

Proposed B2B Marketing Enhancement Strategy Using Artificial Intelligence-Based CRMs: Evaluating the Prerequisites for Successful Adoption in Indonesia Stock Exchange (IDX)

Ananda Budi Subagja¹, Reza Ashari Nasution²

¹(School of Business Management, Bandung Institute of Technology, Indonesia)

²(School of Business Management, Bandung Institute of Technology, Indonesia)

ABSTRACT : *The capital market industry is one of the most data-driven sectors of the economy. Investors now rely on financial market data to help them choose wise investments, and financial market data has never been more valuable. In 2019, The Indonesia Stock Exchange (IDX) formed the Data Service division and has included Market Data License Products as one of their revenue streams and provides businesses with reliable and accurate market data. The number of IDX Data customers significantly increased because of the rising demand for market data from both local and foreign businesses. However, this makes IDX Data Service Sales and Marketing staff overwhelmed in carrying out daily operations, such as customer service, managing customer data, and administrative documents. In addition, IDX must also be responsive in obtaining information related to market data such as what customers want and be able to market their products to the right target customers. IDX Data Service are keen to invest in technology to help them resolve their sales and marketing issues and Artificial Intelligence based Customer Relationship Management System or AI based CRM is one of the technologies that can be utilized by IDX. There is an increasing trend regarding the use of AI to conduct operations, decision making, and make better marketing strategies in various B2C and B2B industries. This study aims to evaluate the task fit of AI based CRM system implementation in IDX Data Service and IDX resources viability to adopt such systems for the implementation to be successful. An internal have been carried out using the Fit and Viability model by conducting in depth semi-structured interviews with 4 respondents from IDX internal team. This study then finished by proposing best option of AI based CRM implementation approach for IDX.*

KEYWORDS -Market Data, Artificial Intelligence (AI), Customer Relationship Management (CRM), Fit and Viability, IDX Data Service.

I. INTRODUCTION

The implementation of AI based CRM is becoming increasingly popular in B2B companies, especially for those who has a large customer database. CRM tools would help companies in analyzing their customers preference and behaviour, which helps improve strategic and marketing related decision making that would increase the chance of potential customers to buy the products or services they are selling. Moreover, AI based CRM make it possible for companies to automate personalized marketing campaigns and after sales service to increase customer engagement and customer retention. Miremadi and Ghanafiof (2021) has studied CRM implementation in competitive strategy in financial institutions and they have concluded that CRM would help companies in the financial industry to be more responsive to customers, give precise and knowledgeable responses, optimize branch distribution, and understand the consumer needs, and help customers captured the brand in their minds, which eventually helps with increasing trust and customer satisfaction [1]. In the case of stock exchange, there are few examples on how they could utilize CRM such as understanding what the current market data needs is, improving their customer service through automation, and even understanding the behaviour and preferences of investors with the help of AI.

Investment in the stock market provides a source of income for many people. There are many investments opportunity to choose from such as shares, bonds, mutual funds, exchange traded fund (ETF), derivative, and other instruments that may include in the capital market. The selection of investment instruments is made easier because the capital market provides some of the market data needed by investors [2]. The market data provided is increasingly diverse and now the capital market is one of the most data driven industries [3]. Stock Exchanges all over the world sell their capital market data, usually as a license product in which licensee or customers will subscribe to. These market data provide valuable information for other businesses in the financial industry and to investors. Each Stock Exchanges has different way in marketed their product and acquiring new licensee, and the Indonesia Stock Exchange is no exception.

Since 2019, Indonesia Stock Exchange (IDX), has included market data products and services as one of their revenue streams and sell them to other businesses under the IDX License Products. The division which are

responsible in selling the market data is the IDX Data Service. They offer market data products such as market data, listed company data, index license, and information of other instruments on the Indonesia Stock Exchange for businesses to use it either for analysis or redistribute the data. IDX License Products are in the form of IDX Market Data, IDX Data Reference, IDX Publication, IDX Index License, and IDX Connection License. These products are Real Time, Delayed, End of Day and Historical. During the pandemic, retail investors in Indonesia recorded a rapid growth trend, especially in mutual funds and stock investors [4]. This phenomenon help increases the demand on market data, thus also significantly increased the number of customers that subscribe to IDX Data Service products in 2021.

IDX Data Service Sales and Marketing are having difficulty in dealing with customer administration files, carrying out after sales activities such as customer service, and developing the right marketing strategies to attract new leads and convert them to customers. At the end of 2021, IDX conducted a customer satisfaction survey to all of IDX Data Service customers. The result is that IDX Data Service didn't reach their expected KPI. IDX must get an average score of 8 from the survey, but they only managed to get 7.8 which indicates that customers were unsatisfied. The main reason of this dissatisfaction is because the bad helpdesk communication and response time. There are only three employees in the Sales and Marketing Unit, and they are struggling to cope with all their task and responsibility, especially responding to chats and emails from customers quickly.

Two of the Data Sales and Marketing Unit employees oversee replying to daily customer inquiry, one is responsible for local customers and the other for foreign customers. On average, there are 10 local customers who contacted IDX Data Service, and about 15-20 foreign customers. 2-5 of them usually are potential or new customers who asked about IDX Data Service product offering and the rest of them are existing customer who generally asked about the products they have used, what are the supports to increase the usability of the product and complain if there is any problem. 70% of these customer inquiries are through email, and the other 30% are through WhatsApp. What frustrates the Data Sales and Marketing Unit are the fact that almost all the questions asked by the customers could be found in the IDX website, but they still must answer these questions while preoccupied with other task thus often delaying the respond to customer inquiries.

IDX is currently has developed an online portal called the "Data Service's Customer Information System or SistemInformasiPelanggan Data" (SIPD) which hopefully will solve their business issues. The purpose of this online portal is to make it easier for customers to find all information related to IDX Data Service products and carry out product purchase activities and monitor the details of the products they have purchased. Customers can also communicate with the IDX Data Service helpdesk, get the latest information regarding product promotions, report problems, and terminate subscriptions through SIPD easily. But they think this is not enough because there are still complaints regarding the helpdesk being not fast enough and many customers who do not get information regarding IDX data products. IDX is looking for other alternatives to boost their sales and marketing effort and Artificial Intelligence (AI) based Customer Relationship Management (CRM) implementation could be the feature that IDX need to help them increase their customer satisfaction, building better relationship with customers, and making a well targeted marketing strategy to increase sales. The combination of AI and CRM could enable enterprises to analyze data, automate processes and develop smart recommendations for action [5]. CRM, according to Baker and Hart (2016), is a management method utilizing information technology that aims to build, develop, and deepen relationships with precisely targeted customer to optimize marketing strategies, customer value, corporate profitability, and, as a result, shareholder value [6].

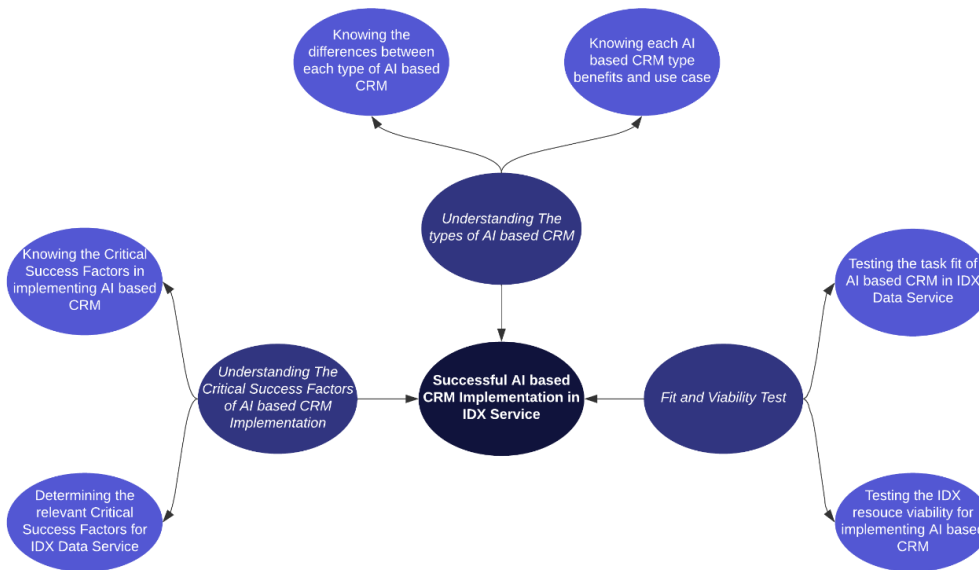
Understanding what type of AI application to implement could be crucial to help specific marketing related problems in an organization, because IT strategy such as AI based CRM Development is positively associated with marketing strategy [7]. Many studies have found that various aspects (such as automating routine tasks, recommendations, lead customization, virtual assistance, personalization services, and so on) are responsible for maximizing the potential of AI based CRMs in organizations. The AI based CRM implementation in an organization must be effective, employees must have the skills and competence to implement, manage, and fine-tune the system. The technological capabilities of the firm must also be favourable to a successful AI based CRM implementation [8]. There is still a lack of research in AI based CRM implementation for companies in the financial industry, especially stock exchanges and this research will provide some insights for stock exchanges on the technology fit and viability of AI based CRM. Moreover, this research will study the visibility and potential impact of implementing AI based CRM in IDX Data Service. There are three types of CRM that could be integrated with AI, which are analytical, operational, and collaborative. From these three types of AI based CRM, which of them solve sales, marketing, and customer relationship problems in IDX Data Service and what is the prerequisites for a successful adoption?

II. THEORITICAL FOUNDATION

2.1 Conceptual Framework

A conceptual framework is a diagram that illustrates how one theory connects to other theories in solving the business issue in this research. The Figure 2.1 bellow defines the conceptual framework used in this

final project to analyze IDX Data Service business issues, performing internal analysis, and suggesting AI based CRM implementation strategy.



2.2 Customer Relationship Management (CRM)

Customer Relationship Management (CRM) itself is as a series of business activities directed by strategy and backed by technology and processes, with the goal of improving business performance in a customer management area [8]. The business activities mentioned is mainly sales and marketing activities because it served as a central hub of customer information that could be used to develop business strategy with the goal of increasing solid and loyal relationships by optimizing client, partner, or supplier satisfaction via the use of intelligent management solutions [9]. There are 3 main types of CRM system based on functionality [10], namely:

- **Analytical CRM:** Analytical CRM is a system for managing and evaluating customer data to gain a better understanding of each customer and their behaviour. In this field, data warehousing and data mining solutions are common. A company collects data about its customer interactions or customer journey, builds a purchase affinity model, identifies potential clients, or leads, identifies most profitable customer segments, analyses customer affinities, automates communication actions, improves relevance and timeliness, collects user generated content or data, and increases customer satisfaction [11].
- **Operational CRM:** Operational CRM systems include solutions for sales force automation, marketing automation, and call center/customer interaction center management, all of which improve the efficiency of CRM business processes. Automation which could be provided by an operational CRM system could be summarize to automated Marketing, Sales, and Service [12]. Marketing automation allows companies to manage their marketing campaign by offering a personalized and relevant information or offers to a specific customer. Sales automation on the other hand ensure that companies sales activities receive support for administrative task and help analyze the reason why customers rejected a product or services offered by a company.
- **Collaborative CRM:** Customer engagement points and communication channels like as phone, e-mail, and the Web are managed and synchronized by collaborative CRM systems. The information exchange channels, and consumer interaction points are controlled and connected by this component. Collaboration CRM includes, among other things, communication via personal contact, email, company homepage, client portal, or calls and video telephony [12][13]. Collaborative CRM data is culled and shared to implement strategic, product, and customer analysis from cross-departmental customer interactions via chat, websites, email, and voice response systems, as well as to support a variety of back-office processes such as billing, invoicing, marketing, advertising, finance, and planning. The goal of collaborative CRM is to give the organization a consistent appearance and image across all communication channels with customers.

2.3 Artificial Intelligence (AI) based Customer Relationship Management (CRM)

The effectiveness of a CRM system could be enhanced by integrating artificial technology. Artificial Technology (AI). AI is a new wave of technologies that provide unique approaches in the commercial setting.

AI is a system's ability to analyze and learn from data, emulating human intellect [14]. There are two conditions why businesses should integrate AI into their CRM tools [15], which are:

1. There is a large amount of unstructured data to be analyze.

Digital data is categorized into structured data and unstructured data. Structured data is a well-defined, easy to organize database information such as dates, names, addresses, and credit card number. Unstructured data, on the other hand, refers to computerized information that either lacks a data model or has one that is difficult to use by a computer program because of its variability and unidentifiable internal structure [16]. Textual data, sound, video, images, webpages, logs, and emails could be grouped as unstructured data [16]. IBM Cloud Education stated their recent projection indicate that over 80% of all enterprise data is unstructured data [17]. Artificial intelligence helps in converting unstructured customer data into structured data using tools such as machine learning [15].

2. Increasing complexity of relationship.

As the number of transactions grows, corporate procedures and relationships get more complicated. This complexity makes it more difficult to comprehend company relationships and appropriately analyze client behavior. Artificial intelligence can aid here by enhancing the CRM function and giving accurate data [15].

By combining AI and CRM, it makes it possible to automate processes, analyze digital ecosystem, generate forecasting, and the conduct client behaviour's study using data analysis and customer experience algorithms [11]. AI-based CRM for B2B relationship management is beneficial since it aids in data integration and administration, allowing for data-driven decision making in the acquisition, development, and retention of clients or customers [18]. Paju (2020) specified from multiple interviews conducted to AI and CRM experts that the most common types of AI use cases in CRM are application for prioritizing leads, suggestions for action in customer interactions, product recommendation system, and customer service bot [19].

2.4 Critical Success Factors of AI based CRM

To successfully implement AI based CRM, companies must have adequate resources which includes human resources, organizational resources, and technological resources. Chatterjee, Ghosh, and Chaudhuri (2020) identified that there are at least 18 critical success factors (CSF) for the implementation of AI based CRM for a better knowledge management (KM) to improve a company's business process [20]. Meyliana, Hidayanto, and Budiarto (2016) also previously conducted research through a systematic literature review and manage to map and extract 31 Critical Success Factors of implementing CRM [21]. Few of the CSF in both researches are presented and explained in the table below:

Table 1. Critical Success Factors of AI-Based CRM Implementation

No	Factors	Explanation
1	Business value addition	The perceived value of implementing an AI based CRM system.
2	Overcoming resistance to change	New idea or system impediment.
3	Adequate security mechanism	Keeping data safe from illegal access.
4	Develop privacy policy	To keep the sensitive data for the new AI based CRM system confidential.
5	Supporting legal requirements	To use customer data in a legal manner and to act if and when data breaches occur.
6	Contribution of venture capitalists	Venture capitalists help to create high-tech sectors by investing in industries that are predicted to generate a profit, providing a return on investment for them.
7	Behavioral intention of the employees using new AI based CRM system	Employee motivation for a smooth transition to the new AI based CRM system.
8	Ease of use	Employees should be able to utilize the system without it being too complicated, as this will encourage them to use the new AI based CRM system on their own.
9	Enhancement of trust	Users and stakeholders must have faith in the new AI based CRM before using it.
10	Design and development of AI based CRM tool for better KM	The AI based CRM system for knowledge management should be built and developed in a scientific manner, with no flaws.
11	Adequate training and readiness for KM	Users should be appropriately trained to be able to utilize it without difficulty, and they should always be prepared to deal with any unforeseen circumstances.
12	Adequate fund allocation	Appropriate funding is required. Adoption should not be hampered due to a lack of funds.

13	Immediate Manager's Support	The immediate manager should pledge his full support for the AI based CRM system's effective implementation.
14	High-tech technical personnel	High-tech technical professionals with advanced technical skills play a critical role in encouraging AI based CRM tool adoption in enterprises.
15	Support of functioned area lead	The immediate functional area lead should unreservedly back the system's success.
16	Leadership support welcoming AI based CRM– KM integration	Success will not happen unless the leaders help the users in using the new system.
17	Simplicity to use the new AI based CRM–KM system and ease of use	The AI based CRM system should be simple and easy to use.
18	Driving adoption of AI based CRM–KM system in the organizations	The organization's entire action and process for effectively implementing the new AI based CRM system.
19	Clear CRM goals and objective	Goals and objectives must be clearly defined because they will influence the scope of the implementation project, as well as the project budget and length.
20	Company strategy fit	The emphasis is on having a clear definition of the CRM strategies that will be implemented, as well as ensuring that they are in line with the company's overall strategy.
21	Data mining and warehousing	The purpose of a data warehouse, in basic terms, is to establish a store of data that is produced by a company's system, accessible, and easily understood by people in order to support the company's operation. The data will be changed into consistent and integrated data after it is delivered to the warehouse. A repository system is typically built with an information summary, which makes finding and sorting easier. A company will have a complete and massive database if it creates a data warehouse. Data mining is starting to pay off at this point. Data mining will provide meanings to all customer information, both temporally and in terms of complexity.
22	IT structure and legacy system	The company must ensure IT competency, which includes efficient integration with legacy systems. Data can go missing if the system and the application are not adequately connected, because consumers' data and information must be accurate and thorough.
23	Project management	Controlling and optimizing the implementation timeline is crucial since delays will have an impact on the budget and resources available.
24	Technology adoption and selection (Technological Readiness)	The focus is on the company's readiness to provide and deploy CRM technology, which includes the process of selecting technology that is compatible with the company's business, infrastructure preparation, facilities, and technological adaption to the company's business process, among other things.
25	Monitoring or measurement of CRM performance	The emphasis is on supervising, monitoring, and developing measurement instruments that are used to assess CRM implementation success, the impact of the implementation on the firm, and the development of an appropriate feedback channel.
26	Customer engagement/relations	This factor emphasizes the growth of customer-company interaction and communication. As a result, a business will learn what, who, and how their customers are so that they can become loyal.

To simplify the critical success factors presented in the table above, the author tried to group the critical success factors based on the similar characteristics of each factor. The figure below shows the simplified grouped critical success factors:

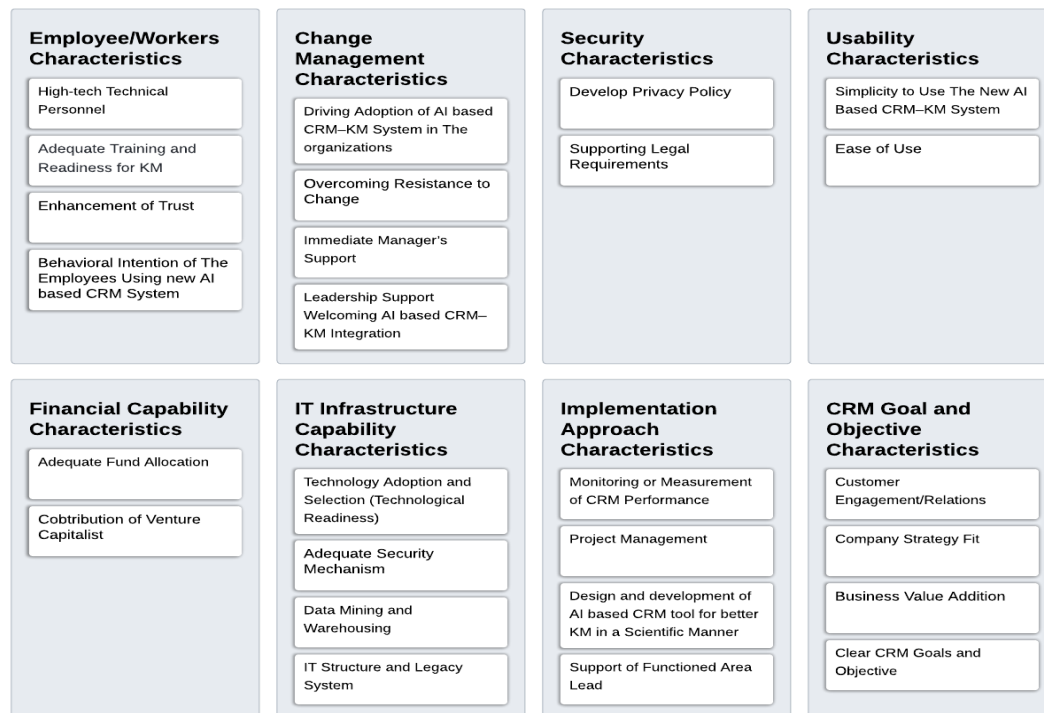


Fig 1. Simplified CRM Implementation Critical Success Factors

III. RESEARCH METHOD

Based on the conceptual framework, both primary data and secondary data collection are used as the method of this research.

a. Primary Data Collection and Analysis

Primary data collection will be done by Interview and Expert Judgement.

- Semi structured in-depth interview will be conducted in this research: The author will interview the Sales and Marketing Unit staff of IDX Data Service, Head of IDX Data Service Division, and IDX IT Staff to find out what kind of tasks or problems that could be help by the implementation of AI based CRM. Furthermore, this interview also aims to find out readiness of IDX Data Service resources which may include IT infrastructure, technology, manpower, organization, and economic, before implementing the selected type of AI based CRM.
- Fit and Viability research instrument by Liang et al. (2007) will be used in this research thus each interview question measured using a Likert-scale (1 = strongly disagree and 7 = strongly agree) to further conclude the AI based CRM technology fit and overall viability in implementing such technology in IDX Data Service.

b. Secondary Data Collection and Analysis

Secondary data collection will be done by conducting a literature review and observation of the current IDX Data Service marketing activities and existing online channel.

This research will use a modified research instrument based on Liang et al. (2007) Fit and Viability Model (FAM) [22] to find out the type of AI based CRM that fits with the current IDX Data Service sales and marketing condition as used by Paju (2020) research titled “AI in CRM Systems: Evaluating the Prerequisites for Successful Adoption” [19]. The goal of employing FAM is to gather evidence from interviews with company decision-makers and open data to evaluate various AI-based CRM strategies and their requirements for IDX Data Service. This research model not only determine a company’s task-technology fit for a specific IT application, but also their viability in implementing that technology. FAM is divided the fit to subconstructs of task and technology and viability to those of economic viability, IT infrastructure and organizational support for the project. Below is the visualization of the FAM framework:

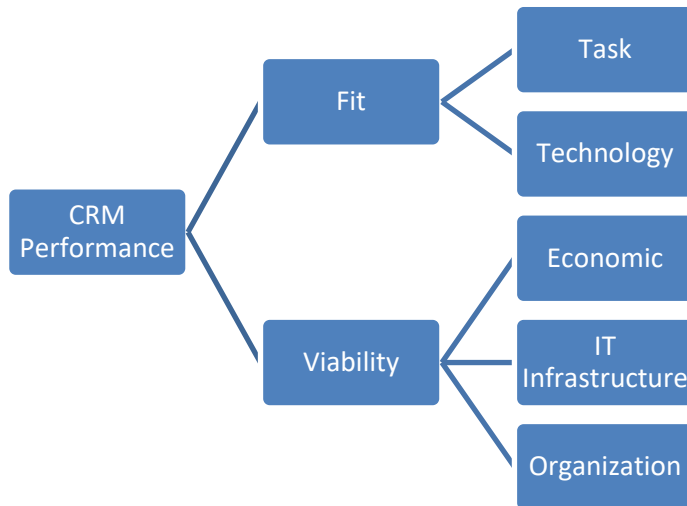


Fig 2. Fit and Viability Model Framework

In addition of gaining insights by interview with FAM, the model allows to map the fit and viability of a company to adopt a technology in a matrix visualized below. All indicators for measuring fit and viability use the Likert-scale (1 = strongly disagree and 7 = strongly agree). As argued by Paju (2020), this model could determine if AI based CRM is a good fit for a company, or they should find for alternative technology, organization restructuring in order to adopt the technology, or forget AI based CRM and other technology adoption all together [19].

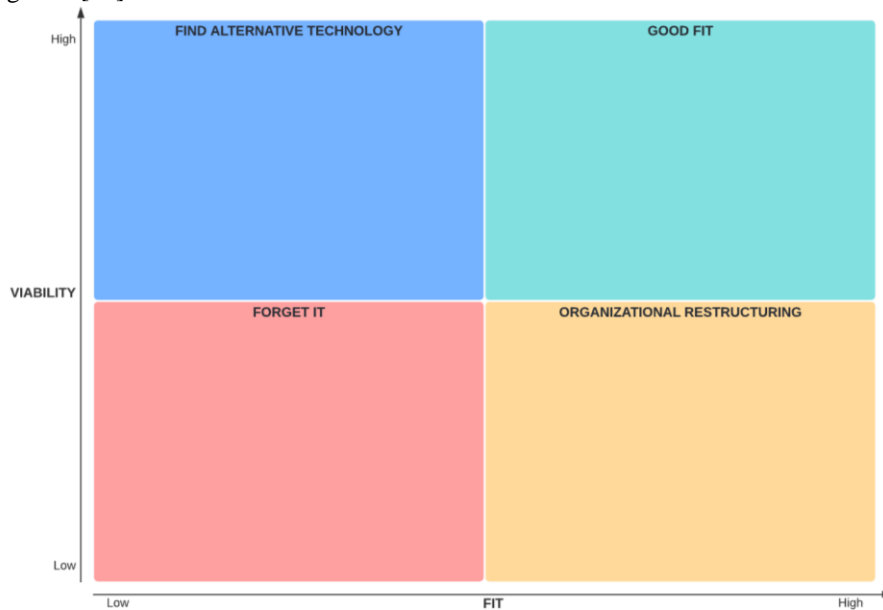


Fig 3. Fit and Viability Model Matrix

Each dimension of the FAM research instrument will be combined with the AI based CRM Critical Success Factors summarized by the author using literature review in the theoretical foundation section to measure and conclude if IDX Data Service resources are ready to implement the selected type of AI based CRM. The interview structure of this research will follow the construct and subconstruct of FAM as presented in Table 2.

Table 2. Modified Fit and Viability Model Interview Structure

<p>FIT</p> <p>Task Requirement (CRM Goals and Objective Characteristics)</p> <ul style="list-style-type: none"> <p>Analytical CRM:</p> <ol style="list-style-type: none"> Do IDX Data Service constantly needs to make decision based on collected customer data? As of now, do IDX Data Service can acquire sufficient customer data to make strategic marketing decision? (For example, the company can see which kinds of companies usually buy from them and what types of customer relationship activities are most effective).
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3. In terms of customer engagement/relation, do IDX Data Service experienced a growth in company-customer interaction and communication each month?

• **Operational CRM:**

1. Do the IDX Data Service Sales and Marketing Unit’s tasks include repetitive steps that could be automated for better efficiency? (Administrative task, Customer service task, marketing task, contact management, etc.)
2. Do the IDX Data Service consider personalized marketing important? If so, what kind of personalized marketing efforts done so far?
3. Do IDX Data Service staffs constantly deal with customer inquiries or customer service activities daily?

• **Collaborative CRM:**

1. Do IDX Data Service utilized multiple online channels for customers to learn, ask, and acquire the product?
2. Do IDX Data Service share cross-departmental customer interactions via chat, websites, email, and voice response systems, as well as to support a variety of back-office processes such as billing, invoicing, marketing, advertising, finance, and planning?

Technology Characteristics

1. Does AI based CRM allow the user or IDX Data Service staff to make better decision?
2. Does AI based CRM promote efficiency by enable the same work to be done with less resources?

VIABILITY

(1) Economic

• **Project Budget (Financial Characteristic):**

1. Does the IDX provide adequate fund allocation for commissioning the AI based CRM technology?
2. Does the IDX provide adequate fund allocation for maintaining and using the system?
3. Is there any contribution of venture capitalists or investors, if IDX wanted to adopt the AI based CRM technology?

• **Asset Specificity:**

(i) Physical Asset Specificity:

1. Does the adoption of AI based CRM in IDX Data Service need to obtain special hardware/software?
2. Does the use of AI based CRM in IDX Data Service will reduce the need for physical asset on-hand?

(ii) Human Asset Specificity (Employee/Worker, Change Management, Usability Characteristics):

1. Can users (IDX Data Service Staffs) use AI based CRM to better perform with no need of more training and how fast for them to get familiar with the new technology?
2. Do IDX usually have an implementation partner when taking on new IT solutions?
3. Does the adoption of AI based CRM in IDX Data Service need to hire employees with special expertise?
4. Do IDX Data Service staffs have the resources, for example working time, to commit to development and upkeep of the AI based CRM?

(iii) Brand Specificity:

1. Do you think the adoption of AI based CRM affect the value of the IDX Data Service brand and partnerships?

• **Uncertainty (Change Management Characteristics):**

1. Is there a frequent of change in the IDX Data Service environment and the business process?
2. Do IDX Data Service used to this frequent of change?

• **Frequency:**

1. Is the task that possibly supported by the AI based CRM a frequent activity of the IDX Data Service?
2. Does the executor of the task need to use possible data provided by AI based CRM for information or decision frequently?

*Asset Specificity, Uncertainty, and Frequency could be combined into one subconstruct called transaction cost.

(2) IT Infrastructure

• **Software and Hardware (IT Infrastructure Capability and Security Characteristics)**

1. Does IDX Data Service have previous experience from AI implementation? How about in a CRM context?

<ol style="list-style-type: none"> 2. Does IDX have adequate hardware for operating the AI based CRM system? 3. Does IDX Data Service have existing capabilities to analyze customer data? 4. As of now, what types of access do the IDX Data Service Staffs have to the CRM system and its modules? <ul style="list-style-type: none"> • Data Management (IT Infrastructure Capability and Security Characteristics) <ol style="list-style-type: none"> 1. Do IDX have guidelines for collection and managing the security of data that would be used in the CRM system? 2. Do IDX Data Service have a customer data source from any of its channels? • The Competence of IS Staff (Employee/Worker and Implementation Approach Characteristics) <ol style="list-style-type: none"> 1. Would the person in charge or project manager from IDX Data Service have experience any previous IT implementation projects? How about implementation of AI based CRM applications? 2. Have IDX Data Service studied the best practices for reducing user resistance? 3. Are the IDX Data Service staffs and IDX IT staffs experienced in initiating, monitoring progress, and maintaining any technology applications? 4. Does the IDX have a good outsourcing partners/third party developer for IT system projects?
<p>(3) Organization</p> <ul style="list-style-type: none"> • Process Reengineering (Change Management and Implementation Approach Characteristics) <ol style="list-style-type: none"> 1. How large do you see the scope of process re-engineering due to implementation of AI based CRM application to be in IDX Data Service and other connected IDX divisions? • User Competence (Employee/Worker and Change Management Characteristics) <ol style="list-style-type: none"> 1. Do the IDX Data Service staffs have a good understanding of the AI based CRM application? 2. How do you expect the IDX Data Service staff's motivation to accept the AI based CRM application to be? 3. How do you expect the IDX Data Service staff's efficacy to use the AI based CRM application to be? • Top Management Support (Employee/Worker and Change Management Characteristics) <ol style="list-style-type: none"> 1. Does the implementation of a potential AI based CRM application have the support of the key executives or leaders of IDX Data Service division and IDX organization in general? 2. Do key executives in the corporate headquarter participate in the project decision? 3. Do key executives in the corporate headquarter assigned members into the project team? 4. Do key executives in the corporate headquarter appropriate adequate budget to finance the project?

Table 3. Interviewee from Indonesia Stock Exchange

Name	Henry Radithyo	Lulu Meutia	Dimas Adhikoro	Dira Ayu Meigasari
Interviewee Code	Interviewee 1	Interviewee 2	Interviewee 3	Interviewee 4
Job Title	Head of Data Service Division	Head of Data Sales & Marketing Unit	Data Sales & Marketing Unit Officer	Information Technology (IT) Officer
Experience	23 years	7 years	1.5 years	1.5 years

One strategy to conduct interviews, according to Elliott & Jankel-Elliott (2003), is to focus on samples that appear likely to produce rich and relevant data or who may have specialist knowledge [23]. Therefore, for this research, the author has chosen four respondents for the interview which consist of three respondents from the IDX Data Service division and one respondent from the IDX IT division. Each respondent will help to rate every dimension of the AI based CRM Fit and Viability research instrument to determine if Indonesia Stock Exchange should adopt AI based CRM.

The original research conducted by Liang et al. (2007) used the FVM towards companies who are already or on the early stage on adopting a technology mentioned in that research which is mobile solution [22]. Paju (2020) further argued that FVM also has the potential value for companies who looked for technology solutions for their business process [19]. Hence, the proposed research model is applicable for companies that have not yet adopt AI based CRM technology. In this context, Indonesia Stock Exchange.

IV. RESULT AND DISCUSSION

The findings regarding the suitability of CRM System Types from the interview conducted to 4 interviewees in the IDX is presented in Table 4.

Table 4. Interviewee from Indonesia Stock Exchange

CRM System Type	Henry	Lulu	Dimas	Dira	Average Score
Analytical AI based CRM	5	6.3	5	6	5.57
Operational AI based CRM	6.3	7	6.7	7	6.75
Collaborative AI based CRM	7	6.5	7	7	6.87

It can be concluded that the type of AI based CRM system that is most suitable for IDX Data Service task requirements is Collaborative AI based CRM that scores an accumulated average of 6.87. The respondents of this research stated the importance of having Collaborative AI based CRM in IDX Data Service with two main reasons. First, IDX Data Service has multiple online channels to interact with their existing and potential customers. It is very important for them to compile of these customer data which IDX didn't have that capability right now. By acquiring more customer data, IDX Data Service could do better customer analysis and customer targeting. The second reason is that IDX Data Service always interact with other IDX departments or divisions in their daily business process and because there are lots of information being exchange, they felt the need to record this data, especially if it's related to customer.

Operational AI based CRM is the second suitable CRM type when it comes to IDX Data Service because of the repetitive administrative and customer service task that the division must deal with every day. The average score accumulated from all the interviewee is 6.75, which is not far off Collaborative AI based CRM. Currently the IDX Data Service is struggling with their customer service inquires and answering them one by one would take a large portion of their daily working time. Many of these inquiries are left unanswered for days and causes the customer or licensee satisfaction rating of IDX Data Service quite low. The help of chatbot and integrated customer service using AI based CRM could help IDX Data Service staffs to keep up with customer inquiries and reduce response time. The possibility of automation provided by an Operational AI based CRM also will help IDX Data Service in completing their administrative task more efficiently, such as taking care of application forms and billing for customers. IDX Data Service Sales and Marketing Unit staffs are currently struggling in promoting their product to their target customer, features such as personalized marketing automation will potentially help them with this issue. The reasons mentioned above is mainly why the interviewee consider Operational AI based CRM would be a great system to implement.

Analytical AI based CRM has the lowest accumulated average score of 5.57 compared to the rest of the CRM type based on IDX Data Service's task fit. Although all of the interviewees agree that analytics features provided by an Analytical AI based CRM is important and would be very helpful in improving their sales and marketing performance, according to Henry and Lulu, the IDX Data Service currently didn't have sufficient customer data in order for the system to work effectively. Their customer data base still needs to be fixed and updated so that an Analytical AI based CRM system can work properly. Moreover, the number of IDX Data Service customer are only 300, because they only serve businesses which in the interviewee's opinion are still manageable and not yet require the help of Analytical AI based CRM. But the interviewee also realizes that when IDX Data Service goes retail and selling their data to personal customers (B2C), the customer data that could be obtained and analyzed will increased significantly. Therefore, they are still considering implementing Analytical AI based CRM in future times when they have a solid customer data based and a significant increase of customers.

Table 5. Interviewee from Indonesia Stock Exchange

Construct	Item	Henry	Lulu	Dimas	Dira	Accumulated Average Score	
Viability	Economic	Project Budget	4	4.3	5.7	4.3	
		Transaction Cost	6.1	5.5	6	5.4	
	Scores		5.05	4.9	5.8	4.8	5.16
	IT Infrastructure	Software and Hardware	5.75	4.5	5.75	5.5	
		Data Management	7	6	6.5	6	
		Competence of IS Staffs	6.75	5.5	6.75	6	
	Scores		6.5	5.3	6.3	5.8	5.8
	Organization	Business Process Reengineering	7	6	7	6	
		User	6.7	5	5.7	5.7	

		Competence					
		Top Management Support	6.5	6.25	6.75	6	
	Scores		6.7	5.75	6.5	5.9	6.05
Total Scores			6.1	5.32	6.2	5.5	5.67
Fit	Analytical AI based CRM Fit		5	6.3	5	6	
	Operational AI based CRM Fit		6.3	7	6.7	7	
	Collaborative AI based CRM Fit		7	6.5	7	7	
	Technology Fit		7	6	6.5	7	
Total Scores			6.3	6.5	6.3	6.75	6.51

The fit and viability constructs, which are represented graphically in the fit-viability framework, are formed by the specified values for subconstructs, as shown in Table 4, Table 5, and Figure 4. The findings can be used to evaluate the effectiveness of the initiatives that were studied (Liang et al., 2007), as well as the efficacy of certain of the IT system [22]. The aim of this research is to find out the right AI based CRM system that suits IDX Data Service business needs and determine if IDX Data Service resources could match the requirement of implementing a successful AI based CRM system. The development of the fit-viability model is intended to analyze the prerequisites for implementing the AI based CRM applications and the results should support that for the test to be successful.

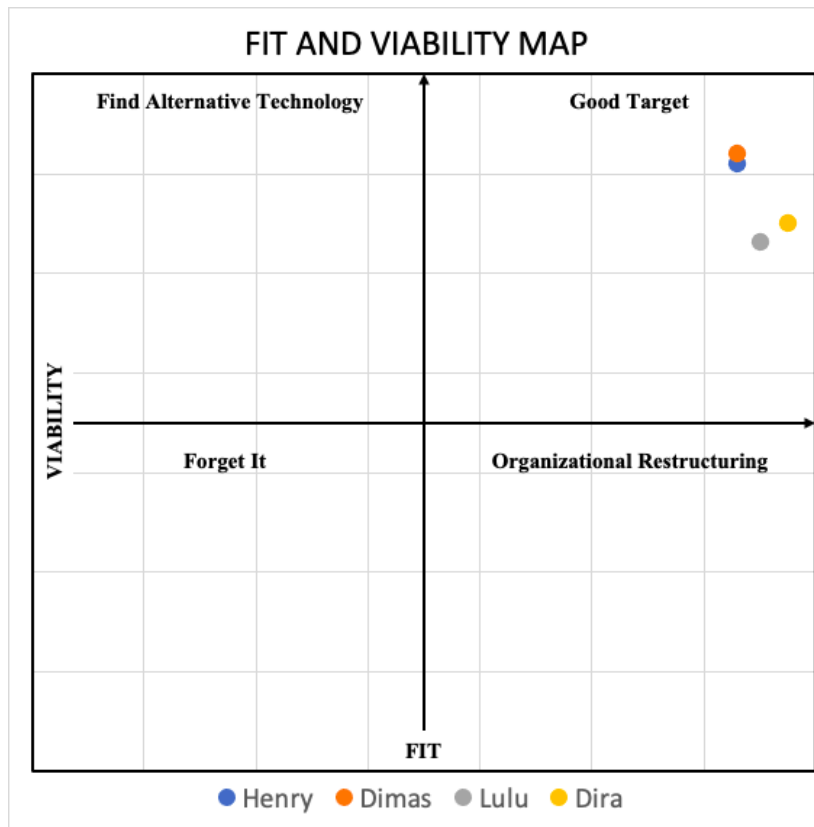


Fig 4. Fit and Viability Map

If we look at Table 5 and Figure 4, we can conclude that IDX viable to adopt any type of AI based CRM technologies. The dots in the Fit and Viability Map represent the views of the interviewees in the suitability of IDX to implement AI based CRM and their resource capabilities in implementing the technology. All the dots are in the first or “Good Target” quadrant, which means AI based CRM is the right technology for IDX Data Service to invest in if they wanted to enhance their sales and marketing performance. The viability of implementing AI based CRM in IDX Data Service was assessed by interviewees through 3 constructs, namely Economic, IT Infrastructure, and Organization. Within the three constructs, there are sub-constructs which are a collection of critical success factors for the implementation of AI-based CRM. Referring to Table 5 Economic has an accumulated average score of 5.16, which indicates IDX has the adequate economic resources in adopting this technology. IT Infrastructure has an accumulated average score of 5.8, this shows that the IT

infrastructure and IT project experience that IDX currently has, both in hardware and software context, is enough to support an AI based CRM system. Lastly, Organization has an accumulated average score of 6.05, which proves that the top management of IDX and business environment of IDX Data Service are very supportive in technology implementation such as AI based CRM.

V. CONCLUSION AND DIRECTIONS FOR FUTURE RESEARCH

5.1 Conclusion

This study has developed a review that has tested the technological fit and viability of implementing AI based CRM to improve sales and marketing activities for B2B, in this case Indonesia Stock Exchange. The result of the internal analysis using the Fit and Viability Model shown that it is visible to adopt technology such as AI based CRM in a Stock Exchange to help enhance and automate sales and marketing activities. The Fit and Viability Model uses the users of the technology and organization resource point of view to determine whether a technology is suitable for implementation in an organization and its business environment.

From the accumulated average score, it can be said that all types of CRM systems are suitable to be implemented on the Indonesia Stock Exchange, but if sorted from technological fit and needs of the users, Collaborative CRM is in first place, then Operational CRM, and lastly Analytical CRM. Indonesia Stock Exchange can only implement one type of CRM, or they can implement all types of CRM but gradually (in stages). However, it is highly recommended for the Indonesia Stock Exchange to implement all types of AI-based CRM systems to create a complete CRM system ecosystem and take advantage of all the features offered by each type of CRM system.

Indonesia Stock Exchange as an organization strongly supports digitalization to improve its business performance. From the results of the viability analysis score, it can be concluded that the company's resources are more than sufficient to implement AI based CRM. This can be seen from the scores of each Economic, IT Infrastructure, and Organization subconstruct. It's up to their Top Management to decide when and how they are going to adopt the AI based CRM system.

5.2 Theoretical Implication

This study has identified a set of simplified Critical Success Factors (CFS) for a successful AI-based CRM implementation that could be used in conjunction with other research methodologies, such as the Liang et al. (2007) Fit and Viability Model, to fill a research gap and assess the readiness of AI based CRM implementation in a B2B context. In this manner, the study adds to the body of knowledge by providing discussion and suggestions for further research into the problems raised by the research topic and objectives. Future researchers can use the study's findings as a starting point for their research into AI based CRM and other types of B2B CRMs.

This research also helps to advance the study of B2B AI based CRM, which is still understudied in the literature and is especially important for the implementation of AI based CRM in organizations such as the Stock Exchange. Additionally, the evaluation of a successful AI based CRM implementation provided in this study serves as the foundation for future research that aims to increase the contributions that AI-based CRM is suitable not only for B2C but also B2B ecosystems.

5.3 Managerial Implication

The utilization of AI based CRM in businesses is becoming increasingly common in today's technology dependent business environments. Companies that are interested to adopt AI based CRM or other similar technology, can use this research to understand, analyze and explore the visibility of implementing such technology and the possible uses and benefits that the application of AI based CRMs can bring to enhance their marketing strategies.

Managers and executives of companies in the B2B sector can comprehend the functioning of B2B AI based CRM and gauge the significant influence that these technologies can have on their respective business ecosystems. Additionally, the various applications, methods, and future directions suggested in the study can assist businesses in improving decision making in this field of operation. Companies can obtain a glimpse of and suggestions for the kinds of actions they can take in this area using these exploratory findings. Finally, the functionalities offered by AI based CRM can help managers in making better decision with the insights gathered from customer data to enhance their marketing strategy and automate their sales and customer service activities for a more effective and efficient business operations.

5.4 Future Research

This research only focuses on evaluating the prerequisites for successful AI based CRM implementation in IDX Data Service from an internal point of view by using the Fit and Viability model. The instruments and methods used in this research could be implemented in other Stock Exchanges or in a company from a different industry to determine the suitability and readiness of resources to implement AI based CRM.

The Fit and Viability model should be tested in the same context but in a different business environment as the first step in building on this research in future studies. The specific AI based CRM systems

and case organizations, for instance, can differ from B2B businesses in other stock exchanges or in other industries. The Critical Success Factors (CSF) for each individual AI based CRM type can also be reviewed and modified to improve the research instrument's ability to assess the task-technology fit and viability of the AI based CRM system types separately. Every stock exchange has a different business environment thus in order to implement AI based CRM successfully, the CSF that influence the success of technology adoption might differ to one another.

Moreover, sample size can be raised, and different research methodologies can be applied in future studies. For instance, a mixed technique approach combining semi structured in-depth interviews and a customer survey may offer the analyst even more insights for other companies when planning to adopt AI based CRM system. Customer surveys can give companies a broader picture regarding the need for AI based CRM features that need to be adopted to improve customer service performance and a company's marketing strategy.

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**Corresponding Author: Ananda Budi Subagja¹*

¹(School of Business Management, Institut Teknologi Bandung, Indonesia)