



Applying Decision Analysis to Redefine Software as a Service (SAAS) Product Development: A Case of Supply Chain Management Software in a Startup Company

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ABSTRACT: This study investigates the urgent need for effective decision analysis in developing supply chain management software for a startup in Indonesia's rapidly evolving technological landscape. Given Indonesia's aim to leverage technology for economic growth and the significant role of MSMEs, addressing the challenges these businesses face in adopting digital solutions is crucial. MSMEs contribute 61% of Indonesia's GDP and employ 97% of the workforce, yet only a small fraction has embraced digital technologies. The research employs a mixed-method approach, combining qualitative and quantitative analyses to comprehensively understand the company's market position and customer needs. Secondary data, including Five's Porter Force and ideal customer profile, and primary data are used for the SMART analysis. This comprehensive analysis provides a detailed view of the business environment and customer needs. By analyzing these factors, the company aims to develop a scalable product that addresses the specific needs of SMEs in Indonesia, focusing on efficient supply chain management software and seamless system integration. The findings underscore the importance of a structured approach to product development, using frameworks like SMART to prioritize features based on customer preferences and business goals. The study recommends strategies for the company to navigate the competitive landscape, enhance its technological offerings, and priority in development. To sum up, this research aims to change the priority of supply chain management software from project-based to a software-as-a-service solution. According to the simple multi-attribute rating technique (SMART) calculation, inventory management became the top priority, ahead of order management, point of sales, and warehouse management.

KEYWORDS: Five's Porter Forces, Ideal Customer Profile, SMART, Software Product Development, Technological Development

INTRODUCTION

Technology plays a key role in overcoming constraints and boosting future growth. Both advanced and developing economies see emerging technologies offering sustainable growth. Adopting new technologies enhances industry productivity by enabling efficient resource use, new product development, and entry into new markets. Indonesia, recognizing the role of technology and innovation in economic growth, anticipates gaining an additional \$2.8 trillion by 2040 through technology adoption [1]. Small and medium enterprises (MSMEs) in Indonesia, which make up 61% of GDP and employ 97% of the workforce, face challenges in digital adoption, with only 17.5 million MSMEs leveraging e-commerce opportunities [2]. Interestingly, the retail sector contributes to Indonesia's GDP with a growth rate of 4.73% from 2024 to 2028 [3]. This sector is expected to grow, driven by increased consumer spending and the expansion of modern retail formats. It has a significant market size with projected sustainable growth in the coming years. In addition, manufacturing is a pillar of Indonesia's economy, contributing around 18.3% to GDP [4].

In retail and manufacturing, supply chain management practices are crucial. These practices involve collaboration, information technology, inventory management, manufacturing, location, and transportation, shaping supply chain strategy and enhancing retailer performance through strategic supplier partnerships, information sharing, and high integration intensity [5-6]. Supply chain management is divided into downstream (customer-focused) and upstream (supplier-focused) streams [7].

BUSINESS ISSUE

The company, a SaaS startup, evolves through innovation and meticulous expense management. Initially launched as a headless CMS during the Indigo Challenge 2022, it pivoted after customer interviews revealed limited demand. The headless CMS faces challenges due to consumer unpreparedness for this technology. The company aims to create a scalable SaaS product, avoiding

project-based services, which lack necessary scalability. It developed supply chain management software, including Inventory Management, Order Management, Warehouse Management (WMS), and Point of Sale (POS) software, with integrated financial tools. This project highlighted market opportunities, leading to plans for enhancing scalability and adding features for various business contexts. The software is currently used by a startup wholesaler. However, the wholesale industry faces issues with overly specific supply chain software, tailored to small groups and specific needs, making it unsuitable for a broader range of businesses. This specificity limits flexibility and adaptability, hindering growth and improvement. As a result, the software struggles to meet new demands and capitalize on emerging opportunities, posing a significant barrier to scalability and wider market acceptance.

CONCEPTUAL FRAMEWORK

The conceptual framework determines which supply chain management software to develop in order to build a scalable solution based on potential customer needs. This involves evaluating whether the software and its development project meet specific characteristics and demonstrate the qualities expected of sustainable software [8].

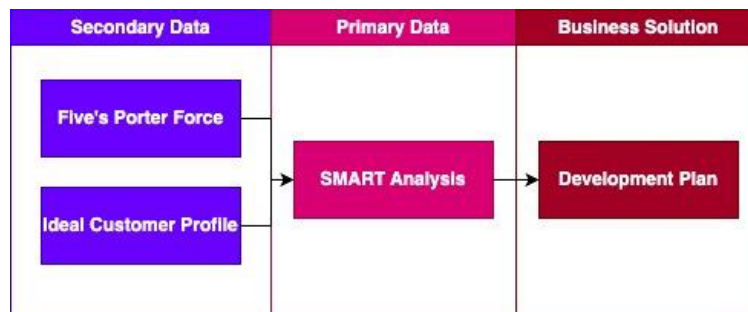


Figure 1. Conceptual Framework

Furthermore, the conceptual framework outlines a systematic approach for developing a scalable software solution based on potential customer needs. It is divided into three main steps: Secondary Data, Primary Data and Business Solution. In addition, Secondary Data includes components like Five's Porter Force, which analyzes the competitive environment, and the Ideal Customer Profile, defining the target customer segment. Primary Data is gathered through questionnaires with several potential customers, with the Simple Multi-Attribute Rating Technique (SMART) Analysis evaluating specific, measurable, achievable, relevant, and time-bound criteria to inform decision-making. Finally, the Business Solution involves developing a strategic plan, culminating in the Development Plan, which outlines the steps to create and implement the software solution. This framework integrates both secondary and primary data to provide a comprehensive understanding of the business issue and inform the development of an effective and scalable software solution.

RESEARCH METHODOLOGY

A. Data Collection Method

Data collection involves a systematic procedure for gathering and measuring information related to variables of interest. This process is essential for answering research questions, testing hypotheses, and assessing outcomes. It begins with identifying the type of data required. Subsequently, data is gathered according to predefined criteria using appropriate tools. In this study, a combination of primary and secondary data sources is utilized to develop a comprehensive understanding of the issues. Primary data is obtained directly from the questionnaires of potential decision makers, and it calculates by using Simple Multi-Attribute Rating Technique (SMART) method. In addition, the most common types in primary data collection such as questionnaires, interviews, focus groups, observation, surveys, case studies, and experimental methods [9]. Conversely, secondary data is obtained from existing resources and company insights. This dual strategy ensures a balanced dataset, combining the broad scope of secondary data with the detailed insights of primary data.

B. Data Analysis

Porter's Five Forces

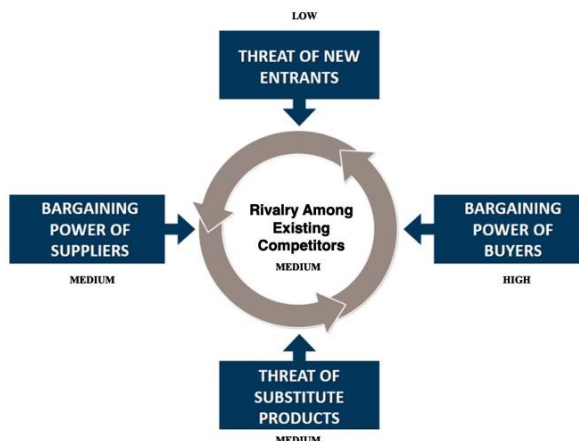


Figure 2. Porter's Five Force

Factor	Level	Reasoning
Threat of New Entrants	Low	The threat of new entrants into the SaaS industry, especially in supply chain management, depends on several barriers. High technological expertise is required in this field. Achieving economies of scale is also challenging initially because of the niche focus and custom development if needed.
Threat of Substitutes	Medium	The threat of substitutes for SaaS products in supply chain management is influenced by the availability of alternative technologies or manual processes. For The company, these include manual inventory management systems, traditional ERP software, or custom in-house solutions. The ease of switching is relatively high, especially if alternatives are seen as cost-effective or more efficient.
Bargaining Power of Buyers	High	The power of buyers in the SaaS market depends on the availability of alternative solutions, price sensitivity, and the importance of the product to their operations. For The company, there are several competitors in inventory management software. Price sensitivity is high, especially among small and medium enterprises (SMEs), which make up a large part of the customer base. The product's importance is critical for efficient operations, which can give The company some leverage if it can demonstrate superior value.
Bargaining Power of Suppliers	Medium	The bargaining power of suppliers in the SaaS industry for The company is medium. Although there is high demand for specialized talent, the growing tech industry in Indonesia and remote work options mitigate this. The company's reliance on major cloud providers like AWS and Google Cloud is balanced by alternatives such as DigitalOcean, Vultr, Contabo, and local providers. Additionally, using free and open-source software (FOSS) and creating a composable architecture reduces dependence on proprietary components, further balancing supplier power.



Rivalry of Competitors	Medium	The intensity of competition among existing firms in the SaaS market for supply chain management is influenced by the number of competitors, the rate of industry growth, product differentiation, and customer loyalty. For The company, there are many competitors, including established players and new startups. The industry is growing rapidly, leading to intense competition for market share. Product differentiation is moderate; while The company offers unique features, standing out may be challenging. Customer loyalty is initially low but can be built through superior product features and excellent customer service.
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Ideal Customer Profile

To identify the ideal customer profile, the author analysed from the background issue that wholesale and trade represent the primary sectors where most SMEs operate in Indonesia, the initial ideal customer profile defined below:

a. Industry/Vertical:

- **Industry:** Wholesale and Retail Trade, Fast-Moving Consumer Goods (FMCG), F&B.
- **Strengths:** Strong presence in local markets, deep understanding of customer preferences, agility in adapting to market trends.

b. Employee Headcount:

Company-wide: 1-50 employees.

Key Departments:

- **IT Department:** 2-5 employees.
- **Inventory Management:** 3-7 employees.
- **Sales and Marketing:** 5-10 employees.

c. Annual Revenue:

- **Average Annual Revenue:** IDR 1-25 billion.
- **Revenue Sources:** Sales from retail stores, e-commerce platforms, wholesale distribution.

d. Budget:

- **Financial Resources:** Moderate budget allocated for technology adoption, with potential for grants or loans from government programs.

e. Geography:

- **Location:** Urban and semi-urban areas in Indonesia, with a focus on major cities like Jakarta, Surabaya, Bandung, and Medan.
- **Surrounding Environment:** Proximity to key suppliers, access to better infrastructure, and larger customer bases.

g. Market Opportunity:

- **Demand for Products/Services:** High demand for efficient inventory management solutions, integrated retail platforms, and advanced supply chain management tools.
- **Projected Growth:** Retail market sales expected to grow from 133.5 billion USD in 2021 to 243 billion USD by 2026 [10].

h. Organizational/Technological Maturity:

- **Tech-Savviness:** Moderate, with a willingness to adopt new technologies but lacking advanced IT infrastructure.
- **Awareness of Trends:** Increasing awareness of digital transformation benefits and government support programs.

i. Installed Technology:

- **Current Tools:** Basic inventory management software, basic e-commerce platforms, traditional point-of-sale systems.
- **Effectiveness:** Limited efficiency and scalability, causing operational bottlenecks.

Afterwards, by understanding the criteria of the potential customers that become the decision makers of the company, author defines the criteria and characteristics such as:



- Solopreneur/Founder:
 - Goals: Grow business, enter new markets, optimize operations.
 - Pain Points: Limited resources, need for scalable solutions, balancing multiple roles.
 - Decision Criteria: Cost-effective solutions, all-in-one platforms, scalability, and ease of implementation.

Simple Multi-Attribute Rating Technique (SMART)

Stage 1: Identify Decision Maker

These decision makers decided from previous secondary research by categorizing the industry and its potential. In addition, to create the software product development more relevant to the potential customers, it conducted questionnaires for the potential decision maker. In this research, there are potential customers from the retail and manufactures industry.

Table 2. Decision Makers

No	Job Role
1	Founder A
2	Founder B
3	Founder C
4	Founder D
5	Founder E

The decision-makers hold strong positions in their respective companies, which guarantees success in running the company.

Stage 2: Identify Alternative Courses of Action

Table 3. Alternative for SMART

Alternative	Module Name	Description Module
Alternative 1	Inventory Management Software	This software helps businesses keep track of their stock levels, manage orders, and prevent overstocking or stockouts. It provides real-time updates on inventory, making it easier to manage and optimize supply chain processes.
Alternative 2	Order Management Software	This software simplifies the order process by managing sales, order processing, and fulfilment. It ensures orders are tracked from placement to delivery, improving customer satisfaction and streamlining operations.
Alternative 3	Warehouse Management Software (WMS)	This software improves warehouse operations by managing inventory, picking and packing, and shipping. It helps optimize storage, reduces errors, and increases efficiency in warehouse management.
Alternative 4	Point of Sale Software (POS)	This software is used at retail locations to process sales transactions. It manages sales, tracks inventory, and generates receipts, helping businesses run smoothly and improve customer service at the point of sale.

Stage 3: Identify Relevant Attribute

The authors identify attributes to assess the criteria for the platform to be developed. The SMART method divides these attributes into cost and benefit. Cost attributes include integration capability, initial cost, and training cost. Benefit criteria, based on the ISO/IEC 9126-1 Software Engineering standard, measure quality in usability, sustainability, and maintainability [6]. Usability includes sub-criteria like understandability, documentation, buildability, installability, and learnability. Sustainability and maintainability involve attributes like identity, governance, community, accessibility, portability, supportability, evolvability, and interoperability.

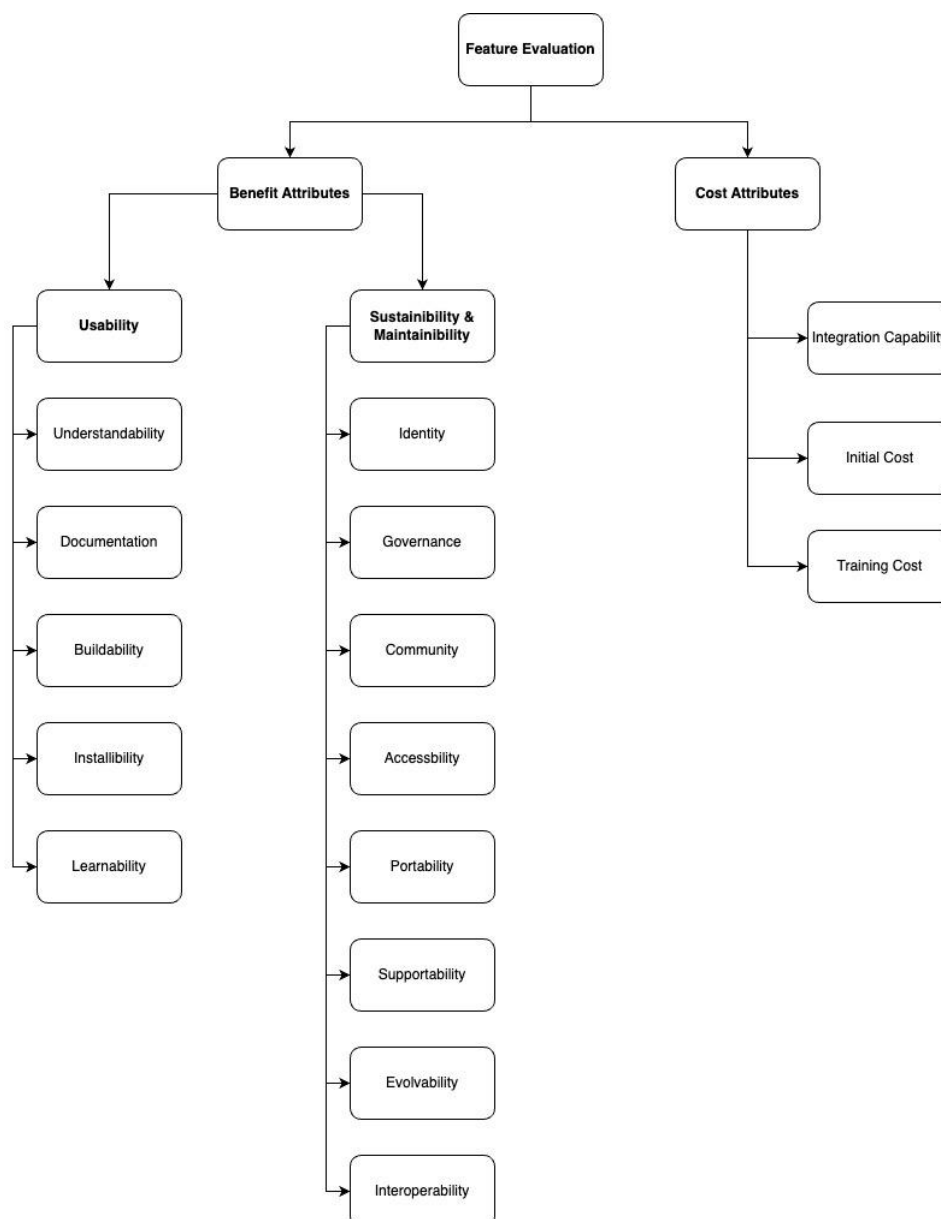


Figure 4. Software Feature Evaluation

Stage 4: Assign Value to Measure Performance of Each Alternative

In this research, benefits are divided into two main criteria: Usability and Sustainability & Maintainability. Each sub-criterion under these categories already has different scores. The following table shows the scores for the Usability criteria:



Table 4. Usability Criteria

Usability	Alt 1	Alt 2	Alt 3	Alt 4
Understandability	88.8	86.8	86.8	85.2
Documentation	88.8	88	87.8	85.8
Buildability	87.2	86.6	85.8	84
Installability	90.4	89	87.6	86.8
Learnability	92	90.2	89.2	87.8

Meanwhile in Sustainability and Maintainability in the following tables:

Table 5. Sustainability and Maintainability Criteria

Sustainability & Maintainability	Alt 1	Alt 2	Alt 3	Alt 4
Identity	90	89	87	86
Governance	90.6	89.6	86	85
Community	89.2	88.4	87	86
Accessability	90.4	89.4	86	85
Portability	90.2	89.2	87	86
Supportability	89.4	88.4	86	85
Evolvability	90	89.4	87	86
Interoperability	89.8	89.2	86	85

The tables demonstrate the scores given to four different alternatives (Alt 1, Alt 2, Alt 3, and Alt 4) based on two main criteria: Usability and Sustainability & Maintainability. Each criterion is further divided into sub-criteria, which are scored by decision-makers.

The first table shows the scores for usability, covering sub-criteria such as Understandability, Documentation, Buildability, Installability, and Learnability. Among these, Alternative 1 consistently achieved the highest scores. For instance, in Understandability, Alt 1 scored 88.8, while Alt 4 had the lowest score of 85.2. Similarly, for Documentation, Alt 1 and Alt 2 scored 88.8 and 88 respectively, with Alt 4 again at the bottom with 85.8. In Buildability, Alt 1 led with 87.2, whereas Alt 4 had the lowest score of 84. Installability saw Alt 1 scoring the highest at 90.4, while Alt 4 scored 86.8. Lastly, in Learnability, Alt 1 achieved the highest score of 92, surpassing Alt 4, which scored 87.8.

Meanwhile, the second table details the scores for sustainability and maintainability, focusing on sub-criteria such as Identity, Governance, Community, Accessibility, Portability, Supportability, Evolvability, and Interoperability. Here again, Alt 1 consistently scored the highest. For Identity, Alt 1 scored 90, while Alt 4 had the lowest score of 86. In Governance, Alt 1 led with 90.6, whereas Alt 4 scored 85. The Community sub-criterion saw Alt 1 scoring 89.2 and Alt 4 at 86. Accessibility had Alt 1 at 90.4 and Alt 4 at 85. For Portability, Alt 1 scored 90.2, with Alt 4 scoring 86. Supportability showed Alt 1 leading with 89.4, and Alt 4 at 85. Evolvability had Alt 1 at 90, while Alt 4 scored 86. Finally, for Interoperability, Alt 1 scored 89.8, and Alt 4 had the lowest score of 85. From these tables, it is evident that Alt 1 consistently scores the highest across most sub-criteria for both usability and sustainability & maintainability.

On the other hand, Alt 4 tends to have the lowest scores in both categories. This suggests that Alt 1 might be the most preferred option when considering these criteria, while Alt 4 may need significant improvements to meet the standards set by the decision-makers.



Stage 5: Determine a Weight for Each Attribute

Table 6. Normalized Weight

Criteria	Sub-Criteria	Average Original Weight	Normalized Weight
Usability	Understandability	88	0.10
	Documentation	84	0.10
	Buildability	82	0.10
	Installability	79	0.09
	Learnability	83	0.10
Sustainability & Maintainability	Identity	62	0.07
	Governance	59	0.07
	Community	49	0.06
	Accessibility	70	0.08
	Portability	54	0.06
	Supportability	38	0.04
	Evolvability	57	0.07
	Interoperability	47	0.06
		852	1

In this research study, it was found that among the usability sub-criteria, Understandability, Documentation, Buildability, and Learnability have the highest normalized weights of 0.10, indicating their critical importance. This highlights that potential decision makers highly value software that is easy to understand, well-documented, straightforward to build, and easy to learn, as these factors directly impact their ability to effectively use and implement the software.

Stage 6: The Weighted Average of Values Assigned to the Alternative

Table 7. Aggregate Benefit

Criteria	Sub-Criteria	Alternative			
		Alt 1	Alt 2	Alt 3	Alt 4
Usability	Understandability	9.17	8.97	8.97	8.80
	Documentation	8.75	8.68	8.66	8.46
	Buildability	8.39	8.33	8.26	8.08
	Installability	8.38	8.25	8.12	8.05
	Learnability	8.96	8.79	8.69	8.55
Sustainability & Maintainability	Identity	6.55	6.48	6.33	6.26
	Governance	6.27	6.20	5.96	5.89
	Community	5.13	5.08	5.00	4.95
	Accessibility	7.43	7.35	7.07	6.98
	Portability	5.72	5.65	5.51	5.45
	Supportability	3.99	3.94	3.84	3.79
	Evolvability	6.02	5.98	5.82	5.75
	Interoperability	4.95	4.92	4.74	4.69
	Total Benefit	89.72	88.62	86.96	85.70

The table presents scores for four alternatives (Alt 1, Alt 2, Alt 3, Alt 4) based on Usability and Sustainability & Maintainability criteria, each with sub-criteria. For Usability, Alt 1 scores highest in Understandability (9.17) and Learnability (8.96), while Alt 4 scores lowest (8.80 and 8.55, respectively). In Sustainability & Maintainability, Alt 1 is the most accessible (7.43), but all alternatives have low Supportability scores, with Alt 1 at 3.99 and Alt 4 at 3.79. Alt 1 has the highest total benefit score (89.72), followed by Alt 2 (88.62), Alt 3 (86.96), and Alt 4 (85.70). Overall, Alt 1 is the most beneficial option.



Stage 7: Provisional Decision

Table 8 Provisional Decision

Alternative	Total Benefit	Total cost
1	89.72	Rp3,402,000,000
2	88.62	Rp3,072,000,000
3	86.96	Rp3,372,000,000
4	85.70	Rp2,832,000,000

The table presents the total benefits and costs for four alternatives. Alternative 1 has the highest benefit score of 89.72, followed by Alternative 2 with 88.62. Alternatives 3 and 4 have lower scores of 86.96 and 85.70, respectively. Regarding costs, Alternative 1 is the most expensive at Rp3,402,000,000, followed by Alternative 3 at Rp3,372,000,000. Alternative 2 costs Rp3,072,000,000, and Alternative 4 is the least expensive at Rp2,832,000,000. Although Alternative 1 offers the highest benefit, it also has the highest cost. Decision-makers must weigh these factors to choose the best option, considering both benefits and expenses.

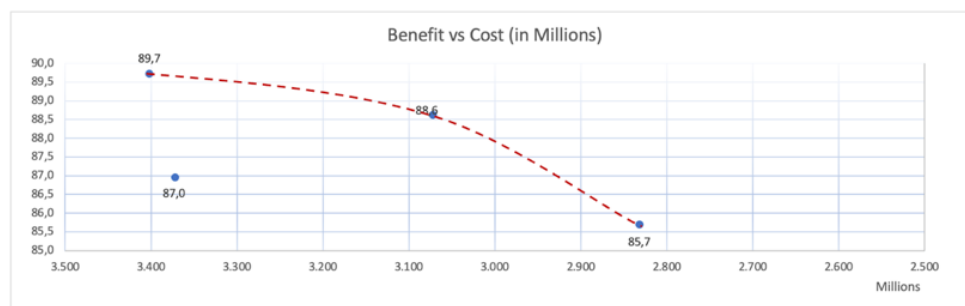


Figure 5. Efficient Frontier

The graph shows the relationship between total benefit and total cost (in millions) for four alternatives. Alternative 1 has the highest benefit score of 89.7 and the highest cost at Rp3,402 million. Alternative 2 has a benefit score of 88.6 with a cost of Rp3,072 million. Alternative 3 has a benefit score of 86.9 and a cost of Rp3,372 million. Alternative 4, with the lowest benefit score of 85.7, has the lowest cost at Rp2,832 million. The data indicates that higher benefit scores are generally linked to higher costs, with Alternative 1 offering the highest benefit and cost.

Table 9. Comparison of Provisional Decision

		Alt 1		Alt 2	
		Rp3,402,000,000	89.72	Rp3,072,000,000	88.62
Alt 4	Rp2,832,000,000			Rp240,000,000	2.92
	85.70			Rp82,186,495	
Alt 2	Rp3,072,000,000	Rp330,000,000	1.10		
	88.62	Rp300,064,034			

The table compares the total benefits and costs of four alternatives, highlighting specific comparisons. Shifting from Alternative 4 to Alternative 2 finds a significant gain in benefits of 2.92 points for Rp. 240,000,000. In this scenario, the cost per extra value point is Rp. 82,186,495 (Rp. 240,000,000 / 2.92). In contrast, when shifting from Alternative 2 to Alternative 1, there is an additional benefit of 1.10 points for an extra cost of Rp. 330,000,000, leading to a cost per value point of Rp. 300,064,034 (Rp. 330,000,000 / 1.10). From those table, author make conclusion that:



Table 10. Extra Value Point

Decision maker compares	Extra Value Point	Alternative Chosen
If the extra value point <	Rp82,186,495	Alt 4
If the extra value point >=	Rp82,186,495	Alt 2
If the extra value point <	Rp300,064,034	Alt 2
If the extra value point >=	Rp300,064,034	Alt 1

To make well-informed decisions, The company should assign extra points for each additional value. If Alternative 4 is preferred and costs less than Rp. 82,186,495, then it should be chosen. If Alternative 1 is preferred and costs more than Rp. 300,064,034, and the company is willing to invest, then choose Alternative 1.

The author needs to evaluate each extra point by assessing lower-level qualities within the value tree and assigning a monetary value for improvements. In this study, the company estimates the value of increasing supportability, reflecting current and future developer support, from the lowest sub-criteria. The company is willing to invest Rp1,580,000,000 for a 100-point increase in supportability. Given that supportability contributes 4% to the total weight, a 100-point increase results in a 4-point rise in the extra value of supportability benefits.

Supportability = 0.04 (4 points)

Extra value point = $Rp1,580,000,000 / 4 = Rp\ 354,252,632$

Thus, the company's extra value is Rp. 354,252,632. However, Alternative 4 faces market saturation, and Alternative 2 has strong competition in order management. Given these factors, the company should invest in Alternative 1, focusing on inventory management, which is more suitable for potential decision-makers and offers a tipping point for development.

Stage 8: Perform sensitivity analysis

A sensitivity analysis is needed to check how strong the solution is. This type of analysis shows how changing the importance of different choice criteria affects the overall score. Basically, the sensitivity analysis checks how the solution holds up when individual criteria are changed. It also gives insights into possible outcomes if one criterion changes a lot, showing how it affects other criteria.

Table 11. Original Rating Average

Criteria	Sub-Criteria	Alternative			
		Alt 1	Alt 2	Alt 3	Alt 4
Usability	Understandability	9.17	8.97	8.97	8.80
	Documentation	8.75	8.68	8.66	8.46
	Buildability	8.39	8.33	8.26	8.08
	Installability	8.38	8.25	8.12	8.05
	Learnability	8.96	8.79	8.69	8.55
Sustainability & Maintainability	Identity	6.55	6.48	6.33	6.26
	Governance	6.27	6.20	5.96	5.89
	Community	5.13	5.08	5.00	4.95
	Accessibility	7.43	7.35	7.07	6.98
	Portability	5.72	5.65	5.51	5.45
	Supportability	3.99	3.94	3.84	3.79
	Evolvability	6.02	5.98	5.82	5.75
	Interoperability	4.95	4.92	4.74	4.69
Total Benefit		89.72	88.62	86.96	85.70

The table represents the Average original rating derived from stage 6. The highest score was 89.7 in alternative 1.



Table 12. Usability = 0

Criteria	Sub-Criteria	Alternative			
		Alt 1	Alt 2	Alt 3	Alt 4
Usability	Understandability	0.00	0.00	0.00	0.00
	Documentation	0.00	0.00	0.00	0.00
	Buildability	0.00	0.00	0.00	0.00
	Installability	0.00	0.00	0.00	0.00
	Learnability	0.00	0.00	0.00	0.00
Sustainability & Maintainability	Identity	6.55	6.48	6.33	6.26
	Governance	6.27	6.20	5.96	5.89
	Community	5.13	5.08	5.00	4.95
	Accessibility	7.43	7.35	7.07	6.98
	Portability	5.72	5.65	5.51	5.45
	Supportability	3.99	3.94	3.84	3.79
	Evolvability	6.02	5.98	5.82	5.75
	Interoperability	4.95	4.92	4.74	4.69
Total Benefit		46.06	45.61	44.27	43.76

In this scenario, the usability criteria weight will be set at 0. When usability criteria weight is set to 0, Alternative 1 has the highest total benefit score of 46.06, followed by Alternative 2 with 45.61, Alternative 3 with 44.27, and Alternative 4 with 43.76..

Table 13. Sustainability and Maintainability = 0

Criteria	Sub-Criteria	Alternative			
		Alt 1	Alt 2	Alt 3	Alt 4
Usability	Understandability	9.17	8.97	8.97	8.80
	Documentation	8.75	8.68	8.66	8.46
	Buildability	8.39	8.33	8.26	8.08
	Installability	8.38	8.25	8.12	8.05
	Learnability	8.96	8.79	8.69	8.55
Sustainability & Maintainability	Identity	0.00	0.00	0.00	0.00
	Governance	0.00	0.00	0.00	0.00
	Community	0.00	0.00	0.00	0.00
	Accessibility	0.00	0.00	0.00	0.00
	Portability	0.00	0.00	0.00	0.00
	Supportability	0.00	0.00	0.00	0.00
	Evolvability	0.00	0.00	0.00	0.00
	Interoperability	0.00	0.00	0.00	0.00
Total Benefit		43.66	43.02	42.69	41.95

In this scenario, the sustainability and maintainability criteria weight will be set at 0. When the sustainability and maintainability criteria weight is set to 0, Alternative 1 has the highest total benefit score of 43.66, followed by Alternative 2 with 43.02, Alternative 3 with 42.69, and Alternative 4 with 41.95.

The next stage is to compute the sensitivity analysis. This table represents the sensitivity analysis as follows:\

Table 13. Sensivity Analysis

Alternative / criteria	Aggregate Benefit (Usability)	Aggregate Benefit (Original)	Aggregate Benefit (Sustainability & Maintainability)
A1	46.06	89.72	43.66
A2	45.61	88.62	43.02
A3	44.27	86.96	42.69
A4	43.76	85.70	41.95

The sensitivity analysis has been completed. It demonstrates how the benefit values for different alternative type of software creation change with variations in the raw weight.

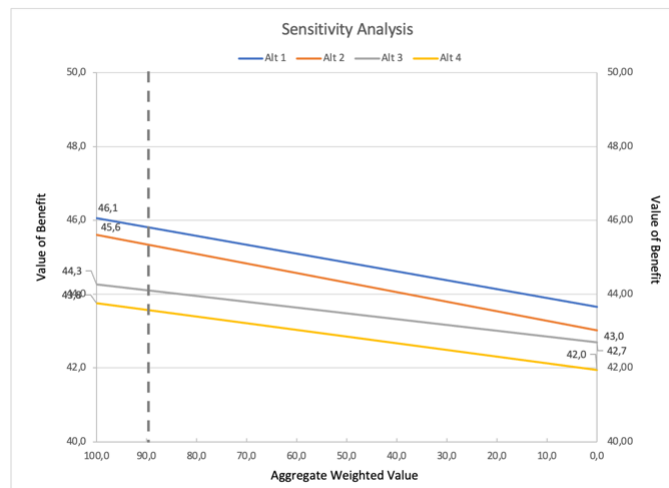


Figure 6. Sensivity Analysis

As can be seen from the graph, even though Usability set to 0 and Sustainability and Maintainability set to 0, the graph for alternative 1 still stable not across the other line. This indicates that the alternative 1 has the highest number value of benefit and suitable as an option.

FINDING & DISCUSSION

In this research all alternatives related to redefine the supply chain management software solutions. The objective of this research is to find an alternative approach to developing scalable software for the Indonesia market. The detail as follows:

1. Porter’s Five Forces

- a. **Threat of New Entrants:** Low due to high technological expertise required and the challenge of achieving economies of scale initially.
- b. **Threat of Substitutes:** Medium from manual inventory management systems, traditional ERP software, and custom in-house solutions.
- c. **Bargaining Power of Buyers:** High, as there are several competitors in inventory management software, and price sensitivity is significant among SMEs.
- d. **Bargaining Power of Suppliers:** Medium, influenced by high demand for specialized talent but mitigated by the growing tech industry and remote work options.
- e. **Rivalry Among Competitors:** Medium, with many competitors, moderate product differentiation, and the need to build customer loyalty through superior features and service.

2. Ideal Customer Profile

- a. Industries: Wholesale, retail trade, fast-moving consumer goods (FMCG)
- b. Employee Count: 1-50 employees
- c. Annual Revenue: IDR 1-25 billion
- d. Geographical Focus: Major cities (Jakarta, Surabaya, Bandung, Medan)
- e. Technological Readiness: Moderate, willing to adopt new technologies

3. Simple Multi-Attribute Rating Technique (SMART)

According to the calculation, if The company tailors specific solutions, it should develop Alternative 1, which is inventory management software. This option offers the highest total benefit score (89.72) despite having the highest total cost (Rp3,402,000,000). It aligns with decision-makers’ preferences, indicating its potential for market success.



By following these strategic recommendations, The company can position itself as a leading provider of scalable supply chain management software solutions for SMEs in Indonesia, starting with inventory management software.

CONCLUSION & RECOMMENDATION

A. Conclusion

In conclusion, the analysis of the company's strategic position and product development potential has highlighted several key insights. The company's advanced technological expertise and comprehensive product features tailored for SMEs provide a significant competitive edge. The growing demand for efficient inventory management solutions and increasing awareness of digital transformation among SMEs present substantial opportunities for the company. The SMART analysis further validates that the first alternative, despite its higher cost, offers the most considerable overall.

B. Recommendation

The author provides several comprehensive and effective recommendations for the company based on the data analysis and business solution plan:

1. Build Brand Reputation: The company should invest in marketing and share success stories to build a stronger brand presence. Highlighting case studies and customer testimonials can improve brand perception and attract new clients. Since The company try to enter the market with low new entrants.

2. Conduct Sensitivity Analysis Regularly: Perform regular sensitivity analysis to assess the impact of changing market conditions and internal factors on strategic decisions. This will help the company stay agile and responsive to market dynamics.

By implementing these recommendations, the company can strengthen its market position, and achieve sustained competitive advantage in the SaaS industry for inventory management solutions.

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APPENDIX

No	Job Role	Description Role
1	Founder A	Holds a Bachelor's degree in Accounting with over 2 years of experience in accounting consulting. She develops business in the artisan tea industry. In addition, to increase her business customer experience and streamlining operations, she has interest in finding software solutions that have potential as value added into her business.
2	Founder B	Holds a Master's degree in Industrial Engineering and brings 10 years of experience in the manufacturing sector. Specializes in integrating cutting-edge technology to optimize production processes and improve efficiency. Passionate about sustainable practices and technological advancements in manufacturing.
3	Founder C	MBA with 10 years of experience in the retail market. Focused on business expansion, creating impactful retail solutions, and driving market growth. Known for successfully scaling businesses and exploring new market opportunities, ensuring customer satisfaction through innovative marketing strategies.
4	Founder D	Hold a bachelor's degree in Design Communication Visual with three years of experience in the retail perfume industry. Committed to optimizing processes, increasing productivity, and reducing costs through advanced technology.
5	Founder E	Holds a bachelor's degree in international relation with three years of experience in the retail sector. Focuses on custom retail innovation and improving operational efficiency through market insights.

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