

Analysis, Design, and Implementation of CRM Information System on MSME: Case Study on VCO Ainun, Benan Island

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Abstract. To develop a business, synergy is needed between policies, production processes, and business strategies, which are carried out to maintain customer loyalty. In this case, CRM (customer relationship management) is one of managing company relationships with customers. The CRM method is used to drive a customer from being a prospect to becoming a loyal customer. Nowadays, CRM uses information technology to manage the customers' relationship with a personal touch to attach to the company's products. Customer management is also a significant concern for MSMEs (Micro, Small, & Medium Enterprises) managers. With today's competitive business conditions, it is essential to retain customers and form customer loyalty. This study tries to develop a web-based CRM Information System application that adapts to the business needs of MSMEs by using a localization approach to make it easier for users. The features contained in this CRM Information System will automatism in implementing their customer relationship management so that they can maintain their customers and as a means to obtain broader new markets. This case study aims to design a web-based CRM system for Ainun VCO MSMEs located on Benan Island.

Keywords: CRM Information System, Micro Small Medium Enterprise,

1 Introduction

1.1 Research Background

The negative impact of the COVID-19 pandemic on the economy is unquestionable. One of the sectors supporting the nation's economy that has been most affected is the Micro, Small, and Medium Enterprises (MSMEs) sector. This sector contributes 60 percent of Indonesia's GDP and absorbs more than 90 percent of the workforce. Based on data from the Katadata Insight Center, it was noted that 82.9 percent of MSMEs in Indonesia were affected by the Covid-19 pandemic, which can be seen in the drastic decline in sales.¹ Several recent studies in Indonesia also reported that Covid-19 had an impact on decreasing MSMEs productivity, such as Wulandari (2020), Chaerani et al. (2020), Thaha (2020), and Amri (2020).

¹Tribunnews.com, 28th Oct. 2020: "Dihantam Pandemi, Ini Strategi UMKM Untuk Tingkatkan Kembali Penjualan" [<https://www.tribunnews.com/bisnis/2020/10/28/dihantam-pandemi-ini-strategi-umkm-untuk-tingkatkan-kembali-penjualan>]

Likewise, Lingga Regency, the region where Benan Island is, has also experienced a negative economic growth rate in 2020 due to the Covid-19 pandemic.²

To address this problem, the Head of Economy of BNI Bank, Ryan Kiryanto,³ suggested that MSMEs should be: i) focused on consumer needs; ii) innovative and creative in both product and service lines by changing consumer preferences and behavior; and iii) maintaining good relationships with vendors, suppliers, and distributors. This opinion is supported by research such as Alfin (2020), Hardilawati (2020), and Safitri (2020). The studies show that MSMEs should i) use e-commerce; ii) conduct digital marketing; iii) improve the quality of products & services, and iv) establish and optimize customer marketing relationships through customer relationship management. Supporting evidence by Nugroho et al. (2018) found that customer relationship management implementation on SMEs can help them in reengineering their database management, comprising of the leads, account, contacts, deal, task and meeting scheduler, report, and analysis. From the ex-ante and ex-post evaluations, they found that there is a significant difference in inefficiency. Finally, the CSIS (Centre for Strategic and International Studies) recommends that MSMEs be supported to enter the digital era (Damuri et al., 2020).

Bank Indonesia's roadmap on MSMEs in their 2020 Indonesia Economic Report suggests that adaptation to the development of digital technology is one of the keys for MSMEs to be competitive in the 'new normal' era. In addition, capacity building should be integrated, including strengthening business management, product and service quality, market access, digital financial capacity, and digital human resource capacity. Information technology should be applied on the production and marketing sides, which leads to the fourth and the final stage of MSMEs development, namely Digital SMEs and Export SMEs, respectively.⁴

For the sake of sustainability, businesses have to build and nurture strong, long-lasting relationships with customers to make sure companies know each of their customers well and make them feel special. To know who their customers are means to know their contact number, their products or services interest, the number of money they spend, and yet to see if they are costly to service or sell on.

The more customers a business wants to maintain the more complex and complicated the CRM processes are. Implementing information technology is a certainty and a CRM Information System helps and eases customer relationship management activity. This system captures and integrates customer data from all over the organization and consolidates and analyzes the data. It then distributes the information to various techniques and customer touch points across the firm. For this purpose, the systems are featured with an integrated touch point (contact point), i.e., a method of interaction with the customer, such as telephone, e-mail, customer service desk, website, apps, or social media (for example. WhatsApp, Facebook, and Instagram). With the current development of information technology, CRM applies to MSMEs under a web-based platform.

From the discussion above, this study is intended to design a web-based CRM information system for MSMEs in Benan Village on Benan Island. For this research paper, we studied the Ainun VCO Benan, which produces virgin coconut oil, and its market in the

²Laju Pertumbuhan PDRB Menurut Pengeluaran Atas Dasar Harga Konstan (Persen) [<https://linggakab.bps.go.id/indicator/52/170/1/-seri-2010-pdrb---laju-pertumbuhan-pdrb-menurut-pengeluaran-atas-dasar-harga-konstan.html>]

³TopBusiness.id, 5th May 2020: "Ini Strategi UMKM Bertahan di Tengah Pandemi" [<https://www.topbusiness.id/35074/ini-strategi-umkm-bertahan-di-tengah-pandemi.html>]

⁴Laporan Perekonomian Indonesia Tahun 2020 [https://www.bi.go.id/id/publikasi/laporan/Pages/LPI_2020.aspx]

surrounding cities. Benan Island is a small island located in the Senayang District, at the tip of the Lingga Regency, in the Riau Islands Province.

1.2 Research Purposes

Based on the formulation of the problem described above, the research objectives are a) to identify business processes on Ainun VCO Benan; ii) to design and develop a web-based CRM Information System suitable for Ainun VCO Benan.

2 Literature Review

2.1 CRM Information System

CRM Information System is a tool that generates data from customers and analyses it to provide such information to figure out: who the most loyal customers are, who the most profitable customers are, and what these profitable customers want to buy. Firms use this information to acquire new customers, provide them with better services and supports, customize the product for customer preferences, and provide lasting value to gain loyalty. CRM Information Systems typically provide application and online tools for the activities such as sales force, customer services, and marketing (Laudon & Laudon, 2012).

For sales activities, CRM Information Systems help sales staff increase their productivity by focusing sales efforts on the most profitable customers, good candidates for sales and services. A CRM Information System provides sales prospect information, product configuration capabilities, and sales quote generation capabilities. The system can assemble information about a particular customer's past purchases to help the salesperson make personalized recommendations. This system readily shares information on customers and prospects among the sales, marketing, and delivery departments. As a result, it will reduce the cost per sale, the cost of acquiring new customers, and retaining long-standing customers. The CRM Information System conclusively can provide analytics in sales forecasting, territory management, and team selling. This feature is provided under the Sales Force Automation (SFA) modules.

In the case of service activities, a CRM Information System provides information and tools to increase the efficiency of call centres, help desks, and customer support staff. They have capabilities for assigning and managing customer service requests. Once customer's data is in the system, any service representative can handle the customer relationship. The system helps call centres to take more calls per day, decreases each call's duration, and reduces transaction time. Consequently, the customer service division will be more productive, with higher service quality at a lower cost and a happier customer. A CRM Information System may also include web-based self-service capabilities. Accompany website can be set up to provide inquiring customers personalized support information and the option to contact customer service staff by phone for additional assistance. This feature is provided under the Customer Service Automation (CSA) modules.

Finally, the marketing activities of a CRM Information System provide marketing and customer data analysis to identify profitable customers, design customized products and services to satisfy specific customers, and identify opportunities for cross-selling (complementary products to customers). The system automatically provides the service agent with a detailed profile of that customer. Under this module, the system also offers direct-

marketing campaigns with content marketing for delivering product and service information in the quest for qualifying leads for targeted marketing, scheduling, and tracking social media direct-marketing. This feature is provided under the Marketing Automation (MA) modules.

2.2 Sales Forces Automation

Sales-Force Automation (SFA) is the application of information system technologies to support salespeople and sales management in achieving their work-related objectives. The integrated packages may be dedicated to sales force applications only or maybe incorporated into comprehensive CRM suites that operate over the three front-office areas of marketing, service, and sales. All SFA application is designed so that pertinent customer-related data can be captured, stored, analyzed, and distributed to salespeople and sales managers to become more effective and efficient in the pursuit of their objectives. The benefits of SFA implementation include accelerated cash flow, shorter sales cycles leading to faster inventory turnover, improved customer relations, improved sales person productivity, increased sales revenue, market share growth, higher win rates, reduced cost of sales, more closing opportunities, and enhanced profitability. In addition to these measurable outcomes, there may be additional benefits such as less rework, more timely information, and better quality of management reports (Buttle, 2009; and Buttle & Maklan, 2015)

2.3 Marketing Automation

Marketing Automation (MA) is the application of information system technologies to support marketers and marketing management in achieving their work-related objectives. Marketing automation has brought increased rigor to marketing processes. A wide range of marketing positions can use MA, including marketing managers, campaign managers, market analysts, market managers, promotions managers, database marketers, and direct marketing managers. Some integrated applications are dedicated to marketing applications only. Others are incorporated into broader CRM solutions that operate over the three front-office areas of marketing, service, and sales. In general, MA helps the marketing division in the way they plan, implement, evaluate and control their marketing strategies and tactics. Campaign management modules in MA application allow marketers to use customer-related data to develop, execute and assess targeted communications and offers (Buttle, 2009; and Buttle & Maklan, 2015)

2.4 Customer Service Automation

Customer Service Automation (CSA) involves the information system of customer service operations. CSA helps companies manage their service operations, whether delivered through a call centre, contact centre, field service, the Web, or face-to-face, with high efficiency, reliability, and effectiveness. A CSA application enables companies to handle inbound and outbound communications across all channels. Software vendors claim that this allows users to become more efficient and effective by reducing service costs, improving service quality, improving productivity, enhancing customer experience and satisfaction. Service automation differs significantly depending upon the product being serviced. The first point of contact for the service of consumer products is usually the retail outlet or a call centre. People working at these touch points often use online diagnostic tools that help identify and resolve a problem. Companies are beginning to learn to respond to customer complaints using social media such as WA, FB, IG, and Twitter, in near real-time. Social media has

dramatically increased the risks of consumer complaints remaining unanswered. Real-time engagement in social media conversation enables companies to intervene immediately and resolve an issue before a social media storm erupts.(Buttle, 2009; and Buttle & Maklan, 2015)

2.5 Three Roles of CRM Information System

A CRM Information System has three roles in managing customer relationships that are interconnected in a network, i.e., the operational, analytical, and strategic CRM (Iriana and Buttle, 2006; and Buttle and Maklan, 2019). Functional CRM comprises the business processes and automation that can help improve the efficiency and accuracy of day-to-day customer-facing operations. Operational CRM is focused on managing the virtual and physical channels through which customers and the enterprise communicate and transact. The functional CRM occupies the sales force, customer service support, and marketing automation. Operational CRM automates customer-facing business processes. Active CRM applications enable the marketing, sales force, and customer service functions to be automated and integrated.

On the other hand, the analytical CRM analyses customer data generated previously by operational CRM applications to provide information for business performance improvement. The analysis can be done using online analytical processing (OLAP), data mining, and other big data analysis techniques (Excel Business Intelligent and R data analysis). Customer data such as purchased lists and demographic data are analyzed to identify buying patterns and customer segmentation. The information is helpful for targeted marketing and pinpointing profitable and unprofitable customers.

Finally, Strategic CRM encompasses processes of strategy development and value creation. Strategic CRM focuses on developing a customer-centric business culture dedicated to winning and retaining customers by creating and delivering better value than competitors. It features identifies the characteristics of the business, the customers, and the way of creating and delivering value to the customers.

3 Research Methods

3.1 Research Design

Following Nugroho et al.(2018), this research has five stages of development, namely the ADDIE model(Analysis, Design, Development, Implementation, and Evaluation). This approach has been utilized in the process of web-based application development. The ADDIE model can assist developers in conducting user-centered approach rather than a developer-centered approach, making the application more user-friendly and easier to understand.

Phase 1. Analysis

Under this stage, we identify the enterprise's business process and determine which method needs some automation. Some indicators are maintaining contacts with customers, tracking customers' order and deliveries, what tools are involved in this process, and the company's goals and objectives for the coming years. This step aims to paint a portrait of an enterprise's existing condition regarding customer relationship management. Once the whole business process is well identified, the methods can be classified based on their urgency to be addressed.

Phase 2. Design

The next step is designing systematic process of specifying application objectives. It determines detailed features, functionality, field, layout, form, model, type of report, graphic design, user interface, and content are. It is a crucial step in how a CRM Information System could meet an enterprise's needs. Some considerations are taken into account at this phase to achieve an optimum and systematic application. By doing this correctly, the CRM application would not frustrate the CRM users. Instead, they would experience a pleasant way of working to reach the target of customer relationships.

Phase 3. Development

The implementation of the content and functionality of CRM design occurs at this stage. Every single functionality from Feed, Home, Account, Contact, Mailing, Template, Deals, Report, Task, and Report is set at this phase. Thus, robust analysis and design are required to decide the functionality of a CRM system that is in line with the company's interests.

Phase 4. Implementation

This phase is the implementation of information technology. It begins with the simulation of the CRM setup features. The plan is put into action, and a series of training for the users and developers are made. CRM training materials are delivered or distributed to the users 'group in the company. It consists of an introduction to the interface, setting up the customized fields, the functionality of each button, the flow of navigation, and the know-how of the CRM. Socialization in terms of presentation and practical training for the users is mandatory for the CRM operators.

Phase 5. Evaluation

The evaluation phase is an ongoing process throughout the design and implementation phases. It aims to ensure that all stated goals of the customer relation process will meet the company's actual needs. Another essential objective of this phase is to determine on-the-job performance following the CRM setup and implementation completion and ensure that business process needs are met.

3.2 Rapid Application Development

The rapid application development (RAD) method is used for creating a workable system in a brief period. RAD can include visual programming and other tools for building graphical user interfaces, iterative prototyping of key system elements, the automation of program code generation, and close teamwork among end-users and information systems specialists. This method applies some features of object-oriented programming, reusable software, and prototyping. Fourth-generation language tools are helping systems builders create working systems much more rapidly than they could be using traditional systems-building methods and software tools. Simple techniques can often be assembled from prebuilt components. The process does not have to be sequential, and critical development parts can coincide(Laudon & Laudon, 2014).

RAD is a possible solution to the problems and pressures encountered in traditional methods such as Systems Analysis and Design Method (SSADM).It is a method of developing information systems that use prototyping to achieve user involvement and faster development. Prototyping produces a preliminary version of part or the entire framework of an information system that end-users can review. Prototyping is an iterative process where users suggest

modifications before further prototypes are developed, and the final information systems are built (Hardcastle, 2008). Following this method, this research utilizes a content management system (CMS), WordPress.com, with dedicated plug-in such as woo commerce, a suitable web-based program to develop a CRM Information System.

3.3 Word Press based CRM Information System

Word Press is software that makes it easy for users to manage websites online. Initially, Word Press was only used for blogging media. However, over time, Word Press has become a Content Management System (CMS) application that can be used for applications outside of blogs, such as e-commerce and online shops. Word Press is divided into two types, namely wordpress.org and wordpress.com. The difference is, wordpress.org is self-hosted, while wordpress.com is web-hosted. WordPress.org is generally used by web developers who already understand programming languages to host their website; while WordPress.com is easier to understand by a layman. Currently, Word Press is the most popular CMS globally; more than 25% of websites on the internet are made with Word Press.

4 Results and Discussion

4.1 Business Process Analysis

Benan Island is blessed with an abundance of coconut trees, so coconut-based industry is ideal for business on Benan Island. The VCO Ainun Benan produces virgin coconut oil in bottles of 200ml, 250ml, and 500 ml. The complete production process takes about three days, from the collection of the raw materials to shipping. The average sales per month are 5 liters in volume, with an average income of 1.000.000 rupiahs per month. Net profit gained after operational cost is around 500.000 rupiah per month. A photograph of a product sample can be seen in **Fig. 1**.

The VCO Ainun business is still in the early stages. It doesn't currently have a regular or loyal customer. The island's geographical location is far from the surrounding cities, and there is only a once-a-day sea transportation service between Benan Island and the surrounding towns. The condition is worsening as the courier service is also not available at the moment.



Fig. 1. The product of VCO Ainun Benan

VCO Ainun Benan does not currently have a database of the customers. Nor do they manually record customer information. Therefore, the researchers of this study do not have information regarding the customers' demography and customers' behavior for analysis. The current business activity faces several problems: poor marketing, a small coverage area, rare product promotion, no incentives for the buyer, undocumented customer data, no channel for the customer to receive services, and no online access for the customer to order the products. The empowerment of marketing is crucial for VCO Ainun Benan. Implementation of CRM information system and promotion on social media, online shop, and in the online market places such as Tokopedia and Shopee is the plan of the VCO Ainun Benan.

4.2 Functional Requirements

This section will explain the software requirements that are included in the functional requirements. Functional requirements are requirements related to services and characteristics that must be provided by the software being developed. Applicable requirements are summarized in the following **Table 1**.

Table 1. Description of Functional Requirements

No	Requirement	Description
1.	Login and logout	MSMEs and every customer has a user and password to be able to enter the CRM information system application
2.	Feature	CRM information system applications have features in supporting marketing strategies and customer management, which consist of: <ul style="list-style-type: none"> - product service support: provides information about the products marketed - scheduling activities with a calendar: makes promotional planning and creating activity agendas easier - ordering products online: manages orders from customers and provides invoices - new product campaign schedule: makes scheduling new product promos and setting discounts easier - customer contacts: includes information about customer profiles and send se-mail notifications to customers - handling customer complaints: manages and records complaints from customer
3.	User	Access in CRM information system consists of: <ul style="list-style-type: none"> - MSME admin - Customer with membership - Non-member customers
4.	Access	MSME admin has access rights to <ul style="list-style-type: none"> - applications that include product management, customer order management, calendar management, product management, customer profile management, and customer complaint management - Membership customers have access rights to applications that include product access, online ordering, e-mail notifications, promotional information, writing complaints, and creating profiles - Non-member customers have access rights to applications that include access to product information and view promotions
5.	Language	CRM information system applications are conducted in Bahasa Indonesia

6.	Application	<ul style="list-style-type: none"> - The application is a web-based application. - The application is published after testing - Non-member customers cannot make transactions. - The app can be accessed 24 hours a day.
7.	Device	CRM information system applications can be accessed through various web browser and smart phone applications.
8.	hosting	The hosting address is: https://www.vcoainunbenan.com/

The account privacy setting is designed so that every user, both admin and customer, will receive a username and password to log in to the system. A user cannot login if the username and password entered are incorrect. Users with ordinary access levels have additional menus in the form of shopping carts, transaction history, and logout. Users with admin-level access have a different menu with a list of ordinary users' details, social media links, messenger, tickets, invoices, events, products, and logout.

4.3 Website Design

CRM Information System for the VCO Ainun Benan is designed on WordPress and empowered with the plug in from Enva to Market and using the electronic market theme from woo commerce. The appearance of the website is in **Fig. 2** below.

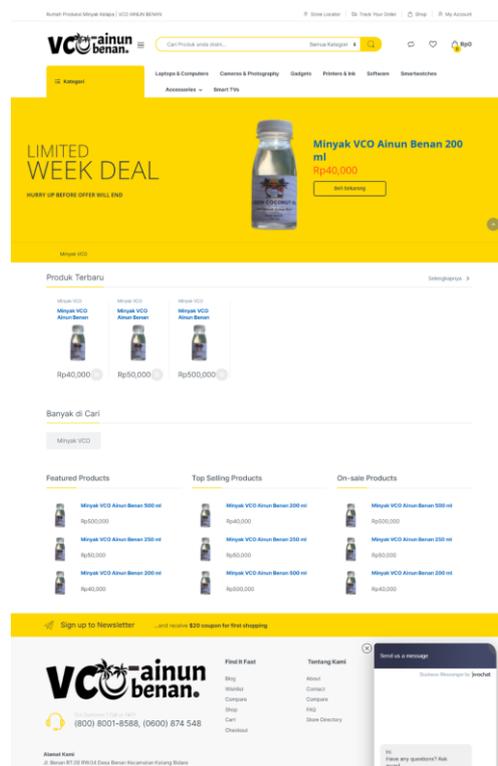


Fig. 2. The front page of the VCO Ainun Benan

5 Conclusion

The design and development of CRM information system applications can help MSMEs in managing their customer relationship. It allows the businesses to arrange marketing strategies, reach new markets, manage customers, and gain loyalty from the customers. The design of CRM information system application is adjusted on MSME business processes, so it is flexible in developing according to the volume and level of the business complexity. The analytics features in the CRM information system application are helpful for business strategies to cater to the prospects, maintain customers, and gain customer loyalty. However, this research is still in the phase of development. The step of implementation and the evaluation is for further study. The VCO Ainun Benan is still in the early stages. Implementing the CRM information system developed in this research will hopefully help the enterprise have better and practical customer relationship management, thus increasing the number of customers.

The implementation of extensive data analysis, machine learning, and artificial intelligence are several features that can be added to the analytical CRM. The availability of the technologies today is expected and publicly accessed. Customers can be classified under specific categories based on their purchase history, self-profile, favorites, salary, and so on. The information from data analytics is a helpful reference for the marketing division to set the target market with the content marketing and personal approach.

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