domain, a value of 2 was found, which corresponds to a verbal assessment as a low-level domain. Based on other results of the HOS 8 method, it was determined that the current CRM system can be described as inefficient and unbalanced, i.e., using the HOS 8 method, it was identified as ineffective. This was also in line with the responses from the interview with the business owner, who stated that the CRM system no longer meets their requirements. Therefore, it was decided to implement a new CRM system. The implementation of the CRM system was described using a GAP analysis that compared the current state of the CRM system with the expected or desired state. If all the above points of the GAP analysis are followed, the CRM system should provide the company with a modern system that will meet the objectives set for the CRM system. The third research question was addressed and answered based on the case study.

Based on the above, trading firms should benefit from the CRM system to improve two-way communication between the customer and the firm. Firms should be interested in new forms of communication with customers and be able to use new forms to communicate. The research has a limited validity of approximately five years. The online environment in which companies create and use CRM systems is very dynamic. Therefore, companies should also keep their own CRM systems up-to-date, regularly evaluate their functionality and effectiveness, and if necessary, adjust the objectives that the CRM system should address.

Continuous and further research into CRM systems and their implementations should focus on small and medium-sized enterprises, as the use of CRM systems in this category is low compared to other EU countries and can bring benefits, new customers, and ultimately higher profits to these entities.

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