BUSINESS VALUATION TRANSFORMATION OF INNOVATIVE PRODUCTS THROUGH SCENARIO ANALYSIS (CASE STUDY: SAKASEA)

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Abstract:

Background: Valuing early-stage innovative products is challenging because limited operating history makes valuation highly sensitive to uncertainty in market uptake and production scale, particularly under tight competition. Sakasea currently operates below its break-even scale, resulting in negative cash flows under baseline conditions. This study applies a single-case design to Sakasea using internal operational and financial records to conduct baseline valuation and scenario-based projections.
Purpose: This study aims to demonstrate how scenario-based analysis can transform the valuation of an innovative food product, Sakasea, from an initially unfeasible condition into a feasible and profitable business projection.
Design/methodology/approach: A quantitative single-case study was applied (n = 1, Sakasea). Baseline (actual) valuation was conducted using eight financial feasibility indicators (R/C Ratio, ROI, BEP, NPV, IRR, BCR, PI, and Payback Period) based on internal operational and financial records. Two scenario projections (Realistic and Optimistic) were then constructed by adjusting the key driver of production and sales volume over a five-year horizon, followed by re-evaluation using the same indicators.
Findings/Result: The actual (baseline) valuation indicates financial infeasibility (NPV = IDR –583,427,867; BCR = 0.17; IRR = N/A due to negative cash flows; Payback Period not achieved). Under the Realistic scenario, the valuation becomes feasible (NPV = IDR 188,085,414; IRR = 36.27%; BCR = 1.27; Payback Period = 1.49 years). Under the Optimistic scenario, feasibility improves further (NPV = IDR 682,595,444; IRR = 46.69%; BCR = 1.52; Payback Period = 0.57 years).
Conclusion: Static valuation based solely on initial operations may underestimate early-stage innovations. Scenario-based valuation provides a forward-looking assessment by illustrating how feasibility changes as production scale increases beyond the break-even threshold.
Originality/value (State of the art): This study provides empirical evidence on scenario-based valuation of an early-stage functional food innovation by quantifying how key feasibility indicators (NPV, IRR, BCR, and payback period) shift from baseline to scale-up conditions, thereby identifying the production scale required for financial viability.

Keywords: business valuation, discounted cash flow, financial feasibility, innovative product, scenario analysis

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INTRODUCTION

The dynamics of contemporary lifestyles, characterized by increased health awareness, have become the main catalyst for shifts in consumption patterns globally and nationally (Maulina & Sufianti, 2025). This phenomenon has directly driven the expansion of the healthy food industry, opening up a significant market niche for businesses capable of effectively responding to this demand (Daryana et al. 2025). As a result, food producers are now faced with the challenge of not only meeting consumers' selective preferences regarding nutritional aspects but also presenting innovative and practical products (Andiresta et al. 2025). Modern food product development theory emphasizes that innovation is a central element in creating added value and competitive advantage in a saturated market (Irianto & Giyatmi, 2021). This theoretical perspective is supported by various initiatives at the SME level, such as fortifying tempeh with moringa to enhance its functional value, demonstrating how innovation based on local wisdom can be a promising business development strategy (Bintari et al. 2021). This trend is also reflected in recent consumer evidence in Indonesia: 42% of respondents tend to avoid products containing artificial preservatives or coloring, and 36% prefer low-sugar and low-calorie food and beverages (Harahap, 2025). In addition, product positioning and commercialization for healthy/functional foods are shaped by regulatory requirements, including BPOM rules on claims on processed-food labels and advertisements (BPOM, 2022) and BPOM provisions on mandatory nutrition information on processed-food labels (BPOM, 2021).

In this era of innovation, innovative products have emerged as the most agile business entities, with a primary focus on achieving exponential growth through the exploration of new ideas (Pertiwi et al. 2024). *Sakasea*, as a case study in this research, represents an innovative product operating in the superfood sector. Based on its development proposal, the *Sakasea* snack bar is a formulation of tempeh and spirulina that integrates smart packaging technology for quality monitoring. However, the journey from an innovative product to a sustainable business heavily depends on the availability of adequate capital (Sinurat et al. 2025). Without proper access to funding, product development, market penetration, and talent recruitment are hindered. Therefore, supporting ecosystems such as business incubators play a crucial role in providing the resources, networks, and guidance needed for innovative products to survive the vulnerable early stages (Ramadian et al. 2024). In the macroeconomic context, access to startup financing in Indonesia has tightened, with reported total funding declining to US$323 million in 2024 (down 75% from US$1.3 billion in 2023) (Tech in Asia, 2025) and further remaining sluggish in H1 2025 at US$161.3 million across 34 disclosed deals (DailySocial.id, 2025); in parallel, the financial regulator has launched a policy roadmap to strengthen the venture capital industry for 2024–2028 (OJK, 2024). In this context, the novelty of this study is to provide an empirical, indicator-based valuation of an early-stage functional food innovation by comparing baseline (actual) results with scenario projections using feasibility metrics (e.g., NPV, IRR, BCR, and payback period), thereby producing decision-relevant evidence for scale-up and funding considerations.

Innovative products require strong financial justification to support objective investment decision-making and resource allocation, making a comprehensive feasibility study essential to evaluate marketing, technical, operational, and financial aspects (Afiyah et al. 2015). Such assessments form the foundation for strategic and sustainable development, particularly for small food industries like the tempe sector (Arnold et al. 2020). Quantitative indicators such as Break-Even Point (BEP) and Revenue-Cost Ratio (R/C Ratio) provide initial insights into profitability and feasibility (Nugroho & Mas'ud, 2021), supporting investment readiness assessment and capital planning (Priantinah et al. 2024). Business valuation serves as the culmination of these analyses by estimating a firm's intrinsic economic value for decision-making and investment planning (Dewi, 2020; Razzaq, 2024). However, conventional static valuation models, such as a single-scenario discounted cash flow (DCF) with fixed assumptions, capitalization of earnings, or constant-growth models often fail to capture the dynamic value of innovation and intangible assets, potentially leading to undervaluation and misjudgment of early-stage ventures (Arianton et al. 2019; Tan et al. 2025).

The gap between the need for accurate assessment and the limitations of conventional valuation methods forms the starting point of this research. There is an urgent need for a more dynamic valuation approach that can accommodate various levels of uncertainty and better capture the real potential of innovation-based enterprises. This study aims to empirically

demonstrate how scenario analysis, consisting of pessimistic, realistic, and optimistic projections, can transform the valuation results of Sakasea's business from a non-feasible to a feasible and promising investment. Through this approach, the research provides a more adaptive framework that reflects how financial feasibility can evolve under changing business conditions. Furthermore, it emphasizes the practical implications of applying scenario analysis as a strategic decision-making tool for investors and business developers in assessing innovation-driven ventures. Overall, this study contributes to the literature by showing that flexible and forward-looking valuation models can bridge the gap between theoretical feasibility and actual investment readiness.

METHODS

This study was conducted as a single-case study focusing on Sakasea, an innovative food product operating in the superfood sector. The research took place at Sakasea's production and management site, where primary data were obtained directly from internal operational activities, including production costs, sales performance, and cash flow records. This location was selected because it represents the center of the company's value creation process, allowing the study to capture actual business operations and financial conditions in a realistic context. This design was chosen because the valuation analysis requires detailed, firm-specific internal records and consistent operational data; therefore, the study prioritizes in-depth measurement and scenario-based valuation within one venture rather than cross-company comparison. The research was carried out over a three-month period, from June to August 2025, to ensure that the data reflected both operational consistency and seasonal variations in production and sales. The duration of data collection and analysis provided adequate time to verify data reliability and ensure that the results accurately represent the financial feasibility and business performance of Sakasea.

This study was designed using a case study approach with descriptive quantitative methods. The case study approach allowed for an in-depth and holistic analysis of a single object, namely the *Sakasea* innovation product. Descriptive quantitative methods were then applied to process and analyze financial data into a series of measurable investment feasibility metrics (Hendra et al. 2021). All data used in this study were primary data, obtained directly from internal company sources through in-depth interviews with internal stakeholders/ management of Sakasea (n = 4 key informants) and the study of internal financial documents, such as raw material purchase summaries and Expenditure Responsibility Statements. The use of primary data ensured that the analysis accurately reflected the actual financial structure and operational characteristics of the business.

Data collection in this study employed a combination of qualitative and quantitative approaches to ensure a comprehensive understanding of Sakasea's business performance. The qualitative data were obtained through in-depth interviews with company management to gather insights related to operational processes, financial management, and strategic challenges encountered during business development. Meanwhile, the quantitative data were collected through document studies, which involved reviewing internal financial reports such as expenditure details, production cost records, and procurement summaries. This methodological combination enabled the integration of contextual understanding and numerical accuracy within the financial modeling process. In addition, triangulation between interview findings and financial data was conducted to enhance data validity and ensure that the analysis accurately reflected the company's actual business conditions.

The data analysis in this research was structured through a two-stage valuation approach supported by a conceptual framework of thought (Figure 1). The process begins with identifying the growing demand for healthy food products, which strengthens the relevance of developing an innovative functional food such as Sakasea. To evaluate its investment attractiveness, primary financial data including cost structure, sales volume, and cash flow are collected and processed in the first analysis stage, namely actual valuation. At this stage, financial feasibility is assessed using eight indicators: Break-Even Point (BEP), Return on Investment (ROI), Payback Period (PP), Revenue-Cost Ratio (R/C Ratio), Net Present Value (NPV), Internal Rate of Return (IRR), Benefit-Cost Ratio (BCR), and Profitability Index (PI), enabling a comprehensive evaluation of early investment feasibility (Ridwan et al. 2025; Nurwantara et al. 2017).

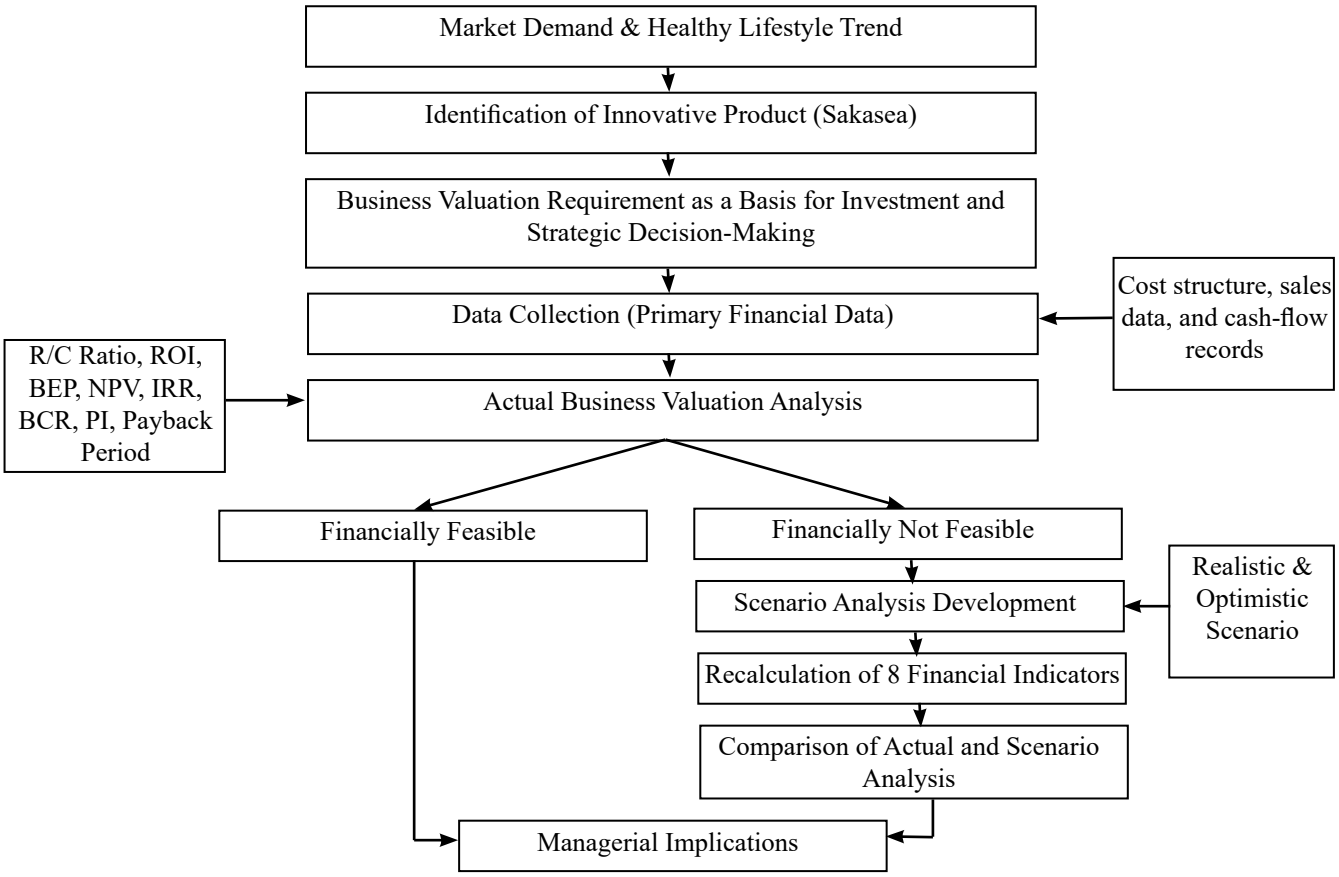

Figure 1. Framework of thought for Sakasea business valuation

This study applies a cash-flow–based business valuation using an investment appraisal (discounted cash flow) approach. NPV is calculated by discounting projected net cash flows at the assumed cost of capital (10%), IRR is obtained as the discount rate that sets NPV equal to zero, BCR is computed as the ratio of the present value of benefits to the present value of costs, and PP is determined from the time required for cumulative net cash flows to recover the initial investment; BEP, ROI, R/C Ratio, and PI are derived using standard investment-feasibility calculations based on the firm's cost and revenue structure. Feasibility is interpreted using conventional criteria (NPV > 0, IRR > 10%, BCR > 1, PI > 1, PP within the project horizon, and production volume exceeding BEP).

If the financial results are inadequate for business continuity, the analysis proceeds to the second stage, which applies scenario-based valuation projections to explore future business growth under uncertainty (Surzhikov et al. 2021). Two forward-looking scenarios Realistic and Optimistic are developed based on the Scenario Planning approach that considers multiple plausible futures (Verity, 2003; Dean, 2019). Key variables such as sales growth and cost efficiency are adjusted, and the eight financial indicators are recalculated to assess how the feasibility of Sakasea may shift once production approaches economies of scale. This integrated two-stage approach not only identifies the baseline financial position but also provides strategic insights that guide managerial decisions for scaling and investment readiness, demonstrating how feasibility can transform from initial non-viability to strong future potential.

RESULTS

This chapter presents the core findings of the research, in which empirical data from the analysis of the business valuation of Sakasea's innovative products is presented and interpreted in depth. As outlined in the methodology chapter, the main challenge in valuing an innovative startup business lies in the high level of uncertainty, which often renders conventional valuation methods inadequate for capturing its true future potential (Surzhikov et al. 2021). A static valuation approach that produces a single number risks providing a misleading picture, especially for projects where flexibility and growth potential are the most valuable intangible assets (Ernst, 2022). Therefore, the presentation of results in this chapter aims not only to display a series of numbers

but also to build an analytical narrative that demonstrates the process of business viability transformation. The data presentation flow is systematically designed to address the primary research objective: to demonstrate how perceptions of an innovation's viability can change drastically when analyzed through a more dynamic and forward-looking lens.

To achieve this objective, the presentation of results will be divided into two main stages that reflect the analysis process that has been carried out. The first stage will focus on presenting the results of the valuation analysis under actual conditions. This section will serve as a baseline, describing the financial feasibility of the Sakasea innovation product based on real operational data and conservative assumptions at the initial stage. Next, the research will move on to the second stage, which is the presentation of valuation projection results based on scenarios. In this stage, the future potential of the business is explored through Realistic and Optimistic scenarios, an approach aligned with the Scenario Planning framework designed to aid strategic decision-making amid uncertainty (Verity, 2003; Vacík et al. 2014). The contrasting presentation structure between "current conditions" and "future potential" is intentionally designed to sharply highlight the impact of scale, strategy, and growth assumptions on investment viability. Following this quantitative data presentation, the chapter will continue with a comprehensive discussion, where the findings will be interpreted, contextualized with relevant literature on the dynamics of the functional food market (Vicentini et al. 2016), and translated into concrete managerial implications for Sakasea's innovative products.

Basic Assumptions for Calculating the Projected Valuation of Saka Sea's Innovative Products

Before presenting the results of the valuation analysis, it is important to first outline the basic assumptions that form the foundation of the entire financial projection model. These assumptions are based on real data from current operational conditions (actual conditions) as well as growth projections based on an analysis of market potential and the business development strategy for Sakasea's innovative products. Table 1 presents a comparison of the key assumptions used for the three conditions analyzed: Actual, Realistic, and Optimistic. Table 1 shows that the most fundamental variable and key driver in this analysis is the annual production and sales volume of snack bars. Under actual conditions, the production volume stands at 1,160 units, reflecting operational capacity at the initial stage. For future projections, this volume is assumed to increase significantly in line with market penetration strategies and capacity expansion.

Table 1. Basic assumptions for calculation of business valuation projections for sakasea innovation products

Components	Current	Realistic Assumptions	Optimistic Assumptions
Snack Bar Production/year (units)	1,160	16,875	27,000
Pouch production/year (units)	1,000	16,875	27,000
Total Production (units)	2,160	33,750	54,000
Bar Proportion (%)	54	50	50
Pouch Proportion (%)	46	50	50
Snack Bar Selling Price (IDR)	8,000	8,000	8,000
Selling Price of Pouch (IDR)	15,000	15,000	15,000
Average Selling Price (IDR)	11,241	11,500	11,500
Variable Bar Cost (IDR)	1,686	1,686	1,686
Variable Cost of Pouch (IDR)	8,430	8,430	8,430
Margin Bar (IDR)	6,314	6,314	6,314
Margin Pouch (IDR)	6,570	6,570	6,570
Average Contribution Margin (IDR)	6,433	6,433	6,433
Annual Fixed Costs (IDR)	135,818,082	135,818,082	135,818,082
Initial Investment (IDR)	121,240,580	121,240,580	121,240,580
Total Annual Income (IDR)	24,280,000	388,125,000	621,000,000
Annual Variable Costs (IDR)	10,385,760	170,707,500	273,132,000
Total Annual Cost (IDR)	146,203,842	306,525,582	408,950,082
Annual Net Cash Flow (IDR)	-121,923,842	81,599,418	212,049,918

In constructing the projected business valuation, several baseline assumptions were established to ensure analytical consistency across all scenarios. In the realistic scenario, production volume is projected to reach 33,750 units per year, while in the optimistic scenario, this figure increases to 54,000 units, reflecting potential business growth. This variation in production volume directly influences financial components such as annual revenue, variable costs, and total annual operating expenses. The initial investment and annual fixed costs are assumed to remain constant under all conditions, emphasizing that the analysis isolates the effect of production scale expansion on financial outcomes. The selection of production volume as the key driver variable aligns with strategic planning practices, which emphasize examining how the most influential operational factors can alter future financial performance and long-term business objectives (Vacík et al. 2014).

Actual Calculation of Business Valuation for Sakasea Innovation Products

The first stage of valuation analysis was conducted to determine the financial feasibility of Sakasea's innovative product based on its actual operating conditions. This calculation used the Discounted Cash Flow (DCF) method to determine the Net Present Value (NPV) and Internal Rate of Return (IRR), and was supplemented with various other feasibility indicators to provide a holistic picture. The first step in the DCF analysis is to calculate the Present Value (PV) of the projected annual net cash flows over a five-year period. To test the sensitivity of the results, the NPV calculation was performed using two discount rate scenarios, namely r=10% and r=15%. These actual cash flows also serve as the basis for the IRR calculation. The details of the calculations are presented in Table 2.

The actual valuation results reveal that Sakasea's business, under current operational conditions, remains financially unfeasible. Based on the cash flow projection, the business records a negative annual net cash flow of IDR –121,923,842, resulting in a total Present Value of cash flows over five years of IDR –462,187,287 when discounted at a rate of 10%. When the discount rate increases to 15%, the total Present Value slightly improves but remains negative at IDR –408,707,629, reinforcing the same conclusion. These results indicate that the business has not yet reached the break-even point and requires strategic intervention to achieve profitability. The outcomes of NPV and IRR calculations, along with six other financial feasibility indicators, are summarized in Table 3 to present a comprehensive conclusion regarding Sakasea's baseline valuation performance.

The results in Tables 2 and 3 confirm that Sakasea's innovative product is financially unfeasible under actual operating conditions. The Break-Even Point (BEP) of 21,114 units compared to an actual production of only 1,160 units explains the severe imbalance between cost and output, resulting in an R/C Ratio of 0.17 and a negative Return on Investment (ROI) of -502.82%. The Net Present Value (NPV) of IDR –583,427,867 at a 10% discount rate further emphasizes that the business is destroying rather than creating value, consistent with the Profitability Index (PI) and Benefit-Cost Ratio (BCR) of 0.17. With no valid Internal Rate of Return (IRR) and a Payback Period exceeding five years, the project is clearly unable to recover its initial investment within its economic life. These combined indicators provide a comprehensive and conclusive diagnosis of non-feasibility, reinforcing that without strategic transformation, Sakasea's current business model is unsustainable (Ridwan et al. 2025).

Table 2. Net Present Value (NPV) calculation with r=10% and r=15% and Actual Cash Flow for Internal Rate of Return (IRR) calculation basis

Year	Cash Flow (IDR)	Discount Factor (r)		PV Cash Flow (IDR)	
		r=10%	r=15%	r=10%	r=15%
1	-121,923,842	0.9	0.9	-110,839,856	-106,020,732
2	-121,923,842	0.8	0.8	-100,763,506	-92,191,941
3	-121,923,842	0.8	0.7	-91,603,187	-80,166,905
4	-121,923,842	0.7	0.6	-83,275,625	-69,710,352
5	-121,923,842	0.6	0.5	-75,705,113	-60,617,698
Total PV Cash Flow				-462,187,287	-408,707,629

Calculation of Business Valuation Projections for Sakasea Innovation Products

1. Realistic Projection Calculation of Sakasea Innovation Product Business Valuation

After establishing the current unsatisfactory conditions as a starting point, the analysis proceeded to the projection stage to explore the future business potential of Sakasea's innovative products. This stage begins with a realistic scenario, built on the assumption of increasing production scale to 33,750 units per year, a target considered achievable in line with business development strategies. The basis for the change in viability is an improvement in annual net cash flow. With sales volume exceeding the break-even point (BEP), the business is projected to begin generating positive cash flow. The Net Present Value (NPV) calculations at discount rates of 10% and 15%, along with the cash flow details for the Internal Rate of Return (IRR) calculations, are presented in Table 4.

Under the realistic scenario, the financial performance of Sakasea shows a significant improvement compared to the baseline condition. As presented in Table 4, this scenario produces a positive annual net cash flow of IDR 81.599.418, demonstrating operational efficiency and improved cost management. This consistent positive cash flow fundamentally alters the valuation outcome, turning the Net Present Value (NPV) into a positive figure of IDR 173.659.422 at a 10% discount rate and IDR 153.565.302 at a 15% discount rate. These results confirm that the business achieves financial feasibility once the production volume increases to the projected level. A comprehensive summary of investment feasibility based on the eight financial indicators under this scenario is provided in Table 5, reflecting a solid foundation for sustainable growth.

Table 3. Actual calculation of business valuation of sakasea innovation products

Indicators	Actual Calculation
Revenue to Cost Ratio (R/C Ratio)	0.17
Return on Investment (ROI)	-502.82
Break Even Point (BEP) Unit	21,114
Break Even Point (BEP) IDR	237,340,296
Net Present Value (NPV) r=10%	-583,427,867
Internal Rate of Return (IRR)	N/A
Benefit Cost Ratio (BCR)	0.17
Profitability Index (PI)	0.76
Payback Period	-0.99

Table 4. Net Present Value (NPV) calculation with r=10% and r=15% and Realistic cash flow assumptions for Internal Rate of Return (IRR) clculation basis

Year	Cash Flow (IDR)	Discount Factor (r)		PV Cash Flow (IDR)	
		r=10%	r=15%	r=10%	r=15%
1	81.599.418	0,9	0,9	74.181.289	70.956.016
2	81.599.418	0,8	0,8	67.437.536	61.700.883
3	81.599.418	0,8	0,7	61.306.850	53.652.942
4	81.599.418	0,7	0,6	55.733.500	46.654.732
5	81.599.418	0,6	0,5	50.666.819	40.569.332
Total PV Cash Flow				173.659.422	153.565.302

Table 5. Calculation of realistic projections for the business valuation of sakasea's innovative products

Indicators	Realistic Assumptions Calculation
Revenue to Cost Ratio (R/C Ratio)	1.27
Return on Investment (ROI)	336.52
Break Even Point (BEP) Unit	21,083
Break Even Point (BEP) IDR	242,456,992
Net Present Value (NPV) r=10%	188,085,414
Internal Rate of Return (IRR)	36.27
Benefit Cost Ratio (BCR)	1.27
Profitability Index (PI)	12.14
Payback Period	1.49

The results of the analysis in a realistic scenario show a fundamental and significant transformation in business viability. In stark contrast to the current situation, all indicators now consistently show that Sakasea's innovative product business is viable and promising. This change is rooted in one key factor: achieving production scale (33,750 units) that successfully surpassed the break-even point (BEP) of 21,083 units. This success directly generates positive annual net cash flow, which serves as the foundation for all other viability indicators. The final positive Net Present Value (NPV) of IDR 188,085,414 indicates that, in this scenario, the Sakasea business is not only capable of covering all investment costs but also of creating added value for investors. This is further reinforced by an Internal Rate of Return (IRR) of 36.27%, a slightly healthy return rate that is significantly above the cost of capital (WACC 10%), making it an attractive investment proposition.

Other indicators confirm these findings. A Profitability Index (PI) of 12.14 indicates that every IDR invested will generate a return of IDR 12.14. Meanwhile, a Payback Period (PP) of 1 year and 5 months is a very acceptable return on investment period, as it is well within the project's economic life of 5 years. Overall, the findings from this realistic scenario demonstrate that while the Sakasea business is not viable at its initial operational scale, there is a clear path toward profitability and sustainability. This analysis shows that with the right strategies to scale up production and sales, Sakasea's innovative products have a strong foundation to become a viable and profitable business.

2. Calculation of Optimistic Projections for the Business Valuation of Sakasea's Innovative Products

The final stage of the projection analysis focuses on exploring the maximum financial potential of Sakasea through the optimistic scenario. This scenario assumes the achievement of the highest production and sales target of 54,000 units per year, representing strong market penetration and high consumer acceptance. The increase in production scale significantly boosts annual net cash flow, reflecting improved operational efficiency and greater revenue stability. The details of Net Present Value (NPV) at discount rates of 10% and 15%, along with the Internal Rate of Return (IRR) calculations, are presented in Table 6. The overall results confirm that under optimistic market conditions, Sakasea's innovative products demonstrate strong financial feasibility and promising long-term investment potential.

Table 6 indicates a substantial improvement in financial performance, with annual net cash flow rising to IDR 212,049,918. This significant increase illustrates the strong effect of higher production and sales capacity on overall profitability. As a result, the Net Present Value (NPV) reaches IDR 803,836,024 at a 10% discount rate and remains robust at IDR 710,824,214 when the rate increases to 15%. These outcomes demonstrate that the optimistic scenario places Sakasea's business in a highly feasible financial position with solid growth potential. A comprehensive summary of investment feasibility results based on eight financial indicators under this scenario is presented in Table 7, reinforcing the business's attractiveness to potential investors.

Table 6. Net Present Value (NPV) Calculation with r=10% and r=15% and Optimistic Cash Flow Assumptions for Internal Rate of Return (IRR) Calculation Basis

Year	Cash Flow (IDR)	Discount Factor (r)		PV Cash Flow (IDR)	
		r=10%	r=15%	r=10%	r=15%
1	212,049,918	0.9	0.9	192,772,653	184,391,233
2	212,049,918	0.8	0.8	175,247,866	160,340,203
3	212,049,918	0.8	0.7	159,316,242	139,426,263
4	212,049,918	0.7	0.6	144,832,947	121,240,229
5	212,049,918	0.6	0.5	131,666,316	105,426,286
Total PV Cash Flow				803,836,024	710,824,214

Table 7. Calculation of optimistic projections for the business valuation of sakasea's innovative products

Indicators	Optimistic Assumption Calculation
Revenue to Cost Ratio (R/C Ratio)	1.52
Return on Investment (ROI)	874.50
Break Even Point (BEP) Unit	21,083
Break Even Point (BEP) IDR	242,456,992
Net Present Value (NPV) r=10%	682,595,444
Internal Rate of Return (IRR)	46.69
Benefit Cost Ratio (BCR)	1.52
Profitability Index (PI)	19.42
Payback Period	0.57

The optimistic scenario reveals the peak financial feasibility and highest value creation potential of Sakasea's innovative product. If the company's strategic targets are met, the business becomes not only feasible but highly profitable, with a final Net Present Value (NPV) of IDR 682,595,444 and an Internal Rate of Return (IRR) of 46.69%, exceeding both the 10% cost of capital and the realistic scenario outcome. Other indicators further confirm strong profitability, including a Return on Investment (ROI) of 874.50%, a Profitability Index (PI) of 19.42, and the fastest Payback Period (PP) of only half year. These results highlight superior capital efficiency and reduced investment risk, establishing this scenario as a benchmark for future performance. Overall, the optimistic scenario provides aspirational financial targets and demonstrates Sakasea's potential to evolve into a sustainable and highly competitive business.

Comparison with Previous Studies

Compared with feasibility studies on more established small-scale businesses, Sakasea's baseline "non-feasible" result is notably different. For example, Afiyah et al. (2015) reported a positive NPV of 116,261,950, IRR of 116.33%, and a Payback Period of 1 year 7 months, concluding the business was feasible. Similarly, Arnold et al. (2020) found a feasible outcome for a tempe small-industry case, including NPV = 109,120,160 and IRR = 27.62%. The difference is explainable: those studies evaluate operations that are already closer to stable demand and operational scale, whereas Sakasea represents an early-stage innovative product where current production and sales volume remain below the breakeven threshold. Therefore, the contribution of this study is not merely reporting feasibility metrics, but demonstrating that scenario-based valuation can reveal feasibility pathways showing that Sakasea becomes feasible when scale surpasses BEP and efficiency improves, rather than concluding "non-feasible" as a final verdict.

Managerial Implications

The research results showing the business viability transformation of Sakasea's innovative products not only have academic value but also offer a series of crucial and actionable managerial implications that can serve as a strategic roadmap. The most fundamental and urgent implication is the necessity for management to prioritize aggressive scaling up of production and sales, given that the Break-Even Point (BEP) at 21,083

units is a critical threshold separating operational losses from profitability. More than just an internal target, this data-backed three-part narrative (actual, realistic, and optimistic) serves as a powerful strategic asset to be used as the primary communication tool when engaging with potential investors. This approach demonstrates transparency regarding initial risks while presenting a measurable, credible, and convincing vision of the future an approach highly valued in strategic decision-making (Vacík et al. 2014). Internally, these scenarios must be integrated into business operations as clear Key Performance Indicators (KPIs) to align team efforts. Finally, a deep understanding of cost structure and BEP levels provides a solid foundation for formulating smart pricing strategies, ensuring that the prices set are not only attractive to the functional food market willing to pay more (Steenhuis et al. 2011), but also healthy for the company's financial fundamentals (Hermann, 2015).

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Based on the business valuation analysis conducted through two stages actual analysis and scenario-based projections this study concludes that feasibility assessments based solely on initial operational conditions are insufficient and potentially misleading for innovative products such as Sakasea. Although the actual analysis indicates financially unfeasible conditions, these findings do not represent the true business potential but merely highlight challenges at the initial operational scale. This study empirically demonstrates that the application of scenario analysis can fundamentally transform perceptions of business feasibility. By projecting realistic and optimistic scenarios, it was revealed that the Sakasea innovative product has a clear path toward profitability and can become a highly viable business proposition. The key factor driving this feasibility transformation is the achievement of production and sales scale that successfully exceeds the Break-Even Point (BEP), confirming that the strategy to achieve economies of scale is the most critical determinant of success.

Recommendations

The main managerial recommendation for Sakasea's innovative product is to focus all resources and strategic efforts on achieving the minimum production and sales targets outlined in the realistic scenario as efficiently and quickly as possible. The results of the analysis across the three conditions actual, realistic, and optimistic should also be utilized as a transparent and convincing strategic communication tool when engaging with potential investors, highlighting initial risks while presenting measurable potential benefits. Additionally, the assumptions derived from the projection scenarios can be adopted as Key Performance Indicators (KPIs) to align internal team efforts with long-term business goals. For academic and practical advancement, future research is recommended to apply more advanced valuation methods such as Monte Carlo Simulation or Real Option Analysis to address uncertainty more comprehensively; however, the present study has limitations that arise from practical constraints faced during the research and from the analytical technique used. Specifically, the valuation relies on internal operational and financial records accessible during the study period and therefore reflects the documented cost structure and performance conditions at that time, while the scenario-based projections require assumptions about future production and sales volume and hold other parameters constant, making the results sensitive to changes in key drivers (e.g., volume, pricing, cost structure, and discount rate). Furthermore, subsequent studies could complement this quantitative approach by exploring qualitative aspects, such as consumer acceptance levels and comparative analysis of similar innovative products, to improve external validity and identify broader industry patterns and strategic implications.

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