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Research Article

CRM Systems for Various Customer Needs by Optimizing their Functionality

M. Janakova^{1*}, J. Botlik₁, M. Botlikova²

¹ Silesian University in Opava, School of Business Administration in Karvina, Univerzitni nam. 1934/3, 733 40 Karvina, Czech Republic. ²Silesian University in Opava, Faculty of Philosophy and Science in Opava, Masarykova trida 343/37, 746 01 Opava, Czech Republic.

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ABSTRACT

Received: 26 Dec 2024 Revised: 14 Feb 2025 Accepted: 22 Feb 2025 Research background: The rapid development of information technology (IT) is constantly changing customer preferences and work processes. This presents a significant challenge for CRM (Customer Relationship Management) systems, which must adapt by incorporating advanced automation and instant solutions.

Purpose of the article: The aim of this article is to explore selected technology metrics such as artificial intelligence (AI), chatbots, IoT (Internet of Things), low-code programming, and mind maps and specify their impact on the performance of CRM systems. The goal is to create a hierarchy of these metrics to optimize CRM functionality.

Methods: The method solution is based on a literature review, the identification of current problem (controversy) in CRM implementation, determination of the necessary metrics, and the application of AHP (Analytic Hierarchy Process) method. An evaluation matrix and critical analysis are used to rank the selected metrics.

Findings & Value added: The analysis reveals that AI (crossbar #1) has the biggest impact on CRM development, followed by low-code programming (crossbar #2) and mind maps (crossbar #3). Surprisingly, chatbots (crossbar #5) ranked lower despite their perceived importance in interacting with customers. This suggests a potential rethinking of chatbot integration within CRM systems. This study provides a comparative analysis of CRM systems, offering new insights and practical recommendations for enhancing customer communication and support. By understanding the hierarchical impact of various information technologies, businesses can better tailor their CRM strategies to meet diverse customer needs. Keywords: CRM; customer needs; CRM optimization; information technology; knowledge.

JEL Classification: D8; C8; M3.

INTRODUCTION

Many changes are in people's lives, there are changes in the approach to work, cooperation and also relaxation. Obstacles and limitations are in life and work too. The topic of this article is to see changes in CRM (Customer Relationship Management) systems to support changing customer needs based on instant solution. It is easy to say that a CRM system is user-friendly with all the necessary features for various businesses from small to opulent. The question is respecting the real changes in customer behavior that should help in the connecting the company and the customer.

By default, customers have their own behaviors and the impact of CRM technology is visible (Enkeleda, 2023; Rodriguez et al., 2018). It is not easy to change that with big innovations in today's days. It is a slow process of small steps that affect behavior change. Today's crisis (started with Covid-19 and continuing with other global difficulties) has a unique power to change the behavior of many customers in their daily activities, which are mirrored in their shopping and meetings. Many numbers clearly show the existing changes. In the US, about 80 percent of them say they have a good experience with online shopping, and about 40 percent of customers who like to continue in their shopping ways after the crisis (Charm et al., 2020). Currently, the focus is on improving CRM based on data analysis and prediction using a big volume of data to qualify the economic value (Lamela-Orcasitas and Garcia-Madariaga, 2023; Martinez et al., 2020).

The above number is just a fragment that shows changes in customer behavior over time. It is important for businesses to know about these changes and optimize their activities in relation to customer opportunities (Bonney et al., 2020; Islamgaleyev et al., 2020). There is room for cooperation between companies to create a unique retail chain that provides customers a unique online shopping experience. It is a challenge for today and for the future too. And again, the most important thing is the customer's trust in such services, their quality and respect for individual needs, which support a positive connection between consumers and the shopping experience according to their needs. Meeting these needs requires optimal IT (Information Technology) support. The research question

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for this article concerns CRM systems and their support of implemented processes. Specifically, these are changes in CRM systems leading to instant solution solved by software add-ons (or also through software extensions) in an optimal hierarchy. To effectively address of this question regarding the optimal hierarchy of available software add-ons and extensions, the article is divided into several parts dedicated to the customer's needs to know more about requirements for CRM systems, data and methods to specify the approach adopted, the results achieved with the discussion, and finally there is a space for the conclusion and references.

1.1 Customer Needs

A successful relationship with customers is based on a positive association with the brand. These are creativity, understanding (Alyahya et al., 2023) and emotions. Emotion is the feeling that the customer has from the experience with selected services. This is not an optimal solution for connecting customers at the level of emotional marketing. Many analyzes show that most decision-makings are irrational and follow subconscious shortcuts (Zane, 2018; Kahneman and Knetsch, 1986). The emotional relationship with customers is based on positive memory changes, optimal ideas that are stored in customers' memories. Long-term customer behavior relies on a positive approach to acquiring new beliefs, respecting good examples of habits through new offering, sharing new habits through contextual stimuli, or identifying messages that they are long-term in customers' minds (Charm et al., 2020).

The initial task of marketers and salespeople is to group customers by segmentation, but it is a difficult process. They like to have an optimal personalized marketing campaign with the maximum efficiency available. But today the days are different, and it may be seen that it is not about differences, but about similarities in collective behavior. The most important thing is to stay in a relationship with customers (Wright and Blackburn, 2020) and know more about customer happiness (Dhiman and Kumar, 2023).

It is challenge to adapt to existing changes according to optimal processes by resetting or restoring the implemented CRM (Taylor, 2020). In term of responsiveness, you need to take care of a cross-functional command center based on KPI (Key Performance Indicators), support variability in the digital workplace, or better understand the marketing plan in relation to the new brand purpose. From the point of view of the reset, it is a new definition of relationship with customers, thinking about a new way of cooperation with partners, and, of course, new ideas about the portfolio of products and services. From recovery point of view, these are better analytics using intelligent data-driven operating model, artificial intelligence for big data analysis (Shahbaz et al., 2020; Serova 2019), re-monitoring for recovery plans, post-Covid time and opportunities. These changes more than accept the rapid development of customer behavior in the digital age (Su, 2017). Presented visions focus on a digitally-centric model of customer behavior, such as an accelerated customer decision-making journey. The main role is played by the concept of micro moments with the power of the winner from ZMOT (Zero Moment of Truth) (Ramaswamy, 2015), where ZMOT represents a marketing framework describing the importance of digital channels in the form of a customer's decision journey. In these ideas, customers are more effective in making purchase decision with optimal information in the virtual space supported by information technology. A dramatic change is visible in the way they shop, where digital channels are the default for comparing goods and services. This consumer behavior (Stormi et al., 2020) has a major impact on business activities; these changes are estimated to transform the industry in the future (Wright and Blackburn, 2020). And it is natural to know about changes in CRM needs too. The success of IT implementation requires that IT users adopt the implemented information technology, it is also about trust in IT (Müller at el., 2023).

1.2 Customer Relationship Management (CRM) and IT support

From a pragmatic point of view, CRM must also respond to changes in customer needs. CRM systems are closely linked to customer relationships. For many businesses, information technology is an important and only one way to reach customers. The processes focus on sharing content, creating a personalized perspective for purchasing, organizing the necessary activities and events in the virtual space, supporting customer interaction, and designing a management tool (Prior et al., 2023; COVID-19 Outbreak, 2020).

There are many reasons why CRM is becoming increasingly important in business. Many of these are four key benefits with advantages for small business (4 Reasons Your Small Business Can't Live Without a CRM, 2020), such as increased sales, understanding customers, improving workflow, and supporting customer services to win more business (Casemore, 2023). All these processes change over time, after the pandemic there was a revolutionary time in software development (Chris, 2023), and new visions were implemented to continue business. The default websites create the necessary place for communication and meetings through an e-shop or other information system with an optimal interface for customers. This interface offers opportunities to drive leads with the ability to track them from offering and ordering selected goods to purchase through the sales process. In many cases, this interface is also connected to the CRM system and social networks (Harrigan et al. 2020).

A positive view of CRM is that this software has the power to help and work with customers in complicated situations (Patil, 2020). This help is visible in marketing campaigns and self-service processes by CRM and

telephone system integration. The aim is to continue business and contact with customers. Great value comes from being able to empathize with customers. It is an opportunity to create customers with an optimal brand relationship and foster greater loyalty. The situation is complicated by changes in customer behavior. These changes are unexpected and may be from week to week or day to day. It is difficult to change immediately the communication strategy and methods of contacting via emails, SMS, or social networks. Effective services are provided by CRM and cooperation in social media (Eng et al., 2020; Wachtler, 2020). Digital transformation and the use of virtual space (Kim, 2020) are rapidly being introduced into various businesses processes. This transformation also affects the initial operations of many businesses to continue. The effect of this digital transformation on productivity and processes in companies is interesting. This digital transformation must be visible in CRM systems as well.

CRM systems form a group of information systems that take care of contact management with customers. They are a default product of information technology with coding using programming languages, data storage in a database, and links to third-party applications. From point of view of industry perspective, there are opportunities for programming and brodcasting activities, telecommunications, computer programming and consulting, and information services activities. The current status is shown by the Orbis database (Orbis database, 2023), where there is information on 450 million companies. Pivot analysis from the Orbis database works with 1,589,259 companies for criteria focused on selected NACE Rev. 2 (Primary codes only) such as 60 Programming and broadcasting activities, 62 Computer programming, consultancy and related activities, 63 Information service activities, status - active companies. Please, see Table 1.

Table 1. Pivot analysis from the Orbis database for a number of companies by operating revenue (Turnover) (th USD) for the world

Industry (NACE Rev. 2)	Less than 34	From 34 to 190	From 190 to 720	More than 720
60. Programming and broadcasting activities	11 245	8 259	10 834	32 444
61. Telecommunications	688	239	184	255
62. Computer programming, consultancy and related activities	178 144	202 983	212 077	199 486
63. Information services activities	112 130	90 702	79 058	69 692

Source: own work

There is great interest in computer programming, consulting and related activities. Changes over the last six years are visible in the pivot analysis from the Orbis database for the number of companies according to the modeFinance - Qualitative score. This analysis works with 79,964 companies. The criteria focus on NACE Rev. 2 (Primary codes only): 62 - Computer programming, consultancy and related activities, Status - active companies, ModeFinance - Qualitative score, World region/Country/Region in country - Western Europe, Eastern Europe, European Union [14], European Union [27], Euro Area: Western Europe, Eastern Europe, European Union [14], European Union [27], Euro Area. Please, see Table 2, where the rows form the industry (NACE Rev. 2) in the given years, the columns form the modeFinance - Qualitative score, the cells show the number of companies.

Table 2. Pivot analysis from the Orbis database for the number of companies by modeFinance - Qualitative score for the Europe area (EA) and Computer programming, consultancy and related activities over time

Industry (NACE Rev. 2)	Qualitative opinion					
62. Computer programming, consultancy and related activities	Good (A)	Satisfacto ry (B)	Sufficient (C)	Unfavorab le (D)	Negativ e (E)	
Last available year	16 609	21 254	18 303	11 077	12 561	
Last available year -1	15 190	22 619	18 182	11 591	12 219	
Last available year -2	23 450	17 399	22 415	10 411	6 115	

-					
Industry (NACE Rev. 2)	Qualitative opinion				
62. Computer programming, consultancy and related activities	Good (A)	Satisfacto ry (B)	Sufficient (C)	Unfavorab le (D)	Negativ e (E)
Last available year -3	23 438	16 997	22 301	10 997	6 041
Last available year -4	22 330	16 811	22 672	12 297	5 640
Last available year -5	16 537	19 337	23 992	13 119	6 745

Source: own work

The changes are visible in the increase in the number of negative qualitative opinion from initial 6,745 (last available year -5) to 12,561 (last available year). A slightly lower increase is seen in the satisfactory qualitative opinion, from initial 19,337 (last available year -5) to 21,254 (last available year). It sounds that IT development does not have the strength to do enough or perhaps good business. From this point of view, there is a gap for innovations based on current trends such as artificial intelligence and not only that. Artificial intelligence replaces routine operations, and IT users have more time to think about a new design of implemented processes. This approach requires a unique arrangement of mindset and advanced skills to work with various applications, systems, and other tools. In the case of CRM systems, it is a wider variability of offered solutions. Variability is the key to better IT support of customer needs based on an instant solution. To know more about the usefulness of selected options such as artificial intelligence (AI) integration, chatbot integration, IoT (Internet of Things) integration, low-code programming integration, mind maps integration, the next lines are devoted to a detailed analysis by evaluating these options such as metrics.

2 DATA AND METHODS

The data for the analysis is specified for the use of the AHP (Analytic Hierarchy Process) method and the evaluation matrix in relation to the declared topic, which is focused on the recommended changes in CRM systems leading to an instant solution based on the hierarchy selected metrics impacting CRM. The existing problem has been identified based on the controversy between CRM requirements and the current capabilities of CRM systems. The search is focused on optimal hierarchy of software add-ons and other extensions that will bring a useful extension of existing CRM systems. There is not unique design and some variability is required. The benefit of the AHP method is the ability to evaluate individual criteria according to significance. In this method, it is determined not only whether one criterion is better than another, but also how much it is better. The current evaluation is based on experience from CRM systems, CRM and customer needs, and in other cases also from literature and well-known database overview. Among the databases are the Orbis database to know more about the qualitative score by modelFinance for selected companies, Scopus and Web of Science databases to find the number of records on selected topics of articles that show interest in scientific research on CRM. The final evaluation matrix shows the place in the hierarchy of the specified metrics from 1 (best place) to 5 (last place). Total summary is the result of all analyzes of interest in the specified metrics using AHP, Google search, Scopus, Web of Science. And again, a smaller number is dedicated for the best.

This evaluation enables a better decision on preferences for individual criteria (metrics) and a more optimal specification of the final decision result. This article discuses the optimal hierarchy of software add-ons and extensions for CRM systems to have an instant solution through support of selected criteria. The formulation of this theme was addressed over time and gradually matured. The final formulation was preceded by a literature search in order to know about the current view of CRM. Key terms cover CRM, CRM systems and their design for active integration of artificial intelligence, chatbot, IoT, low-code programming integration, and mind maps such as instant solution accelerators. At a common level, it is hypothesized (hypothesis H1) that soft factors influencing the value of CRM can be identified, which is reflected in the implementation process of CRM systems. These factors are related to the appropriate composition of modules, software add-ons and extensions affecting CRM performance of CRM implemented process.

Adopted testing and validation creates constructions based on rapid analysis and evaluation of selected criteria. This description creates a view of a group of events (preferences) and this situation allows to explore the processes implemented in CRM. The achieved results of the analysis create a basis for further considerations about better CRM systems. Elements of critical research are applied here, where the investigation is value-oriented with the proposal to apply the results to change the current state of CRM systems. Finding the right metrics is an important step to demonstrate the most advantageous options for CRM systems to better adapt the business to the current situation. There are many best lists, such as the best CRM software for 2023 (Sevilla and McAllister, 2023), or use filters to select CRM system based on criteria (Capterra - CRM Software, 2024). For 2024, there are well-known

systems like Salesforce, Zoho CRM, HubSpot CRM, or Insightly CRM. There are also systems that jump to the best list, such as Apptivo CRM, Freshsales CRM, or Sales Creatio. A few year ago, it was about the 7 best CRM systems for 2022 (Sharma, 2022), such as Agile CRM, HubSpot CRM, Insightly CRM, Pipedrive, or Zoho CRM. This article is about supporting customer relationships in terms of behavioral changes. There are mainly new ideas that need to be implemented in CRM in order to better adapt the business. From CRM systems, it is effective to choose metrics that are designed to integrate (1) artificial intelligence, (2) chatbot, (3) IoT, (4) low-code programming, and (5) mind maps. These five metrics were selected to analyze CRM systems. The first idea is to see the number of resources devoted to CRM characteristics including selected metrics such as topics on the Internet (Google search), and in the databases of scientific journals Scopus and Web of Science. Please, see Table 3.

Table 3. Number of search results based on specified CRM characteristics

1 able 3. Number of	search results ba	isea on specifica C	KM cnaracteristics
Characteristics of CRM	Number results from the Internet	Number results from Scopus	Number results from Web of Science
AI integration	228 000 000	2 810	222
Analytics and reporting	83 000 000	4 311	163
Campaign management	37 300 000	3 040	328
Case management	111 000 000	30 973	2 447
Chatbot integration	5 360 000	192	3
Collaboration tools	28 200 000	4 881	308
Contact management	267 000 000	3 839	397
Customer data centralization	5 940 000	14 494	1 490
Customer interaction tracking	21 500 000	16 840	247
Customer loyalty management	20 500 000	7 945	547
Customer segmentation	9 520 000	3 218	279
Customer service and support	223 000 000	15 870	2 433
Customization and scalability	6 990 000	1 478	68
Email integration	58 200 000	150	46
Integration with other systems	81 600 000	3 452	151
IoT integration	12 900 000	999	29
Knowledge base	82 000 000	19 121	1 495
Lead and opportunity tracking	5 610 000	2 447	29
Low-code programming integration	14 200 000	1 179	80
Marketing automation	79 900 000	18 364	2 289
Mind maps integration	9 650 000	2 265	55
Mobile access	80 900 000	8 180	353
Performance management	119 000 000	28 532	3 086

Characteristics of CRM	Number results from the Internet	Number results from Scopus	Number results from Web of Science	
Sales force automation	11 500 000	8 986	517	
Sales forecasting	13 800 000	4 818	154	
Security and data privacy	132 000 000	6 107	254	
Self-service portal	15 100 000	7 534	84	
Social media integration	36 000 000	10 073	14	
Ticketing system	4 760 000	326	16	
Workflow automation	15 700 000	1 204	95	

Source: own work

From Google searches, there is main interest in contact management (267,000,000), AI integration (228,000,000), customer service and support (223,000,000), performance management (119,000,000), and case management (111,000,000). In Scopus database, there are case management (30,973), performance management (28,532), knowledge base (19,121), marketing automation (18,364), and customer interaction tracking (16,840). In the Web of Science database, top interest is in performance management (3,086), case management (2,447), customer service and support (2,433), marketing automation (2,289), and customer data centralization (1,490). In terms of the metrics entered, AI integration ranks second in Google search, and in the Scopus and Web of Science databases, this metric is the first of the metrics tracked with 2,810 results in Scopus and 222 results from Web of Science. Based on the number of records, the order of the monitored metrics is as follows AI integration, mind maps, low-code programming, IoT integration, and chatbot (in the Scopus database), AI integration, low-code programming, mind maps, IoT integration, chatbot (in the Web of Science database.)

Another question concerns the priorities between the specified metrics of CRM systems. There are different methods such as weighted scoring model, decision matrix, or analytic hierarchy process (AHP). The AHP-based results are generated by well known method to prioritizing characteristics and generating numerical comparisons. There are pairwise comparisons of criteria to determine their relative importance. AHP has the power to know about the priorities among CRM characteristics, so that the informed decision is more accurate. Please, see Table 4. It is necessary also check reasonably consistent by CR (CR=CI/RI where RI = 1.12 for n=5), and CR = 0.070 for specified pairwise comparison matrix. If CR is less than 0.10, then the specified judgments matrix is assumed to be reasonably consistent.

Table 4. Pairwise Comparison Matrix on specified CRM characteristics

CRM characteris tics	AI integrati on	Chatbot integrati on	IoT integrati on	Low-code programmi ng	Min d map s	Weighs calculated by normalized matrix
AI integration	1	9	5	3	4	0.470
Chatbot integration	1/9	1	1/5	1/7	1/3	0.035
IoT integration	1/5	5	1	1/3	3	0.141
Low-code programmi ng	1/3	7	3	1	5	0.271
Mind maps	1/4	3	1/3	1/5	1	0.080

Source: own work

AHP analysis confirms the impact of AI integration on CRM with 0.470. It is almost half of all esteemed. This is followed by low-code programming (with a weigh of 0.271) and IoT integration (with a weigh of 0.141). For low-code programming, there is a visible interest in instant solutions that do not require IT users to rely on IT experts. IoT is one of the IT trends and it is natural to be more interested in this topic. Unfortunately, mind maps (0.080) and chatbot (0.035) integration are last in the evaluation. Finally, all analyzes are used for the evaluation matrix to create an overall rating across individual analyzes (AHP method, Google search, Scopus, and Web of Science databases). Please, see Table 5.

Table 5. Evaluation matrix from analysis for specified CRM characteristics

	CRM characteristics						
Place from analysis	AI integration	Chatbot	ІоТ	Low-code programming	Mind maps		
AHP method	1	5	3	2	4		
Google search	1	5	3	2	4		
Scopus	1	5	4	3	2		
Web of Science	1	5	4	2	3		
Total	4	20	14	9	13		

Source: own work

There is a visible interest in AI integration through all four searches (#1 with a sum of 4, as in all analyzes AI integration had the first place, no. 1), and the last place is for chatbot (#5 with a sum of 20). In second place is low-code programming (AHP, Google and Web of Science) or mind maps (Scopus). Overall, low-code programming is #2 with a sum of 9. Together, mind maps and IoT integration share a place in the hierarchy (#3-4 with a sum of 14 and 13). For IoT integration, the balance evaluation is seen, the values are between place no. 3 and 4, but the mind maps evaluation is more colorful from place no. 2 (Scopus) to place no. 4 (AHP method and Google search).

3 RESULTS AND DISCUSSION

Results show the hierarchy of CRM characteristics (technology metrics) that influence CRM implementation and capabilities through the menu. From the current numbers from the Orbis database, it is clear that there is an interest in computer programming and related activities, but a negative qualitative opinion has been growing in the last two years. These numbers are twice as large as three years ago. This reality creates room for better IT support that help the business to be more sufficient.

CRM systems have a wide area of interest, at the top are AI integration, contact management, customer service and support, security and data privacy, and also there is also room for a ticketing system, chatbots and mind maps integration. Some requirements are supported in CRM systems, such as core functions, and others take the form of software add-ons or extensions. The question for this article was about the usefulness of selected CRM characteristics (metrics) that at a public level, have the power to bring instant solution into CRM. The expected favourite is AI, but hidden possibilities are in mind maps related to low-code programming. Interest in IoT is more visible in Google searches than in topics addresses in Scopus and Web of Science databases. The following lines are devoted to the discussion with the aim of pointing out the current state of CRM systems in the integration of artificial intelligence, chatbots, IoT, low-code programming, and mind maps.

CRM systems have a big volume of solutions, a little less than two thousand by Capterra (CRM Software, 2024), and in artificial intelligence category there is more than one thousand solutions (Artificial Intelligence Software, 2024). An interesting solution is implemented in large CRM systems such as HubSpot CRM, Sugar CRM, and Zoho CRM. HubSpot CRM (HubSpot CRM, 2024) allows users to have tools to support meetings and connections with customers and partners, marketing and sales benchmark data. Interest is in AI-powered tools for increasing productivity, such as the content assistant, there is also a connection with a chatbot, and a low-code platform. Sugar CRM (Sugar CRM, 2024) focuses on a rebuilt CRM system in the cloud to offer an optimal cloud infrastructure. There is integrated AI, it is possible to connect a chatbot with Sugar CRM, and IoT creates a synergy between CRM and manufacturing. Zoho CRM (Zoho CRM, 2024) offers the Zoho Remotely suite to support business productivity and cooperation, Zoho Social to support social media marketing, or Zoho Bookings with Zoho Meeting integration help with online meetings and their timing. From the point of view of this article, Zoho has its own AI assistant, Zoho Creator such as a low-code platform, mind maps for various projects, and Zobot to support communication with customers over the website.

CRM systems are also available in simpler solutions such as Keap or Odoo. The advantage of these systems is the intuitive menu and support through discussion groups, so learning is as soon as possible. More care is given to automation, the artificial intelligence integration is not so sophisticated for Keap. It is slightly better on Odoo, which integrates AI-powered ticket processing with a low-code platform in a community version. For Keap, it is possible to have a chatbot trigger, an intuitive mind map tool, and the integration of small business CRM with IoT is positive. IoT has its place in Odoo, there is IoT box to connect Odoo database with external devices.

The discussion is about a suitable vision for the future development of CRM systems for adapting business to changes. In terms of CRM implementation, it is a visible active approach, but necessary integration of low-code programming supported by mind maps is not at appropriate level. From realized analysis carried out, this metric has the second place of importance, but low-code programming does not have such support in CRM system as needed. Discrepancy is visible in chatbot support. Although some CRM systems offer integration with chatbots, but this metrics is on last place in specified hierarchy of selected CRM characteristics (metrics). The same discrepancy is visible between IoT and mind maps. Both have the close place in specified hierarchy but CRM systems offers their different support. Again, CRM systems have interest in IoT but mind maps integration is not a given. There are reserves, because thinking about new ideas and creating the necessary software requires an optimal arrangement of thoughts. It is better to have an instant solution that IT users may think about innovations without limitations. And for this purpose, mind maps and low-code programming integration have a significant impact. In many cases, it will not be about robust CRM systems, because they have difficult menus and it is not easy to work in them.

4 CONCLUSION

This article addresses the interplay between evolving customer behavior and the corresponding changes in CRM (Customer Relationship Management) systems driven by IT developments. CRM systems are integral to businesses for supporting sales and managing customer relationships. It is logical to assume that shifts in customer behavior should be mirrored by adaptations in CRM systems. This study identifies and evaluates essential metrics such as artificial intelligence (AI), chatbots, IoT (Internet of Things), low-code programming, and mind maps to understand their impact on CRM systems. The evaluation of these metrics was conducted using the Analytic Hierarchy Process (AHP) and supported by a literature review from sources including Google, Scopus, and the Web of Science database. The findings confirms that AI is the top-performing software extension for CRM systems, providing optimal instant solutions. Conversely, chatbots, despite their role in enhancing contact management and customer navigation, ranked lowest due to a lack of interest. Low-code programming has secured the second position, reflecting its importance in enabling user autonomy and IT independence. Places in hierarchy for mind maps and IoT integration are up for discussion. Some IT users prefer intuitive approaches or AI over mind maps, indicating that mind maps are not as popular as other software add-ons for CRM systems. There is room for improvement in the thinking and use such a part of software, as appropriate organization of ideas helps to address current CRM needs.

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REFERENCES

- [1] 4 Reasons Your Small Business Can't Live Without a CRM. (2020). Retrieved from: https://soffront.com/blog/4-reasons-small-business-cant-live-without-crm/
- [2] Alyahya, M., Aliedan, M., Agag, C. and Z. H. Abdelmoety (2023). Understanding the relationship between big data analytics capabilities and sustainable performance: The role of strategic agility and firm creativity. *Sustainability*, 15(9), Article number 7623.
- [3] Artificial Intelligence Software (2024). Retrieved from: https://www.capterra.com/artificial-intelligence-software/
- [4] Bonney, L., Plouffe, C. R., Hochstein, B. and L. L. Beeler. (2020). Examining salesperson versus sales manager evaluation of customer opportunities: A psychological momentum perspective on optimism, confidence, and overconfidence. *Industrial Marketing Management*, 88, 339-351.
- [5] Capterra CRM Software. (2024). Retrieved from: https://www.capterra.com/customer-relationship-management-software/
- [6] Casemore, S. (2023). The Unstoppable Sales Team: Elevate Your Team's Performance, Win More Business, and Attract Top Performers. Productivity Press, 1st edition. ISBN 1032391502.
- [7] *COVID-19 Outbreak*: Why CRM is the Best Tool during these Times. (2020). Retrieved from: https://soffront.com/blog/covid-19-outbreak-crm-best-tool-times/

- [8] Charm, T., Dhar, R., Haas, S., Liu, J., Novemsky, N. and W. Teichner. (2020). *Understanding and shaping consumer behavior in the next normal*. Retrieved from: https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/understanding-and-shaping-consumer-behavior-in-the-next-normal#
- [9] Chris, S. (2023). The Future of Customer Relationship Management: How AI is Revolutionizing Customer Experience. ASIN BoC7LBJ4WX.
- [10] CRM Software (2023). Retrieved from: https://www.capterra.com/customer-relationship-management-software/
- [11] Dhiman, N. and A. Kumar (2023). What we know and don't know about consumer happiness: Three-decade review, synthesis, and research propositions. *Journal of Interactive marketing*, 58(2-3), pp. 115-135.
- [12] Eng, T. Y., Ozdemir, S., Gupta, S. and R. P. Kanungo. (2020). International social entrepreneurship and social value creation in cause-related marketing through personal relationships and accountability. *International Marketing Review*, forthcoming article.
- [13] Enkeleda, L. (2023). A suitable business profit throught customers and its impacts on three key businesses domains: technology, innovation, and service. *Business, Management and Economics Engineering*, 21(1), pp. 19-47.
- [14] Harrigan, P., Miles, M. P., Fang, Y. L. and S. K. Roy. (2020). The role of social media in the engagement and information processes of social CRM. *International Journal of Information Management*, 54, 102151.
- [15] *HubSpot CRM*. (2024). Retrieved from: https://www.hubspot.com/products/cms? hubs_content=www.hubspot.com%2Fwhy-choose-hubspot&hubs_content-cta=nav-software-cms
- [16] Islamgaleyev, A., Petrova, M., Kurenkeyeva, G., Shalbayeva, S. and A. Kadirbergenova. (2020). Increasing Customer Focus in Metal Trading. *Entrepreneurship and Sustainability Issues*, 8(1), pp. 604-617.
- [17] Kahneman, D. and J. L. Knetsch. (1986). Fairness as a constraint on profit seeking entitlements in the market. *The American Economic Review*, 76(4), pp. 728–741.
- [18] Kim, R. Y. (2020). The Impact of COVID-19 on Consumers: Preparing for Digital Sales. *IEEE Engineering Management Review*, 48(3), pp. 212-218.
- [19] Lamela-Orcasitas, C. and J. Garcia-Madariaga (2023). How to really quantify the economic value of customer information in corporate databases. *Humanities and Social Sociences Communications*, 10(1), Article number 166.
- [20] Martinez, A., Schmuck, C., Pereverzyev, S., Pirker, C. and M. Haltmeier (2020). A machine learning framework for customer purchase prediction in the noncontractual setting. *European Journal of operational Research*, 281(3), pp. 588-596.
- [21] Müller, L. S., Nohe, Ch., Reiners, S., Becker, J. and G. Hertel (2023). Adopting information systems at work: a longitudinal examination of trust dynamics, antecedents, and outcomes. *Behaviour and Information Technology*, 2023.
- [22] *Orbis database* (2023). Retrieved from: https://www.bvdinfo.com/en-gb/our-products/data/international/orbis
- [23] Patil, P. (2020). 5 Simple Tips for CRM Marketing in Covid-19 Pandemic. Retrieved from: https://community.nasscom.in/communities/covid-19/5-simple-tips-for-crm-marketing-in-covid-19-pandemic.html
- [24] Prior, D., Buttle, F. and S. Maklan (2023). *Customer Relationship Management: Concepts, Applications and Technologies*. Routledge, 5th edition. ISBN-10 1032280603.
- [25] Ramaswamy, S. (2015). *How Micro-Moments Are Changing the Rules*. Retrieved from: https://www.thinkwithgoogle.com/marketing-strategies/app-and-mobile/how-micromoments-are-changing-rules/
- [26] Rodriguez, M., Peterson, R. M. and V. Krishnan. (2018). Impact of CRM technology on sales process behaviors: empirical results from US, Europe, and Asia. *Journal of Business-To-Business Marketing*, 25(1), 1-10.
- [27] Serova, E. (2019). Artificial Intelligence for Analysis of Collaborative Consumer Networks Management. In P. Griffiths & M. N. Kabir (Eds.), *Proceedings of the European Conference on the Impact of Artificial Intelligence and Robotics ECIAIR 2019* (pp. 304-311). Oxford, England: ECIAIR.

- [28] Sevilla, G. and N. McAllister (2023). *The best CRM software for 2023*. Retrieved from: https://www.pcmag.com/picks/the-best-crm-software?test_uuid=001OQhoHLB xsrrrMgWU3gQF&test_variant=a
- [29] Shahbaz, M., Gao, C., Zhai, L., Shahzad, F., Abbas, A. and R. Zahid. (2020). Investigating the Impact of Big Data Analytics on Perceived Sales Performance: The Mediating Role of Customer Relationship Management Capabilities. *Complexity*, 2020, 5186870.
- [30] Sharma, R. (2022). *The 7 Best CRMs of 2022*. Retrieved from: https://www.thebalancesmb.com/best-crm-4169713
- [31] Stormi, K., Lindholm, A., Laine, T., and T. Korhonen. (2020). RFM customer analysis for product-oriented services and service business development: an interventionist case study of two machinery manufacturers. *Journal of Management & Governance*, 24(3), 623-653.
- [32] Su, B. (2017). The evolution of consumer behavior in the digital age. Retrieved from: https://medium.com/analytics-for-humans/the-evolution-of-consumer-behavior-in-the-digital-age-917a93c15888
- [33] Sugar CRM. (2024). Retrieved from: https://www.sugarcrm.com/uk/why-sugar/
- [34] Taylor, M. (2020). 8 CRM Statistics You Need to Know for 2020. Retrieved from: https://www.superoffice.com/blog/crm-software-statistics/
- [35] Wright, O. and E. Blackburn. (2020). *COVID-19: How consumer behavior will be changed*. Retrieved from: https://www.accenture.com/us-en/insights/consumer-goods-services/coronavirus-consumer-behavior-research
- [36] Wachtler, V. M. (2020). From information transaction towards interaction: Social media for efficient services in CRM. *Lecture Notes on Data Engineering and Communications Technologies*, Vol. 30, pp. 371-407.
- [37] Zane, L. (2018). *How And Why Does Consumer Behavior Change*? Retrieved from: https://www.forbes.com/sites/quora/2018/09/06/how-and-why-does-consumer-behavior-change/?sh=38c5186b86dd
- [38] Zoho CRM. (2024). Retrieved from: https://www.zoho.com/crm/?ireft=nhome&src=fa