JURNAL RISET INFORMATIKA **P-ISSN: 2656-1743 |E-ISSN: 2656-1735**
Vol. 5, No. 1. December 2022 DOI: https://doi.org/10.34288/jri.v5i1.198
Accredited rank 3 (SINTA 3), excerpts from the decision of the Minister of RISTEK-BRIN No. 200/M/KPT/2020

Web-Based Customer Services Management Implementation for the Sales Division

Endang Sri Palupi

Sistem Informasi
Universitas Bina Sarana Informatika
endang.epl@bsi.ac.id

Abstract

With the growing business at PT Mastersystem Infotama, more and more customers and orders have been obtained. As time goes by, many sales go in and out, and staff change, so the customer database cannot be maintained and updated correctly. All leads and opportunities cannot be monitored and appropriately managed, and the daily activity of the sales division is also not monitored. Implementation of Customer Relationship Management (CRM) helps maintain customer data and can be continuously updated to maintain good relations with all customers. Prospects and opportunities can be managed and monitored, the daily activities of the sales division are neatly scheduled, and customer observations can be gathered, all of which can be done in one application, CRM. With this implementation, sales at PT Mastersystem Infotama experienced a 20% increase in sales in 2018. This research uses the waterfall model, which has the advantage of being a gradual and more detailed method to minimize errors. This CRM implementation produces a web-based CRM application that can be accessed by all employees wherever they are connected to a LAN. Employees can access CRM according to each division's capacity to make work easier.

Keywords: Customer relationship management, CRM implementation, Business Strategy

Abstrak

Dengan semakin berkembangnya bisnis di PT Mastersystem Infotama, semakin banyak pula pelanggan dan order yang telah didapatkan. Seiring berjalannya waktu banyak sales keluar masuk adanya pergantian staff sehingga database pelanggan tidak dapat terpelihara dan terupdate dengan baik. Semua leads dan opportunity tidak bisa termonitor dan termanage dengan baik, daily activity divisi penjualan juga tidak termonitor. Untuk itu penulis ingin mengimplementasikan Customer Relationship Management (CRM) supaya semua database pelanggan dapat terpelihara dengan baik dan bisa terus diupdate sehingga dapat terus menjalin hubungan yang baik dengan semua pelanggan, leads dan opportunity dapat dimanage dan dimonitor,daily activity divisi penjualan terjadwal rapi, dan mendapatkan informasi untuk observasi pelanggan, semua dapat dilakukan dalam satu aplikasi yaitu CRM. Dengan Implementasi ini penjualan di PT Mastersystem Infotama mengalami kenaikan penjualan 20% pada tahun 2018. Penelitian ini menggunakan pemodelan waterfall yang memiliki kelebihan yaitu metodenya yang bertahap dan lebih detail sehingga meminimalisir kesalahan. Implementasi CRM ini menghasilkan aplikasi CRM berbasis web yang dapat diakses seluruh karyawan dimanapun berada yang terhubung LAN ataupun tidak. Karyawan bisa mengakses CRM sesuai kapasitasnya masing – masing divisi untuk mempermudah pekerjaan.

Kata Kunci: Customer relationship management, Penerapan CRM, Strategi Bisnis

INTRODUCTION

With the development of an increasingly significant business at PT Mastersystem Infotama, the amount of customer data is increasing, and the orders coming in are increasing, thus requiring good data maintenance. Coupled with the entry and exit of employees so that there is a change of old and new employees requires a database storage template that is easily accessible and updated by all employees in the system. The CRM application does not require additional space to store data, such as saving manually. The data can be accessed in real-time on one platform so that if there is a change of staff, you do not have to look for data information in hundreds of files on the computer. (Barantum, 2022)

The research entitled Implementation of CRM in Marketing Information Systems using a framework based on the React.JS Website uses an Agile method that restores readiness to carry out changes in the development stage. While the authors conducted research using the waterfall method, Waterfall is the most traditional SDLC development method, while Agile is a method that is considered evolved and absorbs speed (agility). (Muhammad, Fitri, & Nuraini, 2022)

In the research on Electronic Customer Relationship Management (E-CRM) Design as an Information System in Improving Digital Library Services for the Unsri Faculty of Computer Science, CRM is implemented electronically using a web browser, email, call center, sms gateway, and chat. One of the aims of this E-CRM is to make it easier for library service users to find information and access E-CRM as customers. While this research is a website-based CRM that can only be accessed via a browser, and companies only use CRM, there is no customer access, so there is no feedback regarding service. (Mira Afrina, 2013)

The research entitled Implementation of CRM for guest services in the Berbah sub-district of Sleman Yogyakarta is used to provide information and monitor all guests who enter the Berbah sub-district of Yogyakarta through the local RT head using an SMS Gateway. The use of CRM in this study uses the SMS Gateway system. SMS Gateway is a device or system capable of handling basic SMS operations (sending, receiving, reading, and deleting SMS) that are outside the standard GSM network. The SMS Gateway can also add complementary features such as autoreply and SMS broadcast. Exit and entry of guests are informed and monitored via the SMS Gateway. In contrast to this study, CRM is implemented using a website and helps store customer data and create customer opportunities and orders. (Galih Pamungkas, 2015)

Then the following research entitled CRM Implementation in Web-Based Sales Applications PT. Buana Telekomindo, This descriptive research aims to describe the business processes running at PT. Buana Telekomindo is then analyzed using the CRM concept to see which processes can be removed, added, or modified. Action research to improve business processes and design a CRM-based information system consists of process design using DFD, database design using ERD, and interface design. The similarity with this research is that it can monitor business processes so that they are more effective. The difference is that this research is in the CRM application. There is also an updated and real-time customer database, and there are records of all customer purchases that have been made, so the information needed for reports is faster. (Simarmata & Hasibuan, 2019)

It differs from Heru Saputro and colleagues' research entitled Implementation of CRM for optimizing Web-Based Rengginang Traditional Food Customer Service and Tawk because this research builds a Rengginang online sales web using the Waterfall method based on Customer Relationship Management. So CRM here is on the online sales web that customers can access, while the author implements CRM that cannot be accessed by customers and only for business processes within the company. (H. Saputro, 2018)

RESEARCH METHODS

In this study, the authors used a qualitative descriptive method, a qualitative descriptive analysis method to analyze, describe, and summarize various conditions and situations from various data collected in the form of interviews or observations regarding the problems studied that occurred in the field. (I. Made Winarta, 2006). The reason for choosing a qualitative descriptive research design is that the researcher wants to describe the conditions observed in the field more precisely, transparently, and in-depth. The researcher formulates the problem, collects data using observation, interview, and literature study techniques, and then finds research conclusions and implements them through web-based CRM.

CRM is a business strategy that integrates processes, people, and technology. Help attract sales prospects, convert them into customers, and retain existing, satisfied, loyal customers.

Figure 1. CRM concept

The concept of CRM is divided into three levels, namely: Strategic CRM for business

P-ISSN: 2656-1743 |E-ISSN: 2656-1735
DOI: https://doi.org/10.34288/jri.v5i1.198
Accredited rank 3 (SINTA 3), excerpts from the decision of the Minister of RISTEK-BRIN No. 200/M/KPT/2020

development, Operational CRM, namely business processes, and Analytical CRM for the utilization of customer data to increase company value. (Supandi, Yusuf, & Fauziah, 2018)

Customers

The customer database is constantly updated and fully maintained. All purchases and activities for customers are also recorded on CRM. For example, in 2021, PT ABC asked for an HPE product presentation and an antivirus price quote so that the sales division could continue to the next stage to increase sales to these customers.

a. Key Performance Indicators

To see the achievements of the sales division. With this achievement, a performance evaluation will be carried out to achieve the company's target.

b. Monitoring

To measure the performance of the customer service team and evaluate the quality of services provided to customers.

c. Technical Services

There is a contact center that stands by 24/7 hours, and any problems reported by customers will be resolved according to the SLA (Services Level Agreement) for each product and the problem.

d. Promotions

Schedule of promotional activities to be held by the company. For example, Autocad product license flash sales from January 14, 2022, to January 20, 2022, at a 30% discount.

e. Payment

The system will schedule payment due dates for customers who make transactions. If there has been no payment and it is past due, the sales division will help follow up with the customer. You can see records of orderly and disorderly customer payments so that the sales division can make policies for the future.

Types of research

This study used the descriptive qualitative method. The qualitative research method is a research method based on the philosophy of postpositivism, used to examine the condition of natural objects (as opposed to experiments) where the researcher is the key instrument, data collection techniques are carried out by triangulation (combined), data analysis is inductive/qualitative, and the results of qualitative research emphasize the meaning of generalizations. (Sugiyono, 2018) Researchers use the qualitative descriptive research method to find knowledge or theory of research at a particular time. (Mukhtar, 2013).

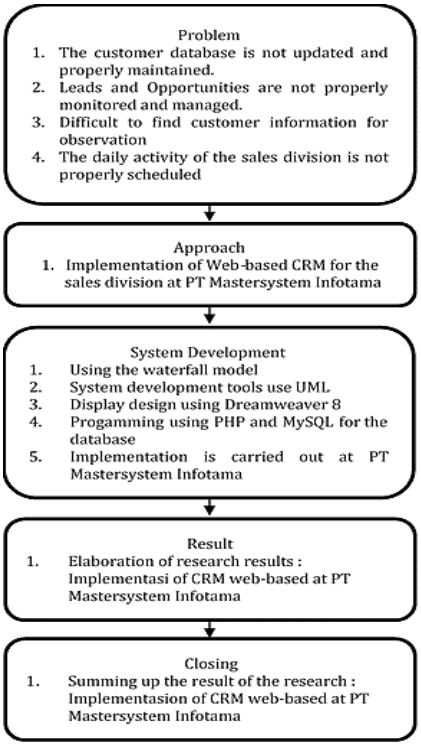

Figure 2. Research Framework

Time and Place of Research

This research was conducted from June 2022 to August 2022 at PT Mastersystem Infotama, Central Jakarta.

Research Target / Subject

This CRM implementation is used internally for PT Mastersystem Infotama, especially the marketing division, to input customer data, leads, opportunities, quotations, and orders. The purchasing, marketing admin, finance, and warehouse divisions also follow up on orders that the marketing division has made according to their respective job desks, and all can be monitored through CRM. All customer databases and marketing division sales data can be seen in one CRM application.

Procedure

This model is often called the "classic life cycle" or "waterfall model." This model belonged to the generic software engineering model and was introduced by Winston Royce around 1970. The linear sequential model is a software development

method with a sequential approach with a scope of activities:

1. **Requirements Analysis**

At this stage, analyze the need to identify the problem to determine the right solution. Explore and collect data and information in the company PT Mastersystem Infotama relating to the scope of work, sales, employees, products, and business processes. After the data is collected, the system requirements can be analyzed. System requirements in developing this application are functional requirements and non-functional requirements.

Requirements contain what processes can be carried out and what information the system produces. How the system should react to specific inputs and how the system should behave in certain situations. (Yanto & Asiah, 2021)

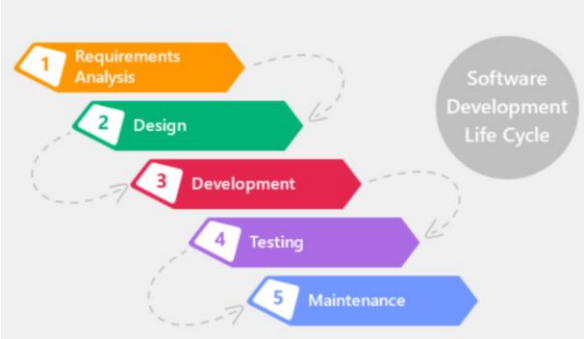

Figure 3. Stages of the Waterfall Model

Table 1. Functional requirements

User	System Capabilities
Admin	The system can log in
	The system can manage customer information data
	The system can input data
	The system can delete data
	The system can manage sales data
	The system can manage system user data
Sales	The system can log in
	The system can input customer data
	The system can input leads
	The system can input the Opportunity
	The system can input meeting schedules
Sales Manager	The system can log in
	The system can approve the Opportunity
	The system can approve the Opportunity
	The system can assign leads to other users
	The system can reject opportunities and orders
	The system can see the sales results of other users

2. **Design**

Create a system design based on an analysis of system requirements using the Unified Modeling Language (UML), such as use case diagrams and class diagrams. UML is a standard language widely used in the industrial world to define requirements, analyze and design, and describe architecture in object-directed programming. (Rosa, AS. Salahuddin, 2015)

3. **Development**

The programming languages used are PHP and MySQL as the database and Dreamweaver 8 for the web display design.

5. **Testing (Testing).**

After the program code is complete, testing can be carried out. Testing focuses on the internal logic of the software's external functions, looks for any possible errors, and checks whether it matches the desired results. Testing is done using a black box. Black Box Testing focuses on the functional specifications of the software and a set of input conditions and performs functional testing of the program (Mustaqbal, Firdaus, & Rahmadi, 2015). The results of black box testing can be concluded by calculating the percentage, which is calculated based on the number of questions received divided by the total number of all questions asked, then multiplied by 100%, and the result is a decision, namely whether the application system being tested is feasible to be implemented. (Elza Fadli Hadimulyo, Welly Purnomo, 2019)

Table 3. Test Calculation Range Criteria

Score	Criteria
0,00 - 36.00	Not good
36.01 - 52.00	Not worth it
52.01 - 68.00	Pretty good

Table 4. Black Box Test Results

Category	Response frequency	Tester	Total Question
Approve	398	10	45
Reject	52	10	45

Thus the results of web-based CRM implementation at PT Mastersystem Infotama obtained results of 88.44% and are very good and feasible to implement.

6. **Maintenance (Maintenance).**

The last part of the development cycle is carried out after the software is used. It includes the following activities:

a. Corrective Maintenance:

She is correcting errors in software, which are only detected when the software is used.

P-ISSN: 2656-1743 |E-ISSN: 2656-1735
DOI: https://doi.org/10.34288/jri.v5i1.198
Accredited rank 3 (SINTA 3), excerpts from the decision of the Minister of RISTEK-BRIN No. 200/M/KPT/2020

b. Adaptive Maintenance:

Adjustment to a new environment, such as an operating system, or as a demand for developing a computer system, such as adding a printer driver.

c. Perfective Maintenance:

Suppose the user successfully uses the software. Maintenance is intended to increase its capabilities by providing additional functions, improving performance, etc (Bolung & Tampangela, 2017)

Data, Instruments, and Data Collection Techniques

The meaning of data collection techniques is the most strategic step in research because the primary purpose of research is to obtain data. (Sugiyono, 2018) Data collection techniques are data collection methods, namely techniques or methods that researchers can use to collect data. (Riduwan, 2010)

Data collection techniques used in general are using:

1. Interview technique

According to (Sarosa, 2017), interviews are one of the most widely used tools to collect qualitative research data. The researcher interviewed employees of the sales department, the finance department, the purchasing and warehouse division, and the IT development and desktop sections to collect data. Interviews were conducted face-to-face so researchers could get more detailed answers to the questions.

2. Observation Technique

According to (Fuad. Anis, 2014), defining observation in qualitative research is a basic technique that can be done. At the beginning of the qualitative research, observations were made during the grand tour observation. The observation method is used in direct observation or sense of an object, condition, situation, process, or behavior. In this study, researchers chose to collect data using participatory observation techniques so that researchers could make observations of events that occurred and involve themselves directly in collecting data and information sought to answer questions that became problems in the study. (Zhahara Yusra, Rufran Zulkarnain, 2021)

3. Literature Study Techniques

Researchers look for literature and references from various books, journals, and internal reports at PT Mastersystem Infotama that relate to the problems to be solved. A literature study is a data collection technique by reviewing books, literature, notes, and reports related to the problem being solved. (M. Nazir, 1988)

Field notes are important because they are essential for various qualitative data collection techniques. The form of recording in the field, namely: a) fact notes: qualitative data from interviews in the form of descriptions or direct quotes and observations; b) theoretical notes: analysis while in the field to conclude the structure of the community under study, and the formulation of relationships topics. (variable) is essential in inductive research according to field facts; c) notes methodological: the researcher tries to use qualitative methods in the field, taking notes field events there are two notes: main note, second note memo/reflective: contents about constructive descriptive criticism (Raya & Raya, 2021)

RESULTS AND DISCUSSION

Figure 4. Feature CRM

Figure 4 shows the features of CRM. On Sales, the menu features sales activities such as following up with customers, meetings with customers and visiting customers so that they know more about customer needs. On the Services menu, there is a feature account for customer names and customer contacts, where customers who contact the service desk have their data recorded in CRM. Then there is a marketing menu that contains leads, opportunities, and competitors, aiming to turn potential customers into customers so they can send price offers and get orders from customers.

CRM elements, namely customer services, are available 24/7 and can be contacted by customers. Sales force automation can also be done because each division can see complete and updated customer data so that the product division can update the latest product info to customers. The marketing division can provide information related to promos and marketing activities to customers. The finance and tax divisions can provide information regarding changes in tax regulations and others—campaign Management by holding several events in collaboration with principals and distributors. Customers are invited based on profiling according to the product of the campaign.

P-ISSN: 2656-1743 | E-ISSN: 2656-1735 **JURNAL RISET INFORMATIKA**
DOI: https://doi.org/10.34288/jri.v5i1.198 Vol. 5, No. 1. December 2022
Accredited rank 3 (SINTA 3), excerpts from the decision of the Minister of RISTEK-BRIN No. 200/M/KPT/2020

Figure 5. CRM Login Page

In Figure 5. The display of the login page on the CRM user is asked to enter a user name. Namely, the email registered with the company and password for the user name and password is the same as those registered in the active directory.

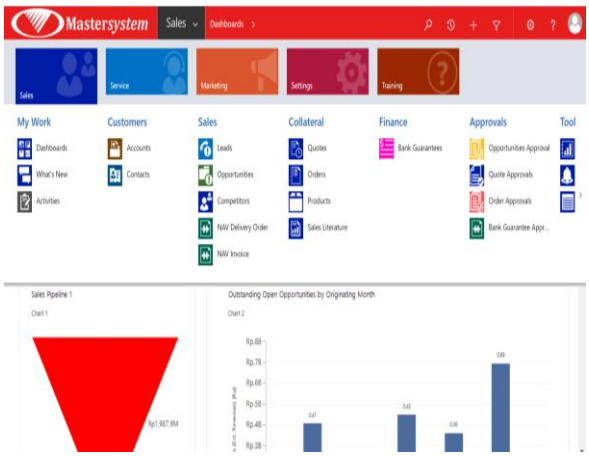

Figure 6. CRM Main Page Display

In figure 6, the CRM main page displays the menus designed in the Class diagram: Accounts, Contacts, Prospects, Opportunities, Activities, and so on.

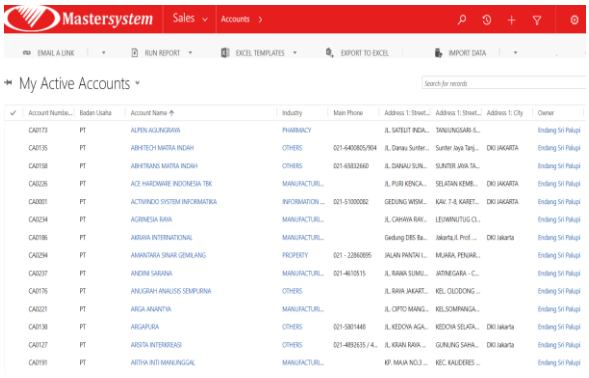

Figure 7. Account Page Display

In figure 7, the account page display contains the customer company name data inputted by marketing—customers who have made purchases and potential customers who can be used as prospects.

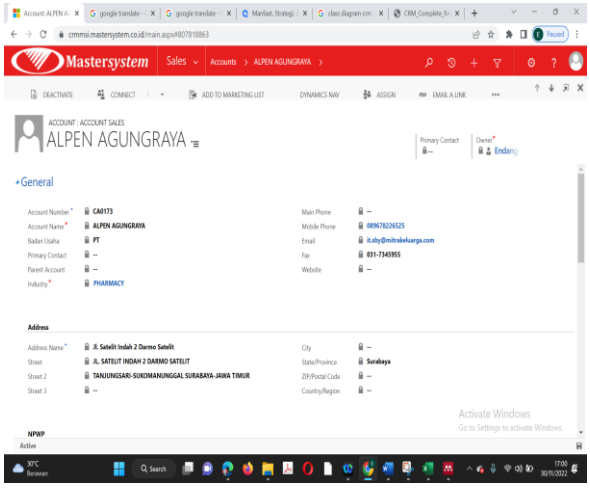

Figure 8. Account Menu

Sales division users input customer data on the account menu, this data is real-time, and there is information on whom the user inputted it.

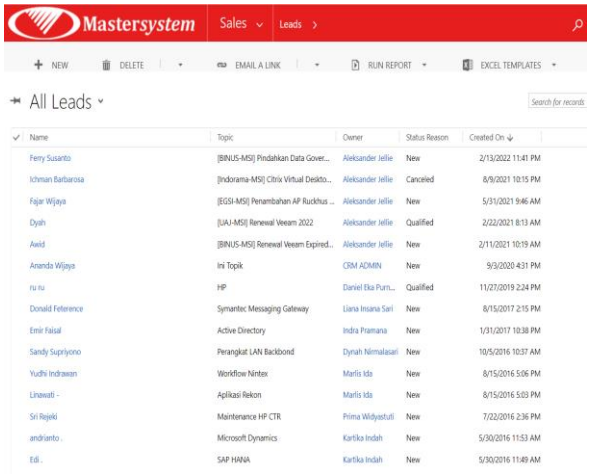

Figure 9. Leads Page View

On the leads page in CRM, there are customer data that have needs according to the products offered by sales, and in the future, they can become potential customers to achieve sales targets.

P-ISSN: 2656-1743 |E-ISSN: 2656-1735
DOI: https://doi.org/10.34288/jri.v5i1.198
Accredited rank 3 (SINTA 3), excerpts from the decision of the Minister of RISTEK-BRIN No. 200/M/KPT/2020

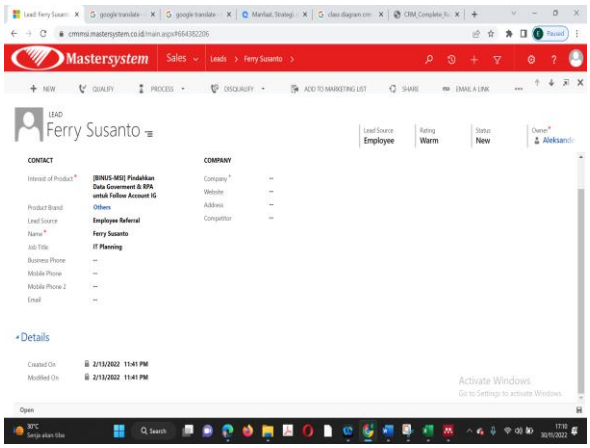

Figure 10. Leads Menu

On the leads menu, the sales division inputs lead data, namely information regarding more detailed specifications regarding their needs in terms of product, timeline, budget, and PIC, to be followed up further so they can generate opportunities and orders.

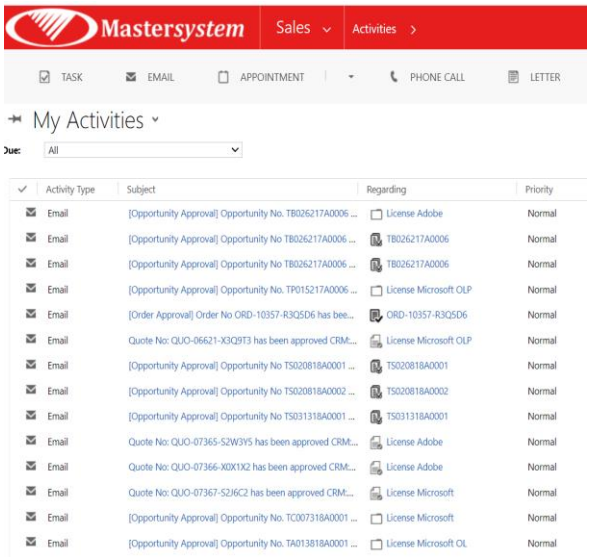

Figure 11. Activities Halaman Page Display

In the activities menu, you can see the user's activities, whether to create a new opportunity, what products, and how much the price is. All reports are also sent to the email of each user who made it and his boss for approval.

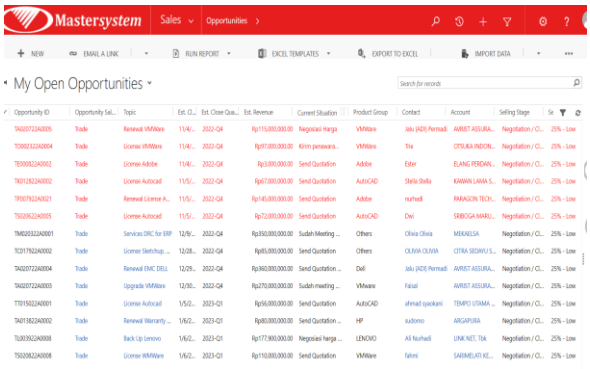

Figure 12. Opportunity page view

The opportunity page will contain customer needs shortly; in the future, detailed information will be obtained from customers. After the Opportunity appears, the salesperson usually makes a price offer.

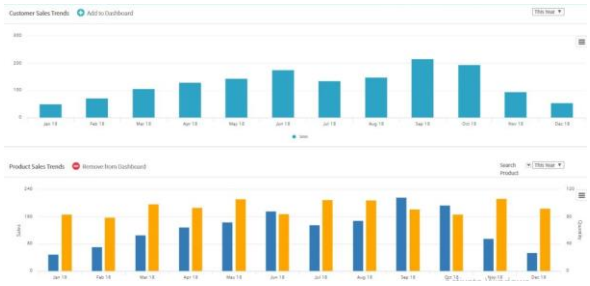

Figure 13. Sales Chart

After implementing web-based CRM, there was an increase in sales in 2018, as shown in figure 13.

CONCLUSIONS AND SUGGESTIONS

Conclusion

The test results using the black box are 88.44%. Thus the system design is perfect and can be implemented. CRM implementation at PT Mastersystem Infotama can make work easier, especially for the sales division, as all work can be done in one CRM application. With CRM, you can attract and get new customers, maintain existing customers, re-recruit old customers, and save on marketing costs for client services. Work becomes more effective and efficient, and the sales division's daily schedule can also be seen as more organized to plan to increase sales and achieve company targets.

Suggestion

For further research, continue the implementation of CRM in the order process, delivery, and billing, and all divisions can be integrated to monitor the course of business processes.

REFERENCES

Barantum. (2022). Begini Peran Penting CRM Dalam Sebuah Perusahaan. Retrieved from https://www.barantum.com/blog/pengertian-dan-peran-crm/

Bolung, M., & Tampangela, H. R. K. (2017). Analisa Penggunaan Metodologi Pengembangan Perangkat Lunak. *Jurnal ELTIKOM*, *1*(1), 1–10. https://doi.org/10.31961/eltikom.v1i1.1

Elza Fadli Hadimulyo, Welly Purnomo, A. A. S. (2019). Development Customer Relationship Management (CRM) System Information E-Complaint City XYZ. *Jurnal Pengembangan Teknologi Informasi Dan Ilmu Komputer*, *3*(1), 462–471. Retrieved from http://jptiik.ub.ac.id

Fuad.Anis, K. S. N. (2014). *Panduan Praktis Penelitian Kualitatif* (Yogyakarta, Ed.). Yogyakarta: Graha Ilmu.

Galih Pamungkas, I. R. (2015). Implementasi (CRM) Customer Relationship Management Untuk Layanan Tamu Kecamatan Berbah Sleman Yogyakarta. *Jurnal Sarjana Teknik Informatika*, *3*, 178–186. Retrieved from http://dx.doi.org/10.12928/jstie.v3i1.2936

H. Saputro, T. T. (2018). Implementasi Customer Relationship Managemtn Untuk Optimasi Pelayanan Pelanggan Makanan Tradisional Rengginang Berbasis Web Dan Tawk. *Jurnal SITECH*, *1*, 2622–2973. Retrieved from https://doi.org/10.24176/sitech.v1i2.2893

I. Made Winarta. (2006). *Metodologi Penelitian Kuantitatif dan Kualitatif*. Yogyakarta: Gaha Ilmu.

M. Nazir. (1988). *Metode Penelitian*. Jakarta: Ghalia Indonesia.

Mira Afrina, A. I. (2013). Rancang Bangun Electronic Costumer Relationship Management (E-CRM) Sebagai Sistem Informasi Dalam Peningkatan Layanan Perpustakaan Digital Fakultas Ilmu Komputer Unsri. *Jurnal Sistem Informasi (JSI)*, *5 No 2*(1), 629–644. https://doi.org/10.35200/explore.v10i1.365

Muhammad, F., Fitri, I., & Nuraini, R. (2022). Implementasi Customer Relationship Management (CRM) pada Sistem Informasi Pemasaran dengan Menggunakan Framework React.JS Berbasis Website. *Jurnal JTIK (Jurnal Teknologi Informasi Dan Komunikasi)*, *6*(1), 93–101. https://doi.org/10.35870/jtik.v6i1.392

Mukhtar. (2013). *Metode Praktis Penelitian Deskriptif Kualitatif* (GP Press Group, Ed.). Jakarta: Referensi.

Mustaqbal, M. S., Firdaus, R. F., & Rahmadi, H. (2015). Pengujian Aplikasi Menggunakan Black Box Testing Boundary Aalue Analysis (Studi Kasus: Aplikasi Prediksi Kelulusan SMNPTN). *Jurnal Ilmiah Teknologi Informasi Terapan (JITTER)*, *I*(3), 31–36.

Raya, I. P., & Raya, I. P. (2021). Memahami Teknik Pengolahan dan Analisis Data Kualitatif. *Palangka Raya International and National Conference on Islamic Studies*, *1*, 173–186.

Riduwan. (2010). *Skala Pengukuran Variabel-variabel Penelitian* (Bandung, Ed.). Alfabeta.

Rosa, AS. Salahudin, M. (2015). *Rekayasa Perangkat Lunak Terstruktur dan Berorientasi Objek*. Bandung: Informatika Bandung.

Sarosa, S. (2017). *Metodologi Pengembangan Sistem Informasi* (Cetakan 1; B. Samiaji, Ed.). Jakarta: Jakarta : Indeks, 2017.

Simarmata, E. R., & Hasibuan, D. (2019). Implementasi Customer Relationship Management (CRM) Pada Aplikasi Penjualan Berbasis Web PT . Buana Telekomindo. *Jurnal TIMES*, *7*(1), 8–14. Retrieved from http://ejournal.stmik-time.ac.id/index.php/jurnalTIMES/article/view/596

Sugiyono. (2018). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D* (Cetakan 26). Bandung: CV. Alfabeta.

Supandi, I., Yusuf, F., & Fauziah. (2018). Implementasi Costumer Relationship Management (CRM) Pada Sistem Informasi Penjualan Ban Di Toko Lingga Ban Berbasis Web. *Jurnal Nuansa Informatika*, *12*(1858-3911 ; 2614–5405), 20–28. Retrieved from https://journal.uniku.ac.id/index.php/ilkom%0AImplementasi

Yanto, A., & Asiah, N. (2021). Customer Relationship Management (CRM) Based On Web To Improve The Performance Of The Company. *IAIC Transactions on Sustainable Digital Innovation (ITSDI)*, *1*(1), 32–41. https://doi.org/10.34306/itsdi.v1i1.7

Zhahara Yusra, Rufran Zulkarnain, S. (2021). Pengelolaan LKP Pada Masa Pandemik Covid-19. *Journal Of Lifelong Learning*, *4*(1), 15–22. https://doi.org/https://doi.org/10.33369/joll.4.1.15-22