

Enhancing the Competitiveness of Small and Medium Enterprises (SMEs) Through the Implementation of Sustainable Customer Relationship Management Strategies

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ABSTRACT

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This study aims to analyze user satisfaction with ADINUSA e-learning services through the Customer Relationship Management (CRM) approach with the ADO (Antecedents, Decisions, Outcomes) framework. Data were obtained from user reviews and ratings, which showed that 86.5% of users were satisfied, while 13.5% indicated dissatisfaction. Thematic analysis identified six main issues that affect user satisfaction, namely material quality, assignments, system errors, language, mentoring, networks, and prices. The most dominant problems were related to materials, followed by technical constraints and the use of language that was less appropriate to the needs of novice users. The implementation of a structured and responsive CRM strategy has proven effective in increasing user satisfaction and loyalty. The concept of Sustainable CRM (SCRM) is also considered relevant in supporting the sustainability of digital learning services. These findings recommend the need to improve the quality of materials, technical improvements, and the presentation of more adaptive and sustainable services in order to maintain the platform's competitive advantage amidst the competition in the e-learning industry.

1. INTRODUCTION

Customer Relationship Management (CRM) is an emerging business management technology that combines customer-centric information management to improve organizational performance and allow businesses to make more informed decisions. Customer relationship management and its impact on entrepreneurial marketing: a literature review. Furthermore, CRM enables businesses to systematically assess and manage the various stages of the customer-business interaction. These stages include establishing or re-establishing customer relationships, maintaining customer relationships by managing relationship duration and increasing customer value, and managing relationship termination, all of which contribute to long-term business success and customer satisfaction. Customer relationship management and firm performance: the mediating role of business strategy. As organizations see the strategic benefit of efficiently managing customer interactions, the adoption of CRM solutions has become especially important for small and medium-sized enterprises (SMEs) looking to stay competitive. Building on this, the adoption and implementation of CRM systems in SMEs leads to significant increases in financial performance and operational efficiency. Improved whole customer experience results in higher levels of customer satisfaction, which enhances corporate profitability. The effect of customer relationship management (CRM) dimensions on hotel customer's satisfaction in Kashmir.

The factors that influence profitability in most companies are significantly influenced by customer identification, acquisition, and analytics, which are essential components of CRM. Implementing good CRM techniques improves the ability to attract and retain customers, resulting in increased customer loyalty and long-term economic success. The effect of customer relationship management (CRM) on business profitability in Jordanian logistics industries: The mediating role of customer satisfaction. To improve user experience and solidify its place in the online course market, Akademi Digital Nusantara (ADINUSA), an online learning platform specializing in IT infrastructure and programming, has adopted a number of CRM tactics. Since its establishment in October 2020, ADINUSA has aimed to bridge the gap between formal education and industry needs. The platform offers various training programs, including Courses, Bootcamps, ADINUSA Pro Training, and ADINUSA Pro Talent. By utilizing a structured learning roadmap and hands-on lab methods, ADINUSA strives to provide a more in-depth and applicable learning experience for users. This makes CRM a key factor in ensuring that users gain optimal benefits from each program offered.

Based on user data, the majority of ADINUSA users are interested in IT Infrastructure, with some also coming from a Programming background. The primary motivation for users choosing ADINUSA is its beginner-friendly materials, structured learning roadmap, and flexible access to content. Additionally, ADINUSA's CRM strategy encompasses various aspects, including content development aligned with industry needs, reminder features to encourage course completion, recommendations for advanced courses, and competitive pricing strategies to remain accessible for students and fresh graduates.

From a platform development perspective, ADINUSA continuously enhances its features to improve user experience, such as a more refined UI/UX design, course recommendations based on user interests and learning history, and advancements in the Learning Management System (LMS). In terms of marketing, ADINUSA leverages word-of-mouth promotion through recommendations from seniors, lecturers, and colleagues, while also utilizing social media and educational content on platforms like YouTube and Google to increase its visibility. Through the successful implementation of CRM, ADINUSA hopes to preserve and improve user loyalty by offering a more tailored and pertinent learning experience, comprehending the needs and background factors that led the user to select digital learning platforms, identifying issues and unmet needs while using ADINUSA's LP and LMS, and creating an action plan for product development from the viewpoint of the user.

Based on the majority's need for digital transition to improve customer interaction, this study tries to leverage that problem utilizing CRM to strengthen the traditional market economy. One option for overcoming the issue is to use Sustainable Customer Relationship Management (SCRM). SCRM prioritizes both profitability and sustainability, incorporating environmental, social, and economic implications into customer-oriented business operations, and encouraging communication of corporate sustainability initiatives to consumers, thereby increasing brand value among environmentally conscious customers. This strategy is inspired by three primary factors, such as a growing emphasis on sustainability within companies, technological developments, and an expanding number of responsible customers seeking sustainable alternatives. The effect of customer relationship management (CRM) on business profitability in Jordanian logistics industries: The mediating role of customer satisfaction. The researcher proposes integrating and adapting the three major SCRM factors as a systematic approach to upgrading and revitalizing Bandung's conventional market. The conventional Bandung market is expected to profit from the implementation of SCRM concepts, which will boost customer engagement, operational efficiency, and long-term business viability.

2. LITERATURE REVIEW

2.1 Customer Relationship Management (CRM)

Customer Relationship Management (CRM) is an innovative technology that strives to improve customer pleasure, loyalty, and profitability via the establishment and maintenance of effective connections and interactions [1]. This goal is reached by utilizing customer interaction data, which is then processed with technical assistance to produce a long-term, beneficial customer experience [2]. Organizations can optimize complete relationship management by using CRM as a cross-functional, customer-oriented approach supported by technology, resulting in long-term business growth [3]. Furthermore, CRM is a basic company strategy that is linked into numerous organizational aspects. CRM automates a substantial amount of business activities from an operational standpoint, while analytics allows for the use of customer data to enhance more targeted marketing and sales campaigns. Companies can use this method to more successfully find, attract, and keep high-value clients by sustaining long-term relationships, hence increasing market competitiveness [4].

2.2 Sustainable Customer Relationship Management (SCRM)

CRM has experienced a profound evolution from 2000 to 2020, transitioning from traditional customer-centric frameworks to innovative strategies that prioritize sustainability. Initially, companies harnessed digital technologies solely to enhance customer engagement and secure competitive advantages. However, by 2020, a marked shift occurred as consumer awareness and elevated market expectations drove the integration of social, economic, and environmental considerations into CRM practices. This strategic transformation has empowered organizations to not only maintain a strong customer focus but also to foster long-term value creation, achieving a dual objective of competitive advantage alongside corporate sustainability [5]. In this dynamic landscape, SCRM has emerged as a critical paradigm, merging established CRM practices with the capabilities of the digital marketplace to optimize client relationship management. To thrive in today's competitive environment, organizations must wholeheartedly embrace socially responsible and environmentally sustainable practices while simultaneously delivering corporate value and nurturing robust customer relationships. [5] Achieving sustainable corporate and customer relationships requires a comprehensive approach that integrates four key dimensions, such as customer orientation, knowledge management, organizational structure, and technology. Organizations that prioritize stakeholder needs, invest in service quality, and adapt to shifting consumer expectations enhance performance and long-term sustainability. Effective knowledge management drives innovation and informed decision-making, while a well-structured CRM framework fosters collaboration and resource allocation to strengthen customer ties. Additionally, technology-driven CRM solutions boost brand loyalty, expand marketing reach, and improve operational efficiency. By harmonizing these elements, organizations can enhance resilience and secure a competitive advantage in today's challenging marketplace [6].

2.3 Antecedents, Decisions, Outcomes (ADO) Framework

Paul and Benito (2018) developed the ADO framework, which uses the letters 'a' for antecedents, 'D' for decisions, and 'O' for outcomes [7]. The first component is antecedents, pertains to the internal motivations and external factors that shape an individual's likelihood of engaging in or refraining from a specific action. The second component is Decisions, serves as a vital mediator that links antecedent factors to the resulting behaviors, thus playing an influential role in the decision-making process. Lastly, Outcomes represents the empirical evaluation of the effectiveness of these actions, delivering both quantitative and qualitative assessments that clarify the actual outcomes of consumer behavior. [8] and [9] each of the components have different main points, such as;

1. Antecedent decisions are made in terms of communication, coolness, and connection. Furthermore, this component includes factors that influence brand perception, such as scarcity, stability, nostalgia, and brand virtuousness.
2. Maintaining brand heritage, strengthening place ties, adhering to fundamental values, and downplaying economic objectives are all part of communication tactics for style consistency. These strategic decisions result in crucial brand outcomes like a trust, loyalty, perceived quality, and cultural iconicity.
3. Credibility, the mitigation of brand problems, and increasing consumer willingness to forgive all help to build brand trust.

The figure below illustrates the relationships and key metrics connected with each component of the ADO framework. It intently establishes the relationships between the three components, highlighting the key elements that influence and define each phase of the framework.

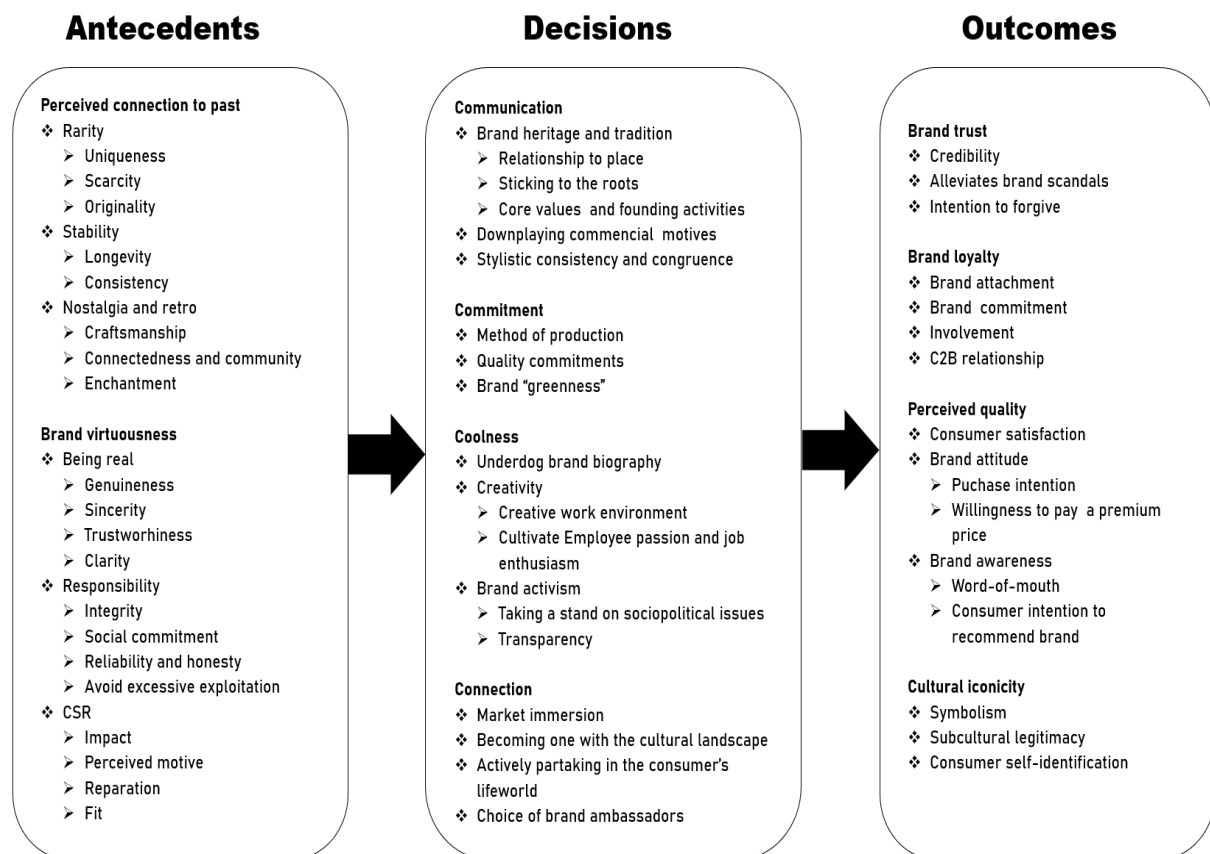


Figure 1. ADO Framework Concept for Sustainable CRM

2.4 Data Analysis and Classification

Data Analysis Process consists of some parts. Diagnostic Analysis is an effective strategy that finds the reasons of specific outcomes by studying patterns in statistical data. This strategy enables firms to identify behavioral trends and adapt previous remedies to similar future situations [10].



Figure 2. Data Analysis Process

The process began with a clear understanding of the purpose behind the analysis—clarifying the reasons for conducting it and the intended outcomes. This foundational step helps maintain focus and direction throughout the analytical process. The next phase involved data collection from multiple relevant sources, aimed at addressing research problems, testing hypotheses, or evaluating outcomes. Following data collection, a data cleaning process was implemented to correct common issues such as missing values, input errors, and inconsistencies. Once the data was cleaned, a data classification step was performed to group the information into meaningful categories relevant to the research focus. This classification enhances the efficiency of the subsequent analysis. The cleaned and categorized data was then analyzed using either quantitative or qualitative techniques, depending on the chosen methodological approach. The final step involved interpreting the analysis results to extract key insights that could inform decision-making or offer practical solutions to the research problem.

3. RESEARCH METHODS

This study employs the Design Science Research Methodology (DSRM), which emphasizes three key components, such as critically analyzing the root problem and validating the proposed solution, designing artifacts to support practical solution development, and re-evaluating these artifacts to ensure their effectiveness. This study employs the Design Science Research Methodology (DSRM), which emphasizes three key components, such as critically analyzing the root problem and validating the proposed solution, designing artifacts to support practical solution development, and re-evaluating these artifacts to ensure their effectiveness. Therefore, DSRM is commonly used in information systems research, integrating different fields. The process is based on two main theories: conceptual theory (kernel theory), which emphasizes the importance of literature reviews in comprehending the problem, and design theory (prescriptive theory), which focuses on the structured production of artifacts to address the identified concerns [11]. This Image below shows step by step for implementing DSRM methodology.

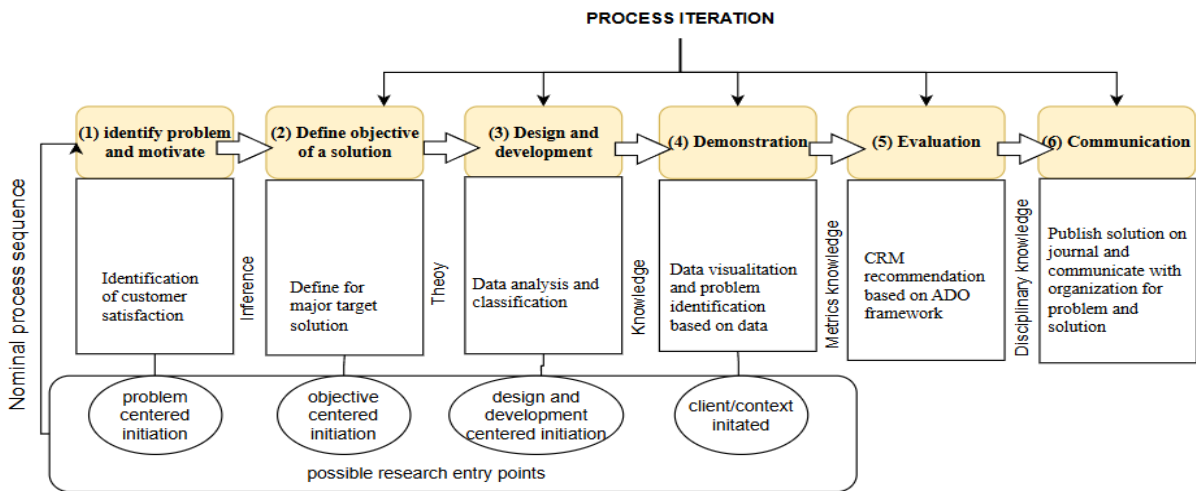


Figure 3. Research Methodology using DSRM

4. DISCUSSION AND RESULT

Researchers classified user comments on the company's e-learning offerings. A total of 1303 respondents provided comments, feedback, and ratings on the services given. The graphic below depicts the percentage of customer satisfaction levels based on ratings ranging from 1 (extremely dissatisfied) to highly satisfied.

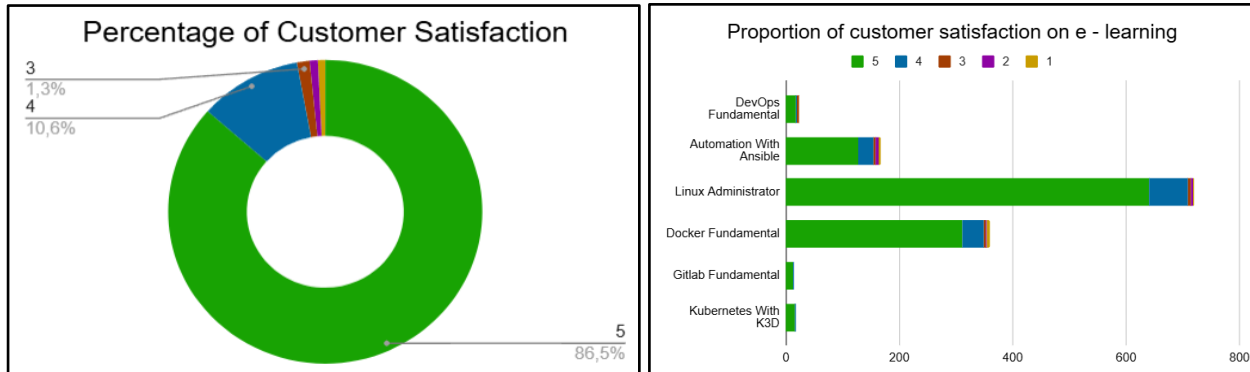


Figure 4. Graphic Above Shows The Percentage of Consumer Satisfaction Level on The Left And on The Right.

According to the image of consumer satisfaction above, up to 86.5 percent of customers expressed pleasure with the e-learning offered and awarded a 5-star rating. However, up to 13.5 percent expressed discontent, with the proportion of dissatisfaction for four stars as high as 10.6 percent, 3.2 stars, and one as high as 1.3 percent. Furthermore, the image of the proportion of customer satisfaction levels for e-learning depicts the most popular courses from highest to lowest level, namely Linux administrator, Docker Fundamental, Automation with Ansible, DevOps Fundamental, Gitlab Fundamental, and Kubernetes with K3D. Based on numerous of these courses, the following is a taxonomy of the difficulties that occur. Based on user feedback from numerous of these courses, the following is a taxonomy of the issues that arise.

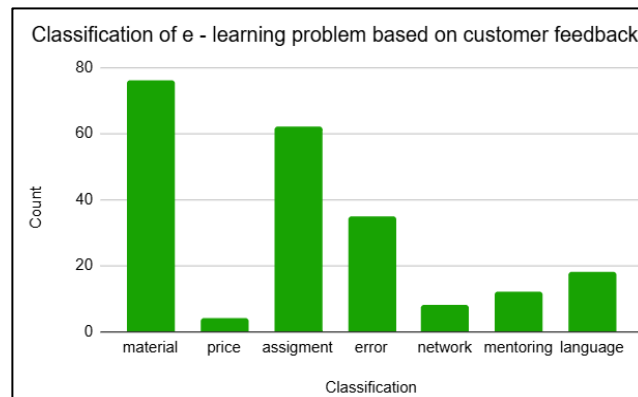


Figure 5. Classification of problems in e-learning

The picture above divides e-learning problems into six categories. Materials, tasks, errors, language, mentoring, network, and price rank greatest to lowest in terms of problem severity. Each category offers information on difficulties that the company must address, as shown in the table below.

Table 1. Details Of Problems in E-Learning

Type	Feedback Category	Description
Language	Language Barriers	The majority of responders considered the course content difficult to grasp owing to the usage of English, and requested an Indonesian version.
	Language Too Formal or Technical	The terminology used was judged to be extremely strict or technical, limiting comprehension.
Error	Technical Bugs & Errors	Bugs, system issues, or modules/labs that are not working properly.

Cost Content	Assessment / Grading Issues	Issues with automatic grading, missing scores, ambiguous criteria, or the necessity for manual verification.
	Access & Tool Limitations	Issues with login, the nusactl utility, or lab accessibility.
	Need for User Support	Requests for customer service or support channels due to technological issues.
	Platform-related Issues	General technical concerns concerning the Adinusa platform.
	General Mismatch	Feedback expressing incompatibility or discontent, generally lacking particular technical information.
	Cost-related Complaints	The course was considered as pricey or overpriced.
	Assignments & Discussions Enhance Understanding	Assignments and discussions were regarded as useful for reinforcing comprehension.
	Need for Extended Practice	Suggestions for additional hands-on practice or ongoing help following course completion.
	Content Quality	The content was considered as vague or unsatisfactory.
	Lack of Practical Teaching Methods	Difficulty conceptualizing the subject highlights the importance of hands-on demonstrations.
Mentoring	Access Duration	Concerns about limited access (only one year) as opposed to lifetime availability.
	Content & Methodology Quality	Good substance, but missing case studies, practical examinations, and regular updates.
	Interactive Teaching Methods	Ideas for more interactive learning approaches, such as conversations, activities, and projects.
	Need for Interaction & Practical Projects	A need for more direct connection and participation in hands-on tasks.
	Language & Scheduling in Mentoring	Concerns about the language of education and mentorship arrangements.
Network	Media & Instructional Quality	There is a need for increased quality in video or live mentoring sessions.
	Practical & Guidance Support	Requests for additional assistance during practical sessions or difficulties; mentors are expected to be more proactive.
	Direct Interaction Media	Preference for real-time interactive systems like Zoom meetings.
	Software Compatibility (VMware)	Issues with the network or interface when using VMware.
	Technical Support Needs	Requests for assistance due to technological issues.
Assignments	General Technical Issues	There are numerous technological limits and faults.
	System Inconsistency	Grading outcomes are inconsistent across devices.
	Internet Connection & Access	A stable internet connection is essential to effectively complete the course.
	System Security	There is no HTTPS protocol or DDoS protection.
	General Training Feedback	Overall feedback on the training curriculum, including teacher recommendations and suggestions for enhancements.
	Difficulties in Assignments/Quizzes	Feedback regarding difficulties in completing assignments or quizzes.

Based on these issues, researchers used mapping to the ADO framework to discover potential solutions to the difficulties.

Table 2. CRM Solution using ADO Framework

Antecedents	Decision	Outcomes
Availability of multi-lingual assistance and non-technical language materials	Users appreciate ease of information comprehension through diverse and user-friendly language choices [12].	Implementation of CRM elements to enable individualized learning content based on user language preference[13].
Systemic technical concerns include module/tool/lab failures, manual grading, and login problems.	Users anticipate a learning experience without technical hurdles by utilizing user experience[14].	Monitor customer experience for collecting insight byutilizing dashboard [15], and troubleshooting management by crew resource management and critical incident reporting systems (CIRSSs)[16].
Affordable pricing	Users want low-cost learning with no financial stress[17].	Implementing pricing segmentation tactics to make courses more affordable [18].
Provide extensive e-learning content, such as lifetime access, practical examples, clear materials, greater instructor availability.	Users can freely revisit content, obtain real-world application insight, understand detailed concepts, and receive direct professional advice [19].	Actionable techniques include providing relevant e-learning through customer retention, personalizing content using CRM data [20] and matching instructors based on feedback analysis [21].
Mentoring needs to be improved by incorporating case studies, conversations, and practical tasks, as well as using clear language and scheduling, as	Users want learning environments that offers high quality learning and adaptive[22].	Users apply taught material in real-world scenarios with flexible scheduling, high-quality learning videos, and easily available support channels [23].

well as improved video quality or accessible helpdesk.

Network concerns include a lack of HTTPS and DDoS protection, unstable connectivity, grading differences among machines, and VMware compatibility.

Quizzes lack instruction, and teachers are mismatched.

Users want learning environments that are robust, safe, and interoperable with multiple devices [24].

Users demand clear assessments and access to suitable mentors [27].

Enhance system reliability by conducting data security assessments [25] and cross-platform analytics to find and repair problems [26].

The use of learning preferences management to assign instructors according to learner expectations by evaluate their feedback [28].

5. CONCLUSION

An analysis of customer feedback on ADINUSA's e-learning services showed a typically high level of satisfaction, with 86.5% giving five stars. However, the 13.5% of customers who indicated discontent highlight critical areas for improvement that must not be missed. Among the issues raised, six primary categories emerged: learning materials, assignments, system flaws, language, mentoring, connectivity, and pricing, with learning materials being the most commonly noted. This emphasis underscores the importance of information quality, clear delivery, and long-term accessibility to the overall learning process. These content-related concerns are exacerbated by technological issues like as system faults, limited access to virtual labs, and challenges with automatic grading systems, all of which have a direct influence on the platform's functionality. Furthermore, language barriers, such as the use of excessively formal or English-only information, make it difficult for beginners to completely engage with the topic. According to the ADO framework (Antecedents, Decisions, Outcomes), these user pain points act as antecedents that guide strategic choices like adopting real-world case study metrics and offering multilingual content, both of which increase user satisfaction and loyalty. This method is strongly related to the principles of Sustainable Customer Relationship Management (SCRM), which stress long-term, socially responsible involvement with users. ADINUSA's initiatives to provide flexible learning paths and beginner-friendly services reflect a shift in this direction. Taken together, these findings highlight the importance of a well-structured and responsive CRM strategy based on user feedback and supported by thoughtful frameworks such as ADO and SCRM, ultimately allowing ADINUSA to improve user experience while remaining competitive in the changing digital learning landscape.

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