

The use of IT tools and social media in customer relationship management

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Abstract: The purpose of the article is to identify and characterize IT instruments and tools used in customer relationship management (CRM) and to present the results of empirical research. In particular, the article presents the essence and elements of the customer relationship management system (CRM), determines its importance in the functioning of the company and shaping business relations with stakeholders. Especially, a lot of space is devoted to a discussion on information technology in the development of CRM. A selection of more important IT tools supporting CRM are characterized, such as the database management subsystem, Internet services, social media (social CRM), cloud computing, ERP/MRP III applications and Big Data, highlighting their advantages and disadvantages and applications. The empirical section of the work contains a description, including the significance and benefits of use, of e-learning in the development of the CRM system and the conditions for its implementation.

Key words: customer relationship management (CRM), database management subsystem, ERP/MRP III applications, social media, sCRM, cloud computing, e-learning

1. Introduction

Creation and development of an organization in the modern globalized world of science and technology requires gathering of information resources in various areas of its functioning. In particular, information characterizing changes occurring in its environment is important. The collection, storage and use of information stimulates rapid technical and IT progress, among others in the field of communication. This significantly speeds up obtaining of necessary information. The collection of information used in the organization constitutes its information resources. Customer knowledge resources as

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well as the ability to use it are particularly useful. Although this knowledge is possessed by every company, what is important is its integration.

In recent years, there has been a significant change in the approach to marketing management, new marketing concepts and techniques have been put into practice; among others, increased interest of enterprises in strategic and operational aspects of customer relationship management (CRM) has been noted. Also, in this area it is necessary to develop properly constructed marketing information systems. Although this system can operate without an IT subsystem (this solution can be found in some companies), it is necessary in most organizations. It is therefore worth considering the selection of IT tools to support this system.

The purpose of the publication is therefore to identify and parameterize IT tools that support CRM and to present the results of empirical research. The effectiveness of IT tools is presented in the context of implementation of the marketing function of the enterprise in relation to its competitiveness.

The article is theoretical and empirical. To achieve the goal and verify theses, the following research methods were used: analysis of impact factors, expert research and questionnaire method.

2. The concept of customer relationship management (CRM)

Significant changes that have occurred in recent years have concerned all areas of management, including marketing and marketing management. They consist mainly in changing the approach to the customer. As mentioned, one of them is the application in practice by many companies of the customer relationship management (CRM) system, as a specific variation of the marketing information system (MIS). The development of the concept of customer relationship management (CRM) is largely a response to changes and transformations of customer behaviour such as (Sołtysik-Piorunkiewicz, 2008, p. 73; Adamczyk, 2002):

- less and less customer loyalty;
- increased competition and the cost of acquiring new customers;
- increasing experience and customer requirements for suppliers;
- less and less effective promotional, advertising and even PR activities;
- greater production flexibility, which allows products to be adapted to the needs of demanding customers;
- increase in the number of distribution channels and their types.

The authors dealing with this issue consider this concept in two aspects: in the first approach, CRM is defined as a certain marketing philosophy in relation to the customer. In this sense, customer relationship management “can be defined as a concept or field of management dealing with methods of maintaining the most profitable customers while reducing costs and increasing the value of interactions—which increases profit” (Burnett, 2002, p. 279). In the light of the above, this concept covers every sphere of the organization’s activities, especially that which concerns customer service. It can therefore be concluded that CRM is to a large extent a psychological approach towards the customer aimed at building

customer loyalty towards the products or services offered by the company, and thus towards loyalty to it. It can function even without IT support.¹

In the second aspect, the customer relationship management system is defined in relation to IT, and more specifically ERP (enterprise resources planning) class systems. In essence, it is therefore an IT system supporting all contacts with customers, both before and during a sale, as well as after a sale. The definition of CRM thus understood is the most widespread among management theorists and practitioners.

The overriding goal of using a customer relationship management system is to acquire and retain customers. When creating a CRM strategy, you must determine what values are preferred by the customer and then provide them. It is believed that a company should treat each customer individually, rightly assuming that it is an entity with specific preferences (*one to one clienting*). The key tasks for CRM are (Newell, 2002, p. 31):

- identifying those customer values that are relevant to a particular business;
- understanding the relative importance of these values for each customer segment;
- decide whether providing these values will have a positive effect on your net profit;
- transfer and delivery of relevant values to each customer segment in a manner that the customer would like to receive;
- measuring results and guaranteeing investment profitability.

The initial stage of implementing this system is to obtain relevant customer data. This is usually done with the consent of the customer. Then they are used mainly to make every effort not to lose the customer.

The starting point in the implementation of CRM is to create an enterprise information architecture in which all the elements of the planned project must find their place. The purpose of creating such architecture is to develop a map showing subsequent contractors what interaction and cooperation should occur between individual parts or components within the entire system. This kind of map for the CRM enterprise is the corporate information architecture of the company aimed at providing knowledge acquisition mechanisms and its distribution based on data from existing operating systems in the enterprise (Wurm, 2002). Most CRM systems contain the following elements of corporate information architecture (Cegielski, 2002, p. 308):

- sales (contact management, customer account management);
- sales management (prediction, sales cycle analysis);
- time and territory management;
- correspondence (e-mail, fax, SMS);
- marketing (advertising campaign management, product encyclopaedia, price lists, offers, campaign effectiveness analysis);

¹ In the psychological approach to CRM, numerous techniques of analysis and improvement of this strategy are used, such as social CRM together with a communication platform based on so-called *customer generated media*, *customer segmentation* and *customer care* (see Sołtysik-Piorunkiewicz, 2008, p. 75; Kaszyca and Zacharski, 2015). A different approach to the essence of CRM, in the first stream, emphasizes that this is a new strategy, process and culture that allows organizations to better understand the needs of customers and gives the opportunity to increase companies' profitability (Kaszyca and Zacharski, 2015).

- handling commercial notifications (receiving and distributing information about customers interested in the offer within the company's structures);
- telemarketing (arranging telephone lists of target groups according to given criteria, collecting orders);
- after-sales customer service and support (assignment, tracking and reporting of tasks, problem management, order control, warranty);
- information (wide and easy to use reporting function);
- integration with ERP systems (accounting, production, distribution);
- data synchronization between mobile devices and a central database;
- e-commerce;
- call centre;
- assessment of the effectiveness of corporate information architecture.

There are three types of CRM system in the business practice of enterprises (Frąckiewicz and Rudawska, 2005, p. 56):

- 1) operational CRM system (*front-office*);
- 2) analytical CRM system (*back-office*);
- 3) communication/ interactive CRM system.

The operational CRM system covers all areas at the customer-enterprise interface. It includes such functions as: customer service, order management, billing, invoicing, configuring offers, sales management, updating customer databases as well as their automation and marketing management, with the use of registration modules. These include all activities, even the smallest, such as the gesture of greeting the customer. The information about the customer collected and its sharing allows for a full and comprehensive service. It is synonymous with ERP class systems.

Analytical CRM system. The main task of this system is the analysis of data on individual customers of the company. These data are subject to statistical analysis. This is to provide information that will help to make the right decisions. Thanks to this, the company can shape appropriate offers for customers, and based on them create appropriate reports. The basic functions of this CRM system are: collection, storage, processing and interpretation of customer data in the form of reports. This approach mainly uses databases as well as customer data warehouses.

The communication/ interactive CRM system relies on direct contacts between the customer and his supplier via available communication channels. This solution uses both traditional tools, such as face-to-face conversations, surveys, call centres, and modern technology (mainly the Internet). This system has the greatest impact on shaping customer relationships. It is the communication CRM system that is the most responsible for creating and maintaining a proper relationship with the customer thanks to the complete independence of the service quality level from the contact channel used (*CRM as an IT system = CRM jako system informatyczny*, 2019).

The combination of the above-mentioned types of CRM systems creates an integrated enterprise CRM system.

The following modules can be distinguished in CRM systems (Buchowska, 2006):

- sales support (*TES—technology-enabled selling*);

- marketing support (*TEM—technology-enabled marketing*);
- customer service and support (*CSS—customer services and support*).

The use of CRM systems is intended to help in acquiring new customers, maintaining existing ones, reducing administrative costs of commercial activities and finally building a comprehensive database of existing and potential customers. These systems are mainly used in the micro, small and medium enterprises sectors.

CRM class systems supporting management are becoming more and more popular. This is indicated by the results of some studies of limited nature, and by the Central Statistical Office.

At the beginning of the twenty-first century, i.e. in 2000–2005, several percent of the surveyed enterprises had CRM systems at their disposal, the majority intended to start work on the implementation of this system (about 55%), while 22% thought that such a system was unnecessary for them (Process4E, 2001). More recent studies have shown a significant increase in the use of CRM. Currently, more than half of enterprises and institutions have introduced these solutions to a full or limited extent (Olszak, Bartuś and Bilewicz, 2015, p. 189; Kowalczyk and Narutowska, 2013, p. 103; GUS, 2012).

3. The functioning of selected IT tools in customer relationship management

As already mentioned, the CRM system is based mainly on acquiring, maintaining and servicing customers. However, progress in the field of information technology has resulted in the automation of these activities. In addition to traditional tools such as trade negotiations, face-to-face conversations, call centres and market research, modern technology is also used. The most commonly used IT resources in customer service are:

- database management systems;
- Internet services: use of websites (World Wide Web), electronic mail (e-mail), FAQ (Frequently Asked Questions—a set of common questions and answers), chatrooms, IRC (Internet Relay Chat), video conferences, NetMeeting;
- ERP applications;
- CRM applications (packages);
- document archiving system;
- mail merge management system.

Database management systems (DMS) are software enabling the use of customer databases.

A database is a collection of interrelated information stored in a computer's internal memory. The specified database set creates a data warehouse. This is a specially constructed IT system integrating all necessary information resources that are important for the enterprise. According to Immon, the data warehouse is an integrated, time-stable thematic data warehouse enabling the acquisition of information (Mierzejewski, 2001, p. 18). Often—in order to increase the efficiency of analytical activities—so-called themed warehouses (data marts) are created. Enterprises using CRM have databases containing information not only about customers, but also about employees, products manufactured and the environment. The con-

struction of the database is time consuming and must be constantly updated. A specific kind of database are those used to perform analyses based on collected data (data mining). They are intended to develop segmentation, discover relationships between customer descriptive features, and build classification rules (e.g. rules that assign a newly acquired customer to an appropriate group in which a product with the highest probability of sale is determined) (Wurm, 2001, p. 396). Many authors include in this group OLAP (On-Line Analytical Processing) direct analytical processing systems. This tool supports decision making, data processing and reporting.

The person responsible for the proper functioning of database management systems is the database administrator. He supervises the correct collection of data, their storage, organization as well as their processing (updating).

The most commonly used database management system is Access, which operates in the Windows environment. Its functioning is based on building relationships between data, e.g. customer-product relationships. This means that customers buy a certain number of products and that a certain number of company products are bought by the customer. Other commonly used DMSs are: Oracle, Informix, On Line, Sybase, SQL Server (Aingres).

The Internet is the most popular tool used all over the world, including in companies using the customer relationship management system (mainly via contact CRM). Generally, it is defined as “a global computer network made up of smaller networks” (Kiełtyka, 2002, p. 327). It is a system combining various techniques of information transfer.

The predecessor of the Internet was a tool called the customer service centre (*call centre*). This was based on the company’s employees answering every customer’s questions. In this case, only landline telephony was used. The employees of the company treated each conversation with the customer as unique. The effectiveness of this system depended on the speed of answering customer questions.

The most popular Internet tools are websites (*World Wide Web*). This is the multimedia section of the Internet. The company presents various information here to attract customers based on their preferences. This includes information about the company’s current operations, presentation of manufactured products or services, etc. Via the Internet, customers can purchase specific products (so-called online store), make bank transfers, download foreign language lessons (so-called e-learning), etc. A web browser is used to search for this information. When creating websites, you should consider mainly the substantive content. Companies often encourage their customers to cooperate in their creation.

Electronic mail (*e-mail*) is another tool used by companies, including those using CRM over the Internet. It involves the company communicating with customers via an email account. Information on products, both current and recently produced (so-called *direct mail*), along with their presentation, photos, etc. is sent to the address provided by the customer. In addition, companies provide here additional information, such as: discounts, price reductions for permanent customers, information about organized competitions. This is aimed at to increasing customer loyalty. At the same time, customers can communicate with the company by submitting their comments on the products or services offered, presenting their preferences, and also receive necessary information from specialists (using the FAQ—*Frequently*

Asked Questions). They can also order the company's information bulletin (so-called *newsletter*). It is also used to attract new customers.

Chatrooms are a common Internet tool used by businesses. These are special discussion places on the web. They are run with even several people participating simultaneously. The customer, without moving from home, can have a conversation on a topic of interest, called a conversation. However, for such discussion to take place, participants must be on the same website at the same time. Companies on their websites often inspire such discussions, mainly about the products or services provided. IRC (*Internet Relay Chat*) is a specific discussion tool.

Companies using CRM can simultaneously organize video conferences. These are conferences held via the Internet. They consist of two or more teams of people as well as individuals who are discussing a particular topic. The advantage of this tool is that participants can hear and see each other.

Considering information and information technology tools, the role of the Internet today cannot be ignored. In addition to providing tools successfully used in the broadly defined e-marketing business, the Internet is primarily a huge source of information about current and future customers. The functioning of a company on the Web is indispensable today, a modern customer is looking for information about the goods he is interested in, primarily on the Internet, he also makes purchases there (according to this year's Gemius report: "E-commerce in Poland" [Gemius, 2019], 62% of Internet users in Poland buy online).

It is only possible to get information about customers visiting the classic website on what they were interested in, what information interested them the most and which the least, or the location of the visitor. However, such data acquisition does not allow the customer to be identified, but only gives him personalized content when he visits the company website again. This approach to the customer, however, can be perceived as intrusive and unwanted as well as ineffective, because Internet users have effective tools that can protect them from information being collected about them. These are programmes built into modern Internet browsers that provide protection against tracking and profiling, and so-called ad blockers² will effectively block the display of profiled ads. This problem can be solved by getting the information sought from the potential customer by him leaving his contact details (e-mail address or telephone number) enabling personal contact, and thus establishing the desired relationship with the customer.

The data that can be obtained about online store customers is of a different nature. In this case, the buyer wanting to make a purchase must register in the company's database, this is necessary due to payment and delivery of the goods. In this case, the owner of an e-store has the ability to precisely track customer's activity, which will allow for effective personalization and sending of an offer addressed to a specific person, rather than sending a newsletter or the latest catalogue.

The telecommunications tool used by companies that use CRM is the mobile network. It is used to communicate with customers. In addition to the features of a traditional telephone, it has many modern services for transmitting information. These are, among others, voicemail (sending information using text graphics), tools for sending faxes, SMS, MMS (i.e. sending

² Adblock: a computer programme that allows the blocking of ads on a web browser.

short information using text graphics). At the same time, a wide range of Internet services can be used with the help of a mobile phone.

ERP (*Enterprise Resource Planning*) applications called MRP III (*Money Resource Planning*) are applications used to support such areas of the enterprise as e-business, production, supply, warehouse control, etc. This makes it easier for managers to make specific marketing decisions. It is a class of integrated management systems. The main advantage of this system is the ability to operate in conditions of uncertainty resulting from incomplete data. In addition, it can be used to make planning decisions even in an organization with an incomplete structure. In enterprises using the CRM strategy (mainly operational CRM), applications of the ERP/MRP III class primarily support decision-making regarding customer acquisition and service.

Many companies and other organizations use specific applications called CRM packages. They are used in the area of communication with customers (channel management), e.g. applications such as data mining or Business Intelligence, planning and conducting marketing campaigns, support the company's activities for closer cooperation with customers as well as suppliers and cooperators.

In addition, companies, including those using CRM, are increasingly using cloud computing. This is associated with an increase in the demand for data storage for analysis and decision making.

Cloud computing is a broad concept related to data processing and the way services are delivered. It is a type of Internet-based processing where shared resources, software and information are delivered to computers and other devices on demand at lightning fast speed. The following types of cloud computing model can be distinguished:

1. Infrastructure as a Service (IaaS)—the recipient gets a virtual server with specific resources (CPU, RAM, Disks) with or without an operating system installed. Only disk space can be an option. CRM in this model works as follows: as part of the subscription fee we gain access to our CRM system fully maintained by the service provider, which takes responsibility for updates and the stability of the system. This solution is certainly the most convenient, but at the same time burdened with the greatest restrictions in the context of adapting the system to specific business needs and proper compliance with the provisions regarding the storage of private personal data (Evolpe, 2019). More knowledge in the field of IT systems administration is also needed.
2. Platform as a Service (PaaS)—the recipient gets a ready platform for application development in accordance with the specification (database, application server, programming tool). They must install the system themselves and ensure the correct configuration of the environment. Companies applying CRM rarely use this model.
3. Software as a Service—the recipient gets a ready-made application or business platform as well as software design tools, e.g. Microsoft Windows Azure, Google App Engine.
4. However, the greatest potential for creating and maintaining relationships with customers today is social media, i.e. websites that have set themselves the goal of satisfying the needs of Internet users in maintaining social bonds. This is accomplished by enabling the exchange of thoughts, sharing personal resources such as photos and videos, interests and views, or the realization of the desire to share emotions and experiences.

It is estimated that around 3 billion people are active in social media today, establishing relationships at often very close levels. The nature of these media makes them also a valuable source of information about customers. This is not only personal information but above all the preferences of their participants, interests and trends.

Social media is the result of the natural development of the Internet from a network that provides only content for reading and viewing, to an interactive and multidirectional network. In the age of the so-called Web 1.0 there were a small group of professionals who could create and deliver content, and the rest of the community were consumers of that content. Everything changed when tools that enabled all Internet users to create and publish their own information were created and made available. These were hosting services, easy-to-use website generators, blogs, forums and wikis. These tools broke the monopoly of specialists and opened wide access to resources of the global network, socializing the Internet by being able to easily add their content, co-editing and commenting. In 2004, the term “Web 2.0” appeared, described by Dale Dougherty (O’Reilly, 2005), which formulated a number of features of the new quality of networks such as social programming, participation, harnessing the power of the crowd, democratizing the network, user contribution.

Social media are characterized by their own characteristic way of functioning. The first distinctive factor is the creation of virtual communities centred around people, ideas, social phenomena, interests and other manifestations of social life. These communities create virtual bonds between their members based on mutual trust, a common group of friends or shared views. Another factor is the ability to express your own opinions, share your impressions, give support or disapproval, strengthen or weaken relationships. The most important factor that makes social media such a popular communication channel is participation in creating a community, expressing of opinions that influence the authors of blogs, profiles on social networks, maintaining them in real life, contributing to content extends and enriching the community.

The modern customer relationship management (CRM) system must take into account the above features of the social medium in its functioning:

- create a customer community around the company profile;
- eliminate asymmetry in contacts with customers;
- enable customers to express opinions and pass on their own ideas and concepts for the business;
- provide customers, members of the enterprise community with a sense of having additional status as a valued member of a group;
- through appropriate actions on popular social networking sites, strengthen customer confidence in the brand and company, and strengthen the sense of responsibility for the brand and company.

The system using social media to maintain proper relationships with customers is called social CRM (sCRM), such a system plays two roles (Sudolska, 2013 p. 6):

- providing information;
- establishing and maintaining bonds.

Social CRM is part of the overall business concept of how a company operates on the Internet. Social media marketing allows direct and indirect sales through profiled selection of the offer to the customer, shaping the proper image of the company and its reputation on the web. In turn, the second part (sCRM) focuses on monitoring customer sentiment, responding to changes in these, taking actions related to satisfying the needs indicated on blogs, profiles, forums. An important element of sCRM is enabling customers to cooperate with the company, taking into account their postulates expressed in the area of social media.

The above activities are implemented by the modern Social CRM system using such means as (Sudolska, 2013, p. 8):

- information about new products;
- information about promotions and special offers;
- open discussions with customers;
- technical support;
- private customer correspondence;
- collecting customer ideas for new products.

An interesting aspect of the functioning of modern social CRM systems is the enormity of information that such systems are able to obtain and the problem of its interpretation. The integration of the CRM system with social media means that a human and his perceptive capabilities are not able to assimilate and process the data reaching him. This causes problems with identifying emerging problems and making the right decisions at the right time. This problem can only be solved by elements of artificial intelligence with Machine and Deep Learning algorithms operating in sCRM systems in real time.

It is also worth mentioning one more aspect of CRM systems using mobile technologies, the so-called mobile CRM (mCRM). In 2018, smartphone saturation among Internet users reached 90% and is estimated to increase by a few percent annually. Mobile technologies as a marketing channel have not gone unnoticed. The mobile branch of e-marketing has been developing for several years, and mobile CRM is becoming more and more significant.

Mobile CRM is defined as marketing activities related to the use of smartphones and tablets to acquire and maintain relationships between enterprises and their customers. mCRM is therefore a very technologically advanced concept. It is estimated that mCRM is primarily more responsive than sCRM and shortens the time to achieve CRM goals by about 15% to 20%.

At the end of the discussion on this issue, it is worth mentioning applications that improve the quality of customer service. For example, we can mention the document archiving system, which allows storage documents attached to the system in electronic form, and the mail merge management system, with which you can automate the process of sending information to customers regarding new products, promotions, etc. (Koziół, 2005, p. 196).

Currently, many CRM class software solutions are offered, such as (Kisielnicki, 2014, p. 239; Sokołowski, 2001, pp. 13–14): SAS CRM (from SAS Institute Inc.), My SAP—CRM (SAP company), IFS/CRM (from IFS), Oracle CRM (from Oracle), Dynamics CRM (Microsoft company), TETA CRM (TETA company), SugarCRM, CRM.pad (from Update Software AG).

The use of the described IT tools in CRM systems in many Polish companies has allowed the collection and organization of data and their management. In the final analysis, this has enabled the identification of customer shopping preferences, prediction of their consumer behaviour, organization of sales campaigns on the one hand, and customer segmentation, increasing customer loyalty and efficiency of marketing employees on the other.

At the end of the presentation of CRM IT instruments and tools, it is worth mentioning the difficulties that enterprises often face during the implementation and operation of this system. Formulating the conclusions of the research, the lack of definition of CRM system elements and processes was mentioned first, insufficient training was the second, the third type of difficulty was the misunderstanding of the importance of CRM in the implementation of business processes, the next was the increase in the complexity of the customer service process, in the final analysis these difficulties contributed to the extension of customer service time (Olszak, Bartuś and Bilewicz, 2015, p. 188). These barriers, apart from technological and economic issues, constitute important negative premises for the implementation of CRM.

4. The use of e-learning in CRM systems—research results

The research has accepted the thesis that one of the important IT instruments used in customer relationship management (CRM) is e-learning. During the research, an organizational method was used, which is a questionnaire and statistical methods. In the conducted research, attempts were made to obtain information on business entities from the persons managing them, primarily from owners, board members, directors, managers of an appropriately high level of management.

The research covered 166 enterprises of the SME sector, dealing mainly in the provision of services (47%), production (21%) and trade (13%). The reach of the largest number of companies was the region (37%), fewer companies indicated national (34%) and international (25%) reach. Most of them positively assessed their financial condition (almost 50%), many fewer—29%—rated their financial condition as average, another 10% described it as very good. Only 8% considered their financial standing weak.

Summing up the general characteristics of the companies, it should be noted that the enterprises participating in the study in their economic-organizational and technical-technological structure reflected the structure of the SME sector in southern Poland (Kozioł, 2018, p. 109).

Two categories of enterprises were distinguished, i.e. those that use e-learning (category A) and those not using e-learning (category B).

The research shows that companies using e-learning perform tasks in the area of marketing, finance and training to a much higher extent than companies not using it. In particular, these differences relate to employee training: 67% for category A and 17% for category B; sales and customer service: 87% for category A and 51% for category B; development of a new product, 60% and 32% respectively, and internal communication: 73% and 47%. The above regularities confirm significant differences in the implementation of marketing tasks that exist between both groups in almost all areas of the enterprise studied (see Table 1).

Table 1. Tasks in which the company uses e-learning (in %)

Description	Using e-learning (category A)	Not using e-learning (category B)
Development of a new product/ service	60.00	32.05
Financial management (accounting)	73.33	80.13
Administrative management (personnel)	53.33	48.72
Internal communication	73.33	47.44
Sales (accepting offers)	86.67	51.28
Service (customer service)	80.00	41.67
Purchasing (contact with suppliers)	60.00	44.23
Payment regulation	73.33	68.59
Staff training	66.67	16.67

S o u r c e: Authors' own study based on research results.

It is also worth presenting the importance of training in the implementation and functioning of CRM, especially that related to the architecture and organization of CRM, the use of business processes in the area of CRM, the customer service process, and even the development of a new product. The data in Table 1 showed the great importance of e-learning and other IT tools in the development and increase of the scope and effectiveness of training and employee improvement in the aspect of the implementation of the enterprise's functions, including the marketing function.

Most of the surveyed business entities emphasized the significant, positive impact of modern information technologies on their marketing activities, except that these opinions were more often expressed by companies using e-learning. The results of the enterprise's application of modern e-learning technologies (Internet of Things, database systems, traditional systems—domain information systems and others) are presented in Table 2.

Table 2. Results of a company using modern e-learning technologies

Scale* Results	1		2		3		4		5		0	
	A**	B**	A	B	A	B	A	B	A	B	A	B
Improving the company's image	0.0	2.0	0.0	2.0	7.1	17.1	25.2	39.1	61.2	34.7	6.5	5.1
Better meeting customer needs	0.0	1.3	0.0	2.7	0	8.2	19.4	45.6	74.5	35.1	6.1	7.1
Increase of the company's market share	0.0	3.7	0.0	7.8	13.8	26.6	39.8	29.5	39.8	21.1	6.6	11.3
Increase in the number of customers acquired	0.0	5.8	0.0	7.0	19.4	30.8	19.4	23.4	55.1	21.9	6.1	11.1
Improving contacts with suppliers	0.0	3.7	0.0	2.2	7.1	14.9	35.7	39.7	53.1	27.3	6.1	12.2
Streamlining the forecasting process	0.0	7.0	0.0	12.7	25.5	30.0	61.2	24.3	7.1	14.2	6.4	11.8

* A scale of 1 to 5 was adopted, with 1 being of little use, 5—very useful (no response was marked 0).

** A—enterprises using e-learning; B—enterprises not using e-learning.

Source: Authors' own study based on research results.

The collected data shows that 86.4% of category A companies found e-learning information technologies to be useful and very useful, at levels 4 and 5, respectively, in improving the company's image. For group B, this percentage was 73.8%. The positive impact of these IT tools (supporting CRM) on better satisfying the needs of customers was indicated by almost 94% of companies in category A and 81% in category B; for an increase in market share of 78.8% and 50.6%; 74.5% of category A and 45.3% of category B companies spoke about an increase in the number of acquired customers. Almost identical relations are shaped with regard to improving contacts with suppliers and improving the forecasting process. A similar differentiation is observed in relation to the effects of using e-learning, which are not included in Table 2, such as: increasing employee innovation, improving communication in the company and reducing costs. In the light of the above data, it should be emphasized that the activity and efficiency of companies using e-learning in a competitive environment is higher than companies that do not use e-learning, similar relationships are observed in internal activities, i.e. in the process of learning about the organization, as well as employee training and improvement.

5. Concluding remarks

Along with the development of the IT sector, there has been a significant change in the approach to marketing management mainly in the instrumental aspect. The goal remained the same: customer acquisition and retention, which is associated with market development and product improvement. The new approach to CRM boiled down mainly to supplementing the CRM marketing philosophy used so far with modern IT management systems, significantly increasing the effectiveness and efficiency of this management method in achieving the marketing goals of the company.

It turned out that customer relationship management systems are functional relative to enterprise resource management systems. They are a natural extension of ERP/MRP III class systems, which, when properly integrated, can be used to support such areas of the enterprise's operation as e-business, production, logistics, and accounting. They support the making of accurate decisions in conditions of uncertainty or incomplete data, optimization of the flow of work and documents (workflow). They enable closer cooperation with suppliers, which is especially important in the market of investment goods (*Business to Business—B2B*).

As mentioned above, this tool (CRM) supports the making of decisions, including those of strategic importance. Research results focused on the architecture and content of the Big Data warehouse and reports created on this basis are used to create the company's strategy and even to build a strategy for sustainable development of the manufacturing sector.

The CRM system, like any restructuring and innovation project, requires certain conditions to be met. Selected major ones are:

- parameterization of CRM architecture objects and processes constituting this system;
- identification of business processes and enterprise goals as well as the importance of CRM in their implementation;
- wider use of e-learning in the organization and functioning of the CRM system than before;
- training of staff and employees by conventional and e-learning methods are an important premise for the practical use of CRM.

Summing up the above remarks, it should be emphasized that the use of CRM contributes to increasing the effectiveness of the marketing function in the enterprise, increasing the efficiency of operational management, and recently this method has been successfully used in the formulation and implementation of the organization's strategy, and even to define a plan for the sustainable development of the production sector industry.

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Wykorzystanie narzędzi informatycznych i mediów społecznościowych w zarządzaniu relacjami z klientami

Abstrakt: Celem artykułu jest identyfikacja i charakterystyka instrumentów i narzędzi IT wykorzystywanych w zarządzaniu relacjami z klientami (CRM) oraz prezentacja wyników badań empirycznych. W szczególności w artykule przedstawiono istotę i elementy systemu zarządzania relacjami z klientami (CRM), określono jego znaczenie w funkcjonowaniu firmy i kształtowaniu relacji biznesowych z interesariuszami. Szczególnie wiele miejsca poświęcono na omówienie technologii informatycznej w rozwoju CRM. Scharakteryzowano

wybrane, ważniejsze narzędzia informatyczne wspomagające CRM, takie jak podsystem zarządzania bazami danych, usługi sieci Internet, media społecznościowe (*social CRM*), wykorzystanie chmury obliczeniowej (*cloud computing*) oraz aplikacje typu ERP/MRP III, Big Data, podkreślając ich zalety, wady i zastosowania. Empiryczny fragment pracy zawiera opis, znaczenie i korzyści wykorzystania e-learningu w rozwoju systemu CRM oraz warunki jego implementacji.

Słowa kluczowe: zarządzanie relacjami z klientami (CRM), podsystem zarządzania bazami danych, aplikacje typu ERP/MRP III, media społecznościowe, sCRM, chmura obliczeniowa, e-learning