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articles

Feasibility of Value Propositions Based on Importance Performance Analysis and Risk Using Simulation: Evidence From SMEs

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This study examines the feasibility of value propositions in Small and Medium Enterprises (SMEs) using Importance Performance Analysis (IPA) and risks, applying system dynamics simulation. The IPA plots the indicators in four quadrants to determine which areas should be prioritized for improvement. The issues in this study are the areas with high importance but with low performance such as return guarantees, product design and promotions. System Dynamics simulations are used to evaluate these factors and point to opportunities for action: add personnel to provide return guarantees, increase product design frequency and reallocate promotional budgets. The best improvement efforts are identified by evaluating the feasibility and risks of each alternative to improve the value proposition. This holistic approach provides a strategic framework for SMEs to enhance customer satisfaction, reduce operational costs, and attain sustainable growth.

Introduction

The firm's value propositions (Bowman & Ambrosini, 2010; Schiuma et al., 2012) are important in terms of what it provides and how it is aligned to fulfill customer expectations. Competition is tough in the information age and customers demand more from companies. They want quality products, customized experiences, and sustainable company operations (Lobo et al., 2024; Lobo & Samaranayake, 2020; Mitavskiy et al., 2009). A well-optimized value offer enables organizations to better recruit, retain and build loyalty among their consumers, resulting in long-term success and competitiveness (Frow & Payne, 2011; Heikka & Nätti, 2018; Tung et al., 2014).

This study focuses on digital fashion SMEs in West Java, Indonesia, which is facing severe challenges due to the lack of capital, workforce, and technology (Chan & Zailani, 2024; Liu et al., 2024). These constraints limit the company's ability to innovate, improve product quality and provide better services, which ultimately affects its competitiveness in the fashion industry (Berman, 2012; Butt et al., 2024; Ofoegbu, 2023). These challenges require a systematic and data-based approach to the enhancement of value propositions so that SMEs can make better use of their resources and satisfy customer needs (Diderich, 2024; Parkinson et al., 2019; Piepponen et al., 2022). Fashion is one of the leading categories in the Indonesian e-commerce ecosystem. Recent advances in internet technologies and mobile commerce have opened up opportunities for small and medium enterprises in the fashion industry to access domestic and global markets without the need for physical outlets. The Indonesian fashion industry is estimated to be worth more than IDR 200 trillion annually, a significant slice of the creative economy, driven by a strong trend for local products. Moreover, there is huge growth in the adoption of digital technology by SMEs. It is predicted that by 2025, about 63% of SMEs including the fashion industry will actively use digital tools in their business (Market Research Indonesia, n.d.). It is this potential that has led to the choice of fashion SMEs as the case study for this research.

Some major markers of a value proposition are fit to customer needs, unique benefits of the product, obvious differentiation from competitors, and measurable results that demonstrate how the product is solving specific pain points. The results of the research are shown in Table 1. The key indicators of the value proposition of the SME are as follows: product quality, low price, customer-oriented services, etc. (Bilgin Mawson, 2024; Kouptsov & Srai, 2023; Ziaie et al., 2021). Together, these indicators determine the SME's ability to meet customer expectations and maintain its position in the market.

The value propositions in the fashion industry are built on the delivery of a range of key elements that are attractive to customers (Boffa & Maffei, 2024; Saeedikiya et al., 2025; Zhu, Zhang, et al., 2024). For example, product

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Table 1. Indicators of Value Proposition

Indicator	Description
I-1	Product Quality
I-2	Product Design
I-3	Affordable Pricing
I-4	Return Guarantee
I-5	Promotions and Discounts
I-6	Custom Product Services
I-7	Low Minimum Order Quantity (MOQ)

Sources: Authors

quality guarantees compliance with industry standards, and modest and elegant designs appeal to consumers who want stylish but value-driven clothing (Gong & Yang, 2024; Gritt et al., 2024). The low price increases the market attractiveness of the SME and makes the products accessible to more consumers (He et al., 2024; Jafari-Sadeghi et al., 2023; Wang et al., 2024). Other factors like return guarantees and frequent promotional activities also help in building trust and loyalty (Elia et al., 2024; Ologeanu-Taddei et al., 2025; Sumbal et al., 2024). In addition, the SME can adapt to different customer needs, such as small batch orders, through custom product services and low MOQ production (Song et al., 2025; Westergren et al., 2024; Zhu, Huang, et al., 2024; Ziaie et al., 2021).

IPA is a method for identifying customers perceptions of the importance of product or service attributes and performance. Such an analysis assists organizations in pinpointing areas for improvement and in directing resources accordingly. In this study IPA is used to optimize value propositions. IPA is a strategic tool which evaluates attributes based on their importance for customers and the company's performance delivering them (Deng, 2008; Eskildsen & Kristensen, 2006). Attributes are mapped into four IPA quadrants (high importance–high performance, high importance–low performance, low importance–low performance, low importance–high performance), highlighting areas needing immediate improvement (Ho et al., 2016; Mikulić & Prebežac, 2008), continued excellence, or diminished focus, providing a clear path to align resources with customer priorities (Duke & Mount, 1996; Magal et al., 2009). In order to improve the value proposition, it is necessary to consider the risks and feasibility of each alternative to find the most optimal solution.

The main purpose of this study is to find out the differences between importance and performance levels of product or service attributes based on customer perceptions and to assess the most relevant improvement priorities. The choice of the IPA method is justified by the fact that it is consistent with the practical and contextual objectives of the case study analyzed, that is, to provide a clear and easily interpretable mapping of which attributes should be preserved, improved or reallocated in terms of resources. Therefore, this research is based on customer perceptions of attributes and their performance, which are the basis of the IPA analytical framework.

The IPA results serve as a basis for developing a system dynamics model to simulate strategic interventions in order to improve value propositions (Haggège et al., 2017; Heikka & Nätti, 2018). The system dynamic model developed in this study is a supportive tool for the analysis of IPA. This enables an examination of the effect of changes in the attribute performance on customer perceptions and the implications of such changes for the overall performance of the system over a given time horizon. Hence, the IPA with dynamic system model is expected to provide a more comprehensive and sustainable understanding than pure static analysis. The research shows Feasibility and Risks are combined to provide practical and affordable solutions. The specific objectives of this study are:

1. To analyze performance and importance of value proposition's attributes by IPA.
2. Develop a system dynamics model to simulate possible improvements.
3. To evaluate the risk and feasibility of the recommended best solution.

From a holistic perspective, the current study provides practical insights to SMEs (Antonio et al., 2024; Lindström et al., 2024; Weng et al., 2024) on how to improve their value propositions while balancing operational constraints and customer expectations (Annamalah et al., 2023; Rojas-García et al., 2024; Sun et al., 2024).

The novelty of this research is the integration of customer survey data with IPA and system dynamics simulations of value propositions, along with risk and feasibility evaluations. The findings of this study cannot be generalized directly to all SMEs. Rather, they intend to make conceptual and methodological contributions that can be transferred to other SMEs contexts that share similar features.

Literature Review

Customer Satisfaction and IPA

IPA offers a conceptual model to evaluate the correspondence between the perceived importance of attributes and their actual performance. Customer satisfaction is an important factor in measuring how far a company's products or services meet or exceed customer expectations (Gawor & Hoberg, 2019; Lindič & da Silva, 2011). High satisfaction levels are directly linked to greater customer loyalty, repeat purchases, and positive word-of-mouth recommendations (Baidya et al., 2023; Chiu et al., 2023). Loyal customers significantly reduce the customer acquisition costs and boost the overall company profitability and reputation in the market. Happy customers are more likely to trust a company, which in turn improves the company's reputation and increases its market share.

Value propositions are an important differentiator for competitive industries where many companies provide the same services and products. A compelling value proposition clearly articulates the unique benefits a business offers and how those benefits will solve customer needs and problems. In practice and prior research, key elements supporting ef-

fective value propositions have been seen to be product quality, fair pricing, personalized service and additional reassurances such as return policies. The combination of all of these aspects contributes to meeting customer expectations, building trust and loyalty, and remaining competitive in the market.

The Role of IPA

IPA is an important tool to analyze customer satisfaction and to create value proposition (Aigbedo & Parameswaran, 2004; Mohammed et al., 2017). IPA is used by companies to evaluate the importance and performance of specific traits to determine their strengths and weaknesses (McLeay et al., 2017; Tsoukatos, 2008). This method of analysis allows to align the product offerings with the customer expectations and to optimize the resource allocation (Matzler & Sauerwein, 2002).

Strategic Application of IPA

By categorizing the value proposition indicators within the IPA framework, businesses can develop targeted strategies for the improvement of the value proposition (Huan & Beaman, 2007; Prajogo & McDermott, 2011; Ringle & Sarstedt, 2016). Attributes located in Quadrant II (high importance, low performance) are targeted for improvement, while attributes in Quadrant I are strengths to be maintained (Ikasari et al., 2022). Less important attributes in Quadrants III and IV can be de-prioritized or maintained with minimal resources. The systematic process ensures that companies use resources effectively to improve their performance and competitiveness.

Feasibility and Risk

Then for each simulated scenario, feasibility and risk assessment is applied. So that decisions are taken about the feasibility and risk to the business as well as the customer preferences. Feasibility is an important tool in the business and project decision making. In general, a feasibility study includes three major aspects, i.e. market, technical and operational, and finance considerations (Chumaidiyah et al., 2025; Clifton & Fyffe, 1977). Feasibility is, in SMEs, often dictated by scarce resources, such as capital, human resources and market access. Chumaidiyah et al. (2024) proposed SMEs feasibility model by integrating the Business Model Canvas (BMC), functional organization and supply chain management. The model identifies five important variables: supply chain, production, value proposition, marketing and finance. This paper extends the development of this model with specific focus on the value proposition element. Some researchers have investigated feasibility from the point of view of finance feasibility (Ahmmed et al., 2025; Krishnappa et al., 2025).

In financial analysis of business feasibility, risk factors are usually considered. Risk analysis is used to determine if a business or project is feasible or likely to fail. Risks are inherent in business activities and come from operational, environmental, macroeconomic, financial, managerial risks (Cakir et al., 2025). Specific types of risk include information technology risk, financial risk and information risk that impact decision-makers. When assessing business risks, they are categorized based on the likelihood of occurrence and the potential impact of the risk event. Based on this assessment, the risks are classified as low, medium, and high (Maguire et al., 2019). Frameworks and standards have been developed and further built on the disciplines of risk science and decision-making to guide under conditions of risk and uncertainty (Challinor, 2025).

Integration of IPA, Feasibility, and Risk

Previous studies have largely used IPA, Feasibility Analysis, and Risk Analysis as standalone tools or in limited combinations, which restrict holistic decision making. The IPA is useful for prioritizing the critical factors but does not take into account the resource constraints or the uncertainty; Feasibility Analysis deals with the practicality of proposed actions but often does not have a systematic basis for prioritization; Risk Analysis often considers uncertainty in isolation from earlier stages of decision making. To overcome these limitations, this study proposes a sequential framework to integrate the three methods, in which, IPA is used to identify the priority factors, Feasibility Analysis is used to evaluate the feasibility of improving the priorities, and Risk Analysis is used to handle the uncertainty faced by feasible, high-priority actions, thereby improving the robustness and coherence of the decision-making process.

System Dynamics Method and Application

In various fields, such as strategic planning, system dynamics has been widely applied to analyse the long-term impacts of decisions made by organizations. Organizations can formulate more precise and effective strategies by conducting system dynamics simulation, thus achieve their desired long-term goals (Morecroft, 2007; Sterman, 2000). The models include a number of important variables such as financial performance, market demand, production capacity and other interrelated elements of the system in the context of strategic planning. A key technique in this modelling approach is the use of Stock and Flow Diagram (SFD) which depicts the dynamic evolution of these variables and their interdependences over time (Forrester, 1961). This approach enables organizations to better understand the internal and external dynamics that impact long-term performance and thus provides useful insights for strategic decision making.

Methodology

The current research is a quantitative systematic descriptive approach to collect and analyze data that provides broad insights into the importance and performance of the value proposition attributes (Haverila et al., 2021; Tontini & Picolo, 2014). This approach helps SMEs to obtain actionable insights from customer feedback and align its offerings with customer expectations.

The study is carried out using a quantitative descriptive method and is supported by two analytical methods, namely IPA and System Dynamics modelling. There are four main stages in the research process:

1. Survey Data Collection
   Data were collected using a structured questionnaire to determine the perception of respondents on the importance and performance of some selected attributes. This is the quantitative basis for the following analysis.
2. IPA
   The attributes were clustered into four quadrants based on perceived importance and performance using IPA. It offers a valuable way of determining what attributes are more important to improve or to focus on strategically.
3. Simulation of System Dynamics
   The prioritized attributes from IPA were used to simulate the strategic scenarios by System Dynamics modelling. This simulation outlines the relationships among the different variables and predicts possible outcomes from various strategies over time.
4. Risk and Feasibility Assessment
   After simulation of each scenario, the analysis considers risk (e.g. market uncertainty, operational risk) and business feasibility (e.g. cost, resource requirements, profitability). This ensures that the chosen strategies are not only customer-centric but also sustainable and resilient.

Survey Design

The data was gathered using a well-structured questionnaire that was administered to 31 respondents who had previous dealings with the SMEs. The sample size was fixed at N = 31 based on Cohen's (1988) recommendations for detecting a medium effect size ($d \approx 0.5$) with $\alpha = 0.05$ and power = 0.80, which requires approximately 27–30 participants. Moreover, previous studies using similar exploratory designs (Creswell, 2014; Yin, 2018) usually include 20–50 respondents. With the small population within one organization, N = 31 is adequate for exploratory purposes and for estimating initial effect size. To select a good mixture of respondents, repeat customers and new clients were selected. Respondents were women age 17-50 years old who were housewife, female worker or entrepreneur with income above 5 million rupiah per month. The present study is a single site case study with survey data from 31 of 50 (62%) participants in a single organization. The key indicators were rated on a 5-point Likert scale ranging from 1 (Very Unimportant/Unsatisfactory) to 5 (Very Important/Satisfactory) to allow for nuanced feedback.

The Table 2 survey was designed to assess the importance of these indicators and their performance, giving a balanced view of what customers care about and how well the SMEs deliver to those expectations.

Implementation Process

The survey was made available in both paper and electronic formats, which improved accessibility and convenience for the respondents. The questionnaire contained clear instructions to guide respondents in its completion and assistance was available for any questions. To facilitate timely data collection while maintaining the quality of responses, a one-week timeline for survey completion was adopted. To encourage participation, respondents were told that their feedback would be used to improve the SME's offerings.

The validity was tested by Pearson Product-Moment correlation at 5% significant level ($\alpha = 0.05$). The critical r value (r table) was 0.361 with the total number of respondents of 31. Reliability tests were conducted using Cronbach's Alpha and the results were as follows: Performance ($\alpha = 0.83$) (reliable); and Importance ($\alpha = 0.9777$) (highly reliable). The Cronbach's Alpha values were above the minimum threshold of 0.70, indicating that the instrument has good to excellent internal consistency.

Data Analysis Process

Once the responses were obtained, the data were aggregated to determine the total and mean scores of the indicators. The scores provide a systematic assessment of the relative importance and performance of each attribute (Musa et al., 2010). The calculations used the following formulas:

Total Score: $\sum Xi = X1 + X2 + X3 + \ldots + Xn$

Average Score: $(\sum Xi) / n$

Where: Xi = Value of item i, n = Total items.

The scores obtained were plotted on a Cartesian diagram based on the IPA framework (Barokhah et al., 2022; Yang et al., 2021). The IPA results were used to develop targeted strategies for the SME according to the positioning of each indicator within the quadrants:

1. Quadrant II Performance Gaps (High Importance, Low Performance)
2. Quadrant I Indicators (High Performance, High Importance)

This strategic classification helped to allocate resources in an efficient way to optimize the SME value propositions. The results of the IPA also provided inputs for definition of control variables in the dynamic system model. This model simulated and evaluated potential improvements providing actionable insights in aligning the SME's offerings with customer expectations and optimizing operational efficiency.

Simulation Process

The system dynamics model was constructed based on the behavior patterns of the elements in the value proposition system of SME X, a digital fashion SMEs in West Java, Indonesia. Historical data was collected over 19 months from January 2023 to July 2024. The data set contains sales and promotion records, financial statements, product development cost, labor cost, product quality measures, ad-

Table 2. Indicators and Questionnaire Statements

Sub Indicator	Questionnaire Statement
I-11	Products sold online use high-quality materials
I-12	Fashion products from the online store are durable and long-lasting
I-13	Fashion products offered have neat stitching and professional detailing
I-21	The product designs reflect a modest style suitable to my needs
I-22	The designs provide a modern appearance aligned with modesty principles
I-23	Patterns and colors create an elegant and understated impression
I-31	The prices offered are more affordable compared to competitors
I-32	Prices align with the quality provided
I-33	Discounts are frequent without sacrificing product quality
I-41	Return policies are clear and easy to understand
I-42	The return process is efficient and straightforward
I-51	The store frequently offers attractive discounts
I-52	Promotions influence my purchasing decisions
I-53	Information on discounts is easily accessible
I-61	Custom product services cater to personal preferences
I-62	Customer support is responsive to customization requests
I-71	Low MOQ (Minimum Order Quantity) enables small-scale orders
I-72	Low MOQ policies facilitate trial designs without large commitments
I-73	Terms for low MOQ are clear and understandable

Sources: Authors

vertisement cost, quantity human resource workers, revenue and other relevant operational data. These are the research limitations and the constraints for the development of the system dynamics model.

Results and Analysis

The study provides empirical evidence about the performance and perceived importance of the SME's value proposition attributes. The customer feedback data was systematically analysed to assess the extent to which the company's performance matches customer expectations, enabling the identification of attributes that need strategic improvement and those that need to be sustained. Table 3 reports the aggregated scores of performance and importance evaluations as reported by respondents. These scores provide a preliminary assessment of customer perceptions of the SME's value proposition attributes and a basis for further importance–performance analysis.

High importance scores indicate attributes that are important to customer satisfaction and performance scores reflect how well the company is delivering against customer expectations. The results show that the four variables with the highest scores in importance-performance analysis are promotions and discounts, product quality, affordable pricing and product design.

Table 3. Performance vs. Importance Analysis

Indicator	Performance	Importance
I-1	376	431
I-2	360	406
I-3	373	420
I-4	239	265
I-5	484	545
I-6	247	262
I-7	314	291

Sources: Data Processing

Table 4. Average Performance and Importance Ratings

Indicator	Average Performance	Average Importance
I-1	4.04	4.63
I-2	3.87	4.37
I-3	4.01	4.52
I-4	3.85	4.27
I-5	3.9	4.4
I-6	3.98	4.23
I-7	3.38	3.13

Sources: Data Processing

Average Performance and Importance Ratings

Table 4 presents the average performance and importance scores, which were used as the benchmark for plotting on the IPA chart. These scores are the axes upon which the IPA chart is divided into four quadrants.

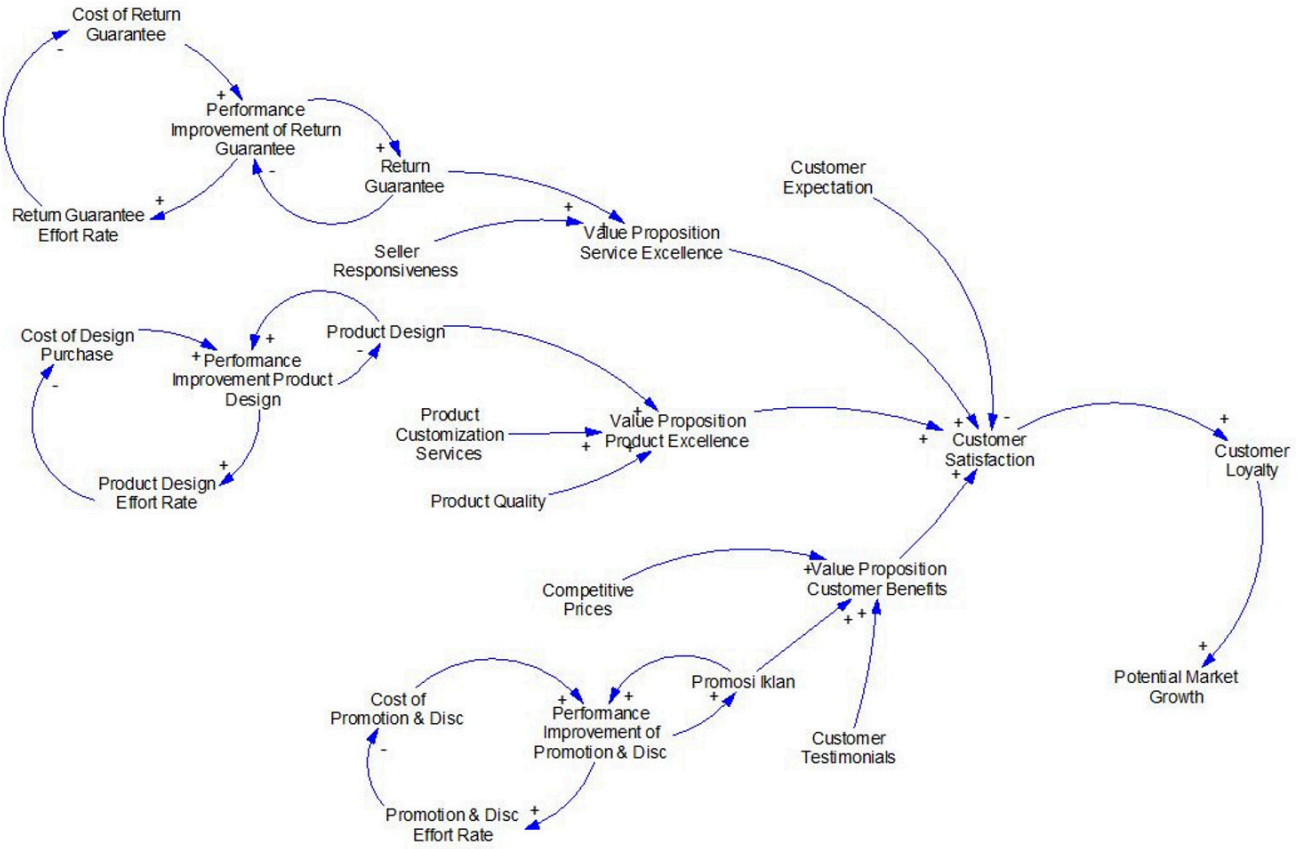

Figure 1. Causal Loop Diagram of Value Proposition Model

The IPA results that found three variables of low performance but high importance:

1. I-2 (Product Design) – Emphasize aesthetics and functionality to increase customer appeal.
2. I-4 (Return Guarantee): Optimize returns management processes to enhance customer confidence.
3. I-5 (Promotion & Discount) Ensure the budget for promotions and digital marketing activities is optimized for greater effectiveness

Causal Loop Diagram (CLD) Value Proposition

The Value Proposition Model. This is shown in the CLD (Figure 1). It shows the dynamic interaction of the three research variables that are (1) return guarantee as service excellence, (2) product design as product excellence, and (3) promotion & discount as customer benefit. Such interactions can identify strategic areas SMEs can focus on to improve competitiveness.

In the Value Proposition model, the CLD shows the interrelation between three variables, Return Guarantee, Product Design and Promotion & Discount. These three variables are the main components to improve the Value Proposition. The diagram also shows the effect of increasing Customer Satisfaction and the gap compared to Customer Expectation which together determine the Value Proposition score that comes from these three variables.

The Value Proposition score is a key element, a higher score means there is a higher potential to increase Customer Loyalty. Finally, this increase in customer loyalty supports the Potential Market Growth which is a key expectation of SMEs. The efforts to improve the Value Proposition (cost allocation) impact on the effort rate and are directed at optimizing the performance of the Value Proposition based on the results of the IPA analysis. Hence, the association between Value Proposition, Customer Loyalty and Potential Market Growth is a strategic cycle in decision making through Return Guarantee, Product Design and Promotion & Discount variables.

Stock and Flow Diagram (SFD) Value Proposition

The SFD is a graphical representation of the system operations by illustrating the relationship between stocks and flows that lead to the changes in variables over time. This study intends to provide a holistic view of the system operation including the interaction among components and the policy effects. The SFD model is used to run simulations that evaluate trends in stocks, the sensitivity to key variables and alternative policy scenarios. The results are summarized in tables that compare stock and flow values for the different time periods and scenarios that allow the identification of critical points, the influence of the parameters and strategic recommendations. Therefore, SFD analysis and its interpretation provide a solid basis for data-driven decision making in this research context. The SFD (Figure 2) captures the key variables that influence the value proposition:

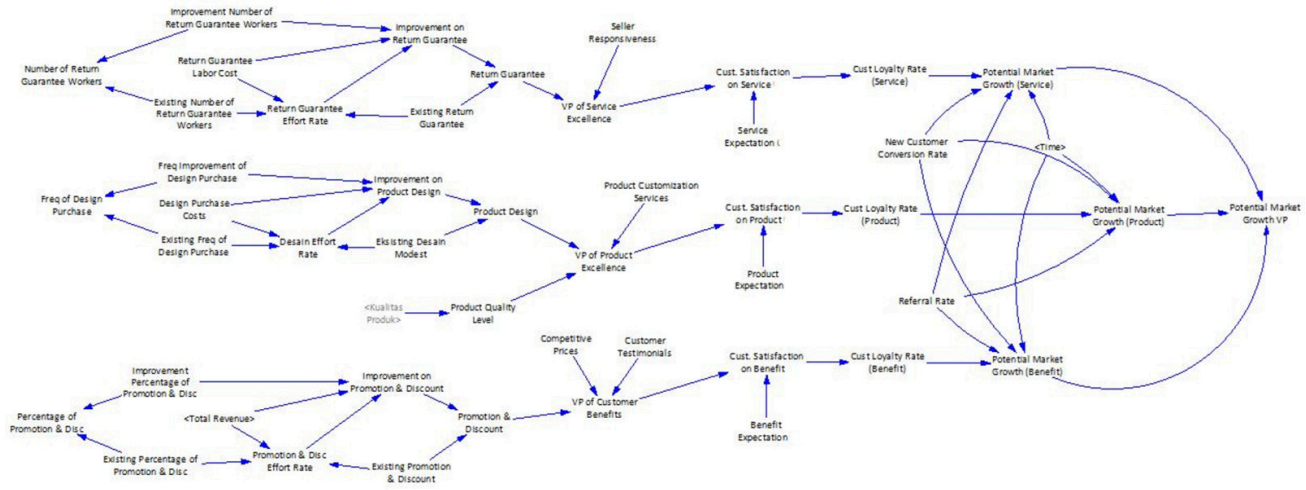

Figure 2. Stock and Flow Diagram Value Proposition

The following are the important variables in SFD that significantly contribute to increasing value proposition, customer loyalty and potential market growth.

1. Return Guarantee: Efficiency in handling product returns.
2. Product Design: Update frequency in line with market trends
3. Promotion & Discount: Allocate budget for greater reach and market penetration.

Table 5 SFD Value Proposition remains the same and includes detailed definitions and equations for variables with an emphasis on dynamic relationships impacting customer satisfaction and market growth.

Analysis of SFD Model

1. Return Guarantee: Policies on product returns have a direct effect on customer loyalty. The focus of optimization is workforce expansion.
2. Product Design: Regular updates increase the appeal of products and customer satisfaction.
3. Promotions & Discounts: Strategic positioning of the promotion budget helps penetrate the market.

Variable linkage to value proposition

The Customer Loyalty Rate is the one indicator that connects many attributes (benefits, product quality, service, etc.) with the possibility of market growth. The market expansion is directly proportional to the improvements of these attributes.

Model Validation Results

To ensure the reliability of the model, validation was performed by comparing the simulation results with actual data. The error levels (E1 and E2) were within the required thresholds, showing the validity of the model.

a. Validation of New Customer Conversion Rate Variable
   The validation results in Figure 4 show that the error rate is 0.00%, meeting the criteria of E1<5% and E2<30%.
b. Referral Rate Variable Validation.
   Validation confirmed a 0.00% error rate confirming the robustness of the model.

Scenario Development for Value Proposition Simulation

The IPA mapped out the key variables influencing the Customer Loyalty Rate and Potential Market Growth. Simulation Results for the Value Proposition Model gives an insight for various scenarios.

Simulation Results and Potential Improvements

Simulation was done based on the SFD results to understand the effect of three important variables (Return Guarantee, Product Design and Promotions & Discounts) on Potential Market Growth. The simulations are designed to test the feasibility and effectiveness of different improvement scenarios, with emphasis on cost effective approaches that would support the company's objectives.

The findings highlight the necessity of matching investment with projected market growth in order to achieve a sustainable improvement in the value proposition of the SME. Detailed results and strategic implications of each variable are as follows:

a. Return Guarantee
   The simulation results show that the addition of one worker to the process can significantly improve the efficiency of the process with a Potential Market Growth of 8.18%. The benefits achieved for the low cost make this scenario quite feasible.
   The improvement is expected to bring 4,530 new customers with an additional revenue of Rp670,500,000 and is a cost effective and impactful strategy. One worker added that it was low risk.
b. Product Design

Table 5. Stock and Flow Diagram (SFD) Value Proposition

Variable	Definition	Equation
Benefit Expectation	Customers' expectations of the benefits provided by the product or service.	4.64
"Cust. Satisfaction on Benefit"	Customer satisfaction with the benefits derived from the product or service.	(Customer Benefits/ Benefit Expectation) *100
"Cust. Satisfaction on Product"	Customer satisfaction with product quality and performance.	(Product Excellence/ Product Expectation) *100
"Cust. Satisfaction on Service"	Customer satisfaction with the service provided.	(Service Excellence/ Service Expectation) *100
Customer Benefits	Perceived benefits of the product or service experienced by customers.	(Competitive Price + Product Promotion + Customer Testimonials) / 3
Customer Loyalty Rate	Percentage of customers remaining loyal to a product or brand over a given period.	("Cust. Satisfaction on Benefit"+ "Cust. Satisfaction on Product"+ "Cust. Satisfaction on Service"
Desain Modest	Simple yet functional and aesthetically pleasing product design.	3.87
Return Guarantee	Product return policies allowing customers to return unsuitable goods.	3.85
Competitive Price	Price competitiveness compared to similar products in the market.	4.1
Product Quality	Overall product quality, including durability, functionality, and appearance.	2.46/ 100
Product Customization Service	Options for customers to modify products to meet their needs.	3.68
New Customer Conversion Rate	Percentage of new customers acquired from potential customers.	Actual Data
Potential Market Growth	Estimated future market growth.	(Customer Loyalty Rate*(New Customer Conversion Rate (Time)*Referral Rate (Time)*100))
Product Excellence	The highest quality of the product based on its features, performance, and competitiveness.	(Modest Design + Product Customization Service + Product Quality Level) / 3
Product Expectation	Customers' expectations of the product's features and performance.	4.5
Product Promotion	Marketing activities aimed at increasing sales and raising product awareness.	3.9
Referral Rate	The percentage of new customers acquired through recommendations from existing customers.	Actual data
Seller Responsiveness	The speed and effectiveness of the seller in responding to customer needs or problems.	4.6
Service Excellence	High standards in service delivery that exceed customer expectations.	(Return Guarantee + Seller Responsiveness) / 2
Service Expectation	Customers' expectations of the quality and speed of the services received.	4.5
Customer Testimonials	Customers' reviews about their experiences with the product or service.	4.82
Product Quality Level	Assessment of the overall quality of the offered product.	((Product Quality * 5) + 4.4)
Design Purchase Cost	The cost of acquiring product designs to maintain modest design performance.	Actual data
Frequency of Design Improvement Purchase	Increases or improvements in the frequency of design purchases aimed at enhancing modest design performance.	0
Existing Design Purchase Frequency	The frequency of design purchases currently conducted by the company, which ranges between 5–10 designs annually. For simulation purposes, the maximum frequency, 10, is used.	10
Design Purchase Frequency	The total frequency of design purchases conducted.	Existing Design Purchase Frequency + Design Improvement Purchase Frequency

Variable	Definition	Equation
Desain Effort Rate	The cost required to improve the performance of the value proposition variable by dividing the performance by the existing costs incurred.	((Existing Design Purchase Frequency * Design Purchase Cost) / Existing Modest Design
Total Revenue	The monthly revenue generated.	Actual data
Improvement in Advertisement Promotion Percentage	Increase in the percentage of advertisement promotion aimed at improving promotional performance.	0%
Existing Advertisement Promotion Percentage	The current percentage of advertisement promotion costs, which is 9% of the monthly revenue.	9%
Total Advertisement Promotion Percentage	The total percentage of advertisement promotion costs as a proportion of revenue.	Existing Advertisement Promotion Percentage + Improvement in Advertisement Promotion Percentage
Promotion Effort Rate	The cost required to improve the performance of the advertisement promotion variable by dividing the performance by the existing costs incurred.	(Total Revenue * Existing Advertisement Promotion Percentage) / Existing Product Promotion
Human Resource Cost for Return Guarantee (HR GR)	The cost of manpower as packaging operators who also handle return guarantee management.	Actual data
Qty Improvement HR GR	Increase in the number of workers to support the return guarantee process.	0
Qty Existing HR GR	The current number of workers supporting the return guarantee process, currently totaling 4, who also act as Packaging Operators.	4
Qty HR GR	The total number of workers supporting the return guarantee process. Formula: Improvement in HR GR Quantity + Existing HR GR Quantity.	Qty Improvement HR GR+Qty Existing HR GR
GR Effort Rate	The cost required to improve the performance of the return guarantee variable by dividing the performance by the existing costs incurred.	(HR GR Cost * Existing HR GR Quantity) / Existing Return Guarantee

Sources: Data Processing

Increasing product design update frequency to 12 times a year increases the Potential Market Growth by 5.40%. This is a compromise solution for the distribution of forces and improving efficiency. This corresponds to the market situation and needs of customers.

Scenario is feasible and effective, expected to attract 2,991 new customers with potential revenue Rp448,650,000, 12 times the design frequency for low risk.

c. Promotion & Discount

A promotion budget of 12% of revenue offers the highest potential market growth of 7.74% but this is not feasible due to the disproportionately high cost to benefit ratio.

Despite the growth potential, the additional cost of Rp382,459,375 makes this scenario infeasible from the cost-benefit perspective. However, the 12% advertising increase is seen as high risk.

Analysis of the results of the SFD allows one to construct scenarios simulating the variables influencing the value proposition. These scenarios are based on a detailed analysis of three main variables that significantly contribute to the Customer Loyalty Rate and impact The Potential Market Growth. The three variables are Return Guarantee, Product Design and Promotion & Discount.

When seeking to improve and optimize the performance of the value proposition, the degree of feasibility should be considered, i.e. (1) if the improvement proposed can be effectively implemented by the company, and (2) if the cost-benefit analysis shows an appealing ratio. The comparison of cost and benefit is a key consideration to assess the feasibility of each optimal alternative obtained from the simulation results for each scenario.

The best outcome is Scenario 1, where the value proposition is enhanced by guarantees of return, which is calculated from five simulation scenarios. This means adding one employee with an annual cost of around IDR 32,500,000. This improvement is expected to lead to a potential market growth increase of 8.18%. It is estimated to produce additional 4,530 customers. It will boost sales revenue by IDR 670,500,000. This initiative can be considered viable in terms of the feasibility of cost-benefit analysis. Table 12 below gives simulation scenarios for optimization of each variable.

In the simulation with product design variables, the best scenario was found to be Scenario 2, which is adding two product designs per year. This effort will incur an additional cost of IDR 6,000,000 and is expected to increase potential

Table 6. Validation of the New Customer Conversion Rate Variable

Month	Manual Data	Simulation Result	Error Rate
1	0.100	0.09965	0.00%
2	0.118	0.11763	0.00%
3	0.105	0.10490	0.00%
4	0.122	0.12207	0.00%
5	0.057	0.05676	0.00%
6	0.074	0.07373	0.00%
7	0.103	0.10252	0.00%
8	0.059	0.05902	0.00%
9	0.095	0.09491	0.00%
10	0.086	0.08585	0.00%
11	0.066	0.06607	0.00%
12	0.091	0.09078	0.00%
13	0.082	0.08228	0.00%
14	0.068	0.06834	0.00%
15	0.101	0.10058	0.00%
16	0.089	0.08915	0.00%
17	0.068	0.06763	0.00%
18	0.121	0.12111	0.00%
19	0.057	0.05726	0.00%
Standard Deviation	0.02	0.02	
E1		0.00%	
E2		0.00%	
Conclusion		**E1 < 5 %, E2 < 30 %, the variable is valid**	

customer growth by 5.40%. This growth is expected to add 2,991 customers, generating an increase in sales of IDR 448,650,000. The feasibility results of improving the value proposition through better product design are considered as feasible.

The best result was achieved in Scenario 3 with the intervention on the promotion and discount variables to reinforce the value proposition, using dynamic simulation. This involves increasing the promotion and discount budget by 3%, from 9% to 12%. The additional cost of IDR 382,459,375 for promotions and discounts is expected to increase the growth of potential customers by 7.74%. Thus, this would lead to an additional 4,287 customers with additional revenue estimated to be IDR 643,050,000. Even though, the feasibility results for strengthening the value proposition through promotions and discounts are considered as unviable, as the additional costs represent 59% of the estimated revenue.

Strategic Recommendations

1. Concentrate on Doable Enhancements:
   - Focus on improving the efficiency of return guarantee by adding one worker (Scenario 1)
   - Increase the product design frequency to 12 times a year (Scenario 2).
2. Plan Promotions Strategically:
   - Evaluate various promotion strategies to optimize the cost and growth impact without exceeding the budget

SMEs can incorporate these insights into its decision-making process to improve its value propositions effectively, meet the customer expectations, and attain sustainable growth in the market.

Discussion

The value proposition is one of the central elements of the BMC. It defines the core value that a business provides to its customers (Osterwalder et al., 2014). This value is the main reason that customers prefer a company's products or services to those of a competitor. The value proposition is examined in this study using a customer survey and the IPA method to determine the most important elements of the value proposition and those that require improvement. The research novelty is this approach that combines customer perception analysis with the performance evaluation of business elements.

Based on the IPA analysis, three indicators of value proposition were found to be of high importance and low performance and are considered to be the priority areas for improvement. This result is in line with previous research (Martilla & James, 1977; Ormanović et al., 2018) that emphasizes the importance of understanding customer needs

Table 7. Validation of the Referral Rate Variable

Month	Manual Data	Simulation Result	Error Rate
1	0.1074	0.107378	0.00%
2	0.1221	0.122135	0.00%
3	0.1296	0.129584	0.00%
4	0.1072	0.107246	0.00%
5	0.0932	0.0931663	0.00%
6	0.1120	0.111966	0.00%
7	0.0921	0.0921336	0.00%
8	0.0913	0.0913113	0.00%
9	0.0944	0.0944139	0.00%
10	0.0987	0.0986715	0.00%
11	0.0908	0.0908376	0.00%
12	0.0915	0.0915483	0.00%
13	0.0901	0.0900581	0.00%
14	0.0903	0.0903248	0.00%
15	0.0913	0.0913247	0.00%
16	0.0912	0.0912427	0.00%
17	0.0911	0.0911252	0.00%
18	0.0919	0.0918673	0.00%
19	0.0919	0.091933	0.00%
Standard Deviation	0.01	0.01	
E1		0.00%	
E2		0.00%	
Conclusion		**E1 < 5 %, E2 < 30 %, the variable is valid**	

Table 8. Control Variables Scenarios

Value Proposition	Simulated Variables	Scenario	Description
Return Guarantee	Number of human resources supporting the return guarantee process	0	Representative of the existing condition, with 4 workers.
		1	Adding 1 (one) new worker.
		2	Adding 2 (two) new workers.
		3	Adding 3 (three) new workers.
Product Design	Frequency of design purchases	0	Representative of the existing condition, with 10 purchases per year.
		1	Increasing design purchases to 11 times per year.
		2	Increasing design purchases to 12 times per year.
		3	Increasing design purchases to 13 times per year.
Promotion & Discount	The Percentage of Advertising Costs from Total Revenue	0	Representative of the existing condition, with advertisement costs at 9% of total revenue.
		1	Increasing advertisement costs to 10%.
		2	Increasing advertisement costs to 11%.
		3	Increasing advertisement costs to 12%.

in the development of successful business strategies. However, the application of IPA in the context of SMEs is relatively rare and therefore this study is a novel contribution to the SMEs management literature.

The next step was to design alternative strategies to improve the value proposition through system dynamics simulation (Lafuente et al., 2020; Sánchez-García et al., 2023). This simulation approach allows researchers to assess different improvement scenarios in terms of implementation

Table 9. Simulation Results for Return Guarantee

Scenario	Qty HR (workers)	HR Cost/ worker	Total Cost	Return Guarantee Effort Rate	Value Proposition Score	Discussion
Scenario 0	4		Rp10,000,000		3.85	To optimize Return Guarantee performance, adding one worker in the packaging department specifically for handling returns is necessary. Adding 2–3 workers may lead to inefficiency or excessive costs. Addition of one worker classified as low risk
Scenario 1	**5**		Rp12,500,000		**4.8125**	
Scenario 2	6		Rp15,000,000		5.775	
		Rp2,500,000		Rp2,597,400		
Scenario 3	7		Rp17,500,000		6.7375	

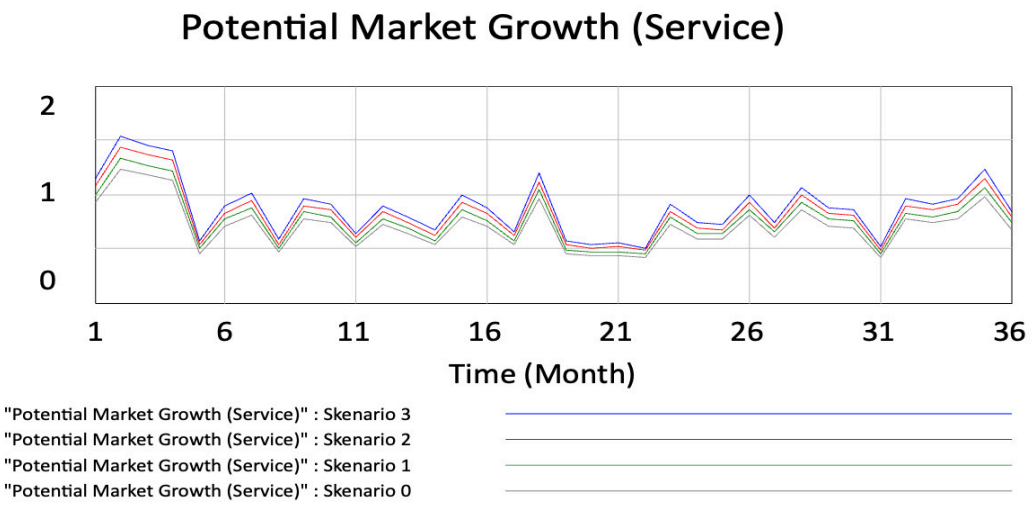

Figure 3. Simulation Graph of Return Guarantee

feasibility and risks. The proposed solutions were designed to fit the current conditions of the SMEs as well as the research assumptions that delimit the scope of the study, thus ensuring the applicability and relevance of the results. The simulation model is informative for the present case study but can also be further developed in future research to increase its representativeness.

Moreover, the model can be adapted for other SMEs with similar characteristics, thus enabling a broader generalization of the research findings. Therefore, the integration of IPA and system dynamics simulation in enhancing the value proposition can serve as a strategic reference for the sustainable development of SMEs businesses.

Conclusions

This study offers a holistic approach to optimization of value propositions in SMEs through integration of IPA, system dynamics modeling, and feasibility assessment. The analysis showed that priority areas such as product design, return guarantees, promotions and discounts are high importance but low performance areas and should be strategically addressed. The IPA model identified these attributes as important for improving customer satisfaction and competitiveness.

SFD simulation results showed that increasing the workforce capacity to manage the return guarantees significantly improved the efficiency of the process, resulting in an increase of 8.18% in the potential market size, at a relatively low and feasible cost. Likewise, by designing product updates 12 times a year, the potential market size increased by 5.40% in line with customer expectations and ensuring cost efficiency. Despite the market growing by 7.74%, it was decided that raising the promotional budget to 12% of the total revenue was not financially viable, as the costs outweighed the benefits.

The suggested approaches based on these results are to focus mostly on cost effective improvements in return guarantees and product design upgrades. SMEs should explore other channels of promotions and discounts that would provide a cost-benefit balance to sustain market growth. The study also highlights the importance of using IPA in

Table 10. Simulation Results for Product Design

Scenario	Design Purchase Frequency	Design Purchase Cost/unit	Total Cost	Design Modesty Effort Rate	Value Proposition Score	Discussion
Scenario 0	10		Rp30,000,000		3.87	Increasing the design purchase frequency to 12 times/year is necessary to achieve optimal performance for Modest Design. Purchasing up to 13 times may lead to inefficiency or unnecessary expenses. Increasing the design frequency to 12 times is categorized as low risk.
Scenario 1	11		Rp33,000,000		4.30	
Scenario 2	**12**		Rp36,000,000		**4.73**	
	13					
		Rp3,000,000		Rp6,976,740		
Skenario 3			Rp39,000,000		5.16	

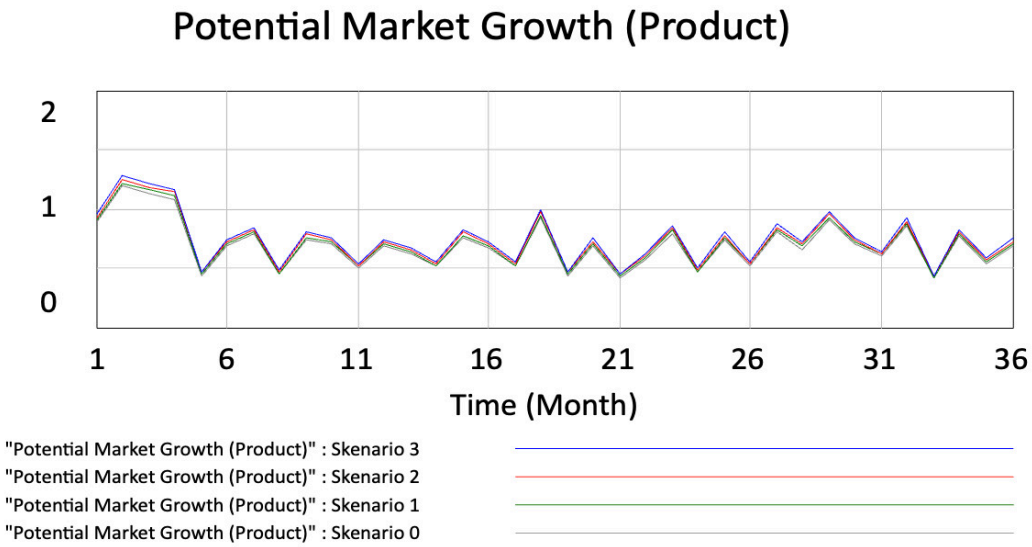

Figure 4. Simulation Graph of Product Design

conjunction with system dynamics modelling as a data-driven approach to decision-making, assisting SMEs in effectively distributing resources and matching their offerings to customer expectations.

However, the study is limited to a digital fashion SME X, and future research can apply the proposed framework to other industries to validate its scalability and generalizability. In addition, qualitative customer feedback can be incorporated to improve the analysis and strategies, providing further insights on how to optimize value propositions. The paper proposes a new method of incorporating data from a scientific questionnaire into quantitative analysis, based on simulation techniques. It also includes decision-making processes trying to optimize value propositions considering both risks and feasibility.

Theoretical Implication

This study makes a significant contribution to the development of the value proposition concept and analytical approaches in the management discipline. First, it connects value proposition testing and the IPA method through customer surveys. This approach is novel as these two concepts have been investigated separately in the previous research. The integration leads to a value proposition that is immediately validated by customers, thus increasing the relevance

Table 11. Simulation Results for Promotion & Discount

Scenario	Advertisement Cost %	Total Revenue (Months 1–19)	Advertisement Cost (Months 1–19)	Advertisement Effort Rate	Value Proposition Score	Conclusion
Scenario 0	9%		Rp1,376,853,750		3.90	Increasing the advertisement cost percentage from 9% to 12% of total revenue is necessary to achieve optimal advertisement performance. The 12% increase in advertising is considered high risk.
Scenario 1	10%		Rp1,529,837,500		4.33	
Scenario 2	11%		Rp1,682,821,250		4.77	
Scenario 3	**12%**	Rp15,298,375,000	Rp1,759,313,125	Rp353,000,000	**5.03**	

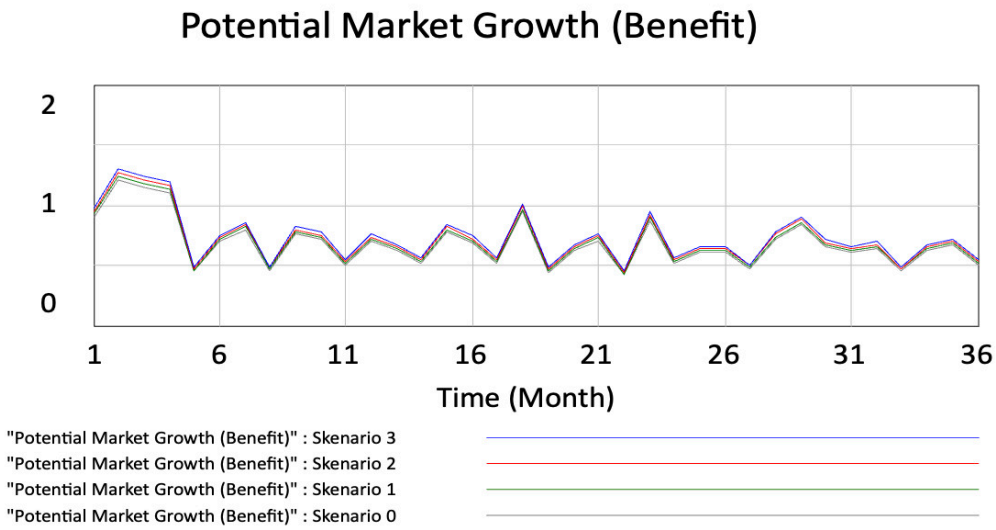

Figure 5. Simulation Graph of Promotion & Discount

Table 12. Simulation Scenarios for Optimizing Value Proposition Variables

Value Proposition	Affected Variable	Existing Condition	*Improvement (Best Scenario)*	Cost Increase (Rp)	*Impact on Potential Growth*	*Risk*	*Feasibility*
Return Guarantee	Number of Return Guarantee Service Workers	4 workers	5 workers	32.500.000	8.18%	Low	Feasible
Product Design	Frequency of Design Purchases	10 times/ year	12 times/ year	6.000.000	5.40%	Low	Feasible
Promotion & Discount	Percentage of Advertisement Costs	9%	12%	382.459.375	7.74%	High	Not Feasible

and accuracy of the concept in addressing real consumer needs.

Second, this study establishes a system dynamics model to represent the value proposition as a system that drives customer growth. The model uses survey data and other quantitative data in mathematical equations which are used to develop an SFD within the system dynamics framework. This approach contributes to the literature by providing a more holistic understanding of the value proposition from a systemic and dynamic perspective.

Thirdly, the new method is proposed by adding risk levels and feasibility analysis in evaluation process. By considering risk factors in the feasibility assessment of alternative solutions for value proposition enhancement, more optimal and realistic recommendations are possible. It contributes to the theoretical debate on risk management and feasibility studies, especially in terms of the development of value propositions that focus on sustainability and effectiveness of implementation.

Practical Implication

The research model developed in this study may be regarded as a strategic reference for SMEs to improve their value proposition and gain customers in highly competitive markets. The IPA approach is used to measure the importance and performance level of the different elements offered to the customers thus the SMEs can identify and prioritize the key areas of improvement.

This research provides practical implications for SMEs to focus on elements like return guarantee and product design to enhance their value proposition as they have been proved to significantly influence customer satisfaction and loyalty. Furthermore, the model includes considerations of risk and feasibility in the evaluation of alternative solutions, including both cost and benefit aspects. This allows SMEs to choose more optimal and realistic strategies for implementation.

To use the proposed model effectively it is necessary to reconsider the research assumptions and limitations and make sure they are in compliance with the real system conditions. The results of this study can be used as a decision support tool for the improvement of value proposition strategy. Future model development may consider inclusion of more contextually relevant variables consistent with the dynamic nature of SMEs operations.

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References

Ahmmed, M. S., Isanaka, S. P., Malik, A. W., Mahmood, M. A., & Liou, F. (2025). Feasibility analyses of distributed digital factories over traditional factories: case studies and comparison. *Journal of Electronic Business & Digital Economic*. https://doi.org/10.1108/JEBDE-01-2025-0002

Aigbedo, H., & Parameswaran, R. (2004). Importance-performance analysis for improving quality of campus food service. *International Journal of Quality and Reliability Management*, *21*(8), 876–896. https://doi.org/10.1108/02656710410551755

Annamalah, S., Paraman, P., Ahmed, S., Pertheban, T. R., Marimuthu, A., Venkatachalam, K. R., & T, R. (2023). Exploitation, exploration and ambidextrous strategies of SMES in accelerating organisational effectiveness. *Journal of Global Operations and Strategic Sourcing*. https://doi.org/10.1108/JGOSS-08-2022-0090

Antonio, J. L., Schmidt, A. L., Kanbach, D. K., & Meyer, N. (2024). Enacting disruption: how entrepreneurial ventures innovate value propositions to increase the attractiveness of their technologies. *International Journal of Entrepreneurial Behaviour and Research*, *30*(4), 885–915. https://doi.org/10.1108/IJEBR-07-2023-0688

Baidya, M., Maity, B., & Goswami, S. (2023). A value-driven touchpoints strategy for managing the customer experience process. *Business Process Management Journal*, *29*(7), 2147–2166. https://doi.org/10.1108/BPMJ-02-2023-0093

Barokhah, A., Hamzah, M. L., Saputra, E., & Muttakin, F. (2022). An Integration of End User Computing Satisfaction and Importance Performance Analysis on Website. *Proceedings - 2022 IEEE International Conference on Cybernetics and Computational Intelligence, CyberneticsCom 2022*, 212–217. https://doi.org/10.1109/CyberneticsCom55287.2022.9865609

Berman, S. J. (2012). Digital transformation: Opportunities to create new business models. *Strategy and Leadership*, *40*(2), 16–24. https://doi.org/10.1108/10878571211209314

Bilgin Mawson, O. (2024). Gen Z talent attraction in ZEV manufacturing: a corporate case study of leveraging talent analytics to optimise employer value propositions. *Strategic HR Review*, *23*(1), 20–29. https://doi.org/10.1108/shr-11-2023-0064

Boffa, E., & Maffei, A. (2024). Investigating the impact of digital transformation on manufacturers' Business model: Insights from Swedish industry. *Journal of Open Innovation: Technology, Market, and Complexity*, *10*(2). https://doi.org/10.1016/j.joitmc.2024.100312

Bowman, C., & Ambrosini, V. (2010). How value is created, captured and destroyed. *European Business Review*, *22*(5), 479–495. https://doi.org/10.1108/09555341011068903

Butt, A., Imran, F., Helo, P., & Kantola, J. (2024). Strategic design of culture for digital transformation. *Long Range Planning*, *57*(2). https://doi.org/10.1016/j.lrp.2024.102415

Cakir, F. S., Yazici, O., & Adiguzel, Z. (2025). Understanding the impact of external risk factors on business performance: a comprehensive analysis. *Foresight*. https://doi.org/10.1108/FS-02-2025-0025

Challinor, A. (2025). Applying current frameworks and standards for risk management and decision-making to the field of violence risk assessment. *Journal of Forensic Practice*. https://doi.org/10.1108/JFP-05-2025-0050

Chan, C. Y. R., & Zailani, S. (2024). Capabilities to create new value for business sustainability: a retailer case study from Malaysia. *Benchmarking*. https://doi.org/10.1108/BIJ-07-2023-0499

Chiu, W. H., Dai, Z. J., & Chi, H. R. (2023). Mastering customer lock-in by servitization innovation strategies of asset specificity. *Journal of Business and Industrial Marketing*, *38*(13), 220–244. https://doi.org/10.1108/JBIM-02-2023-0121

Chumaidiyah, E., Fauzi, P. M., & Kamil, A. A. (2024). Enhancement of SME feasibility through the integration of BMC, functional organization, and SCM. *Cogent Business & Management*, *11*(1). https://doi.org/10.1080/23311975.2024.2315678

Chumaidiyah, E., Madao, M., & Fauzi, P. M. (2025). Digital Marketing Intervention on Dynamic Finance and Feasibility Using Simulation: A Case Study. *SAGE Open*, *I*(17). https://doi.org/10.1177/21582440251336516

Clifton, D. S., & Fyffe, D. E. (1977). *Project Feasibility Analysis: A Guide To Profitable New Venture*. John Wiley & Sons.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Sage Publications.

Deng, W. J. (2008). Fuzzy importance-performance analysis for determining critical service attributes. *International Journal of Service Industry Management*, *19*(2), 252–270. https://doi.org/10.1108/09564230810869766

Diderich, C. (2024). An axiomatic model towards understanding value creation and appropriation in demand-driven markets. *Journal of Strategy and Management*, *17*(2), 375–390. https://doi.org/10.1108/JSMA-11-2023-0299

Duke, C. R., & Mount, A. S. (1996). Rediscovering performance-importance analysis of products Distilling consumer attitudes and opinions Effective managerial tools. *JOURNAL OF PRODUCT & BRAND MANAGEMENT*, *5*(2).

Elia, G., Solazzo, G., Lerro, A., Pigni, F., & Tucci, C. L. (2024). The digital transformation canvas: A conceptual framework for leading the digital transformation process. *Business Horizons*, *67*(4), 381–398. https://doi.org/10.1016/j.bushor.2024.03.007

Eskildsen, J. K., & Kristensen, K. (2006). Enhancing importance-performance analysis. *International Journal of Productivity and Performance Management*, *55*(1), 40–60. https://doi.org/10.1108/17410400610635499

Forrester, J. W. (1961). *Industrial Dynamics*. MIT Press.

Frow, P., & Payne, A. (2011). A stakeholder perspective of the value proposition concept. *European Journal of Marketing*, *45*(1), 223–240. https://doi.org/10.1108/03090561111095676

Gawor, T., & Hoberg, K. (2019). Customers' valuation of time and convenience in e-fulfillment. *International Journal of Physical Distribution and Logistics Management*, *49*(1), 75–98. https://doi.org/10.1108/IJPDLM-09-2017-0275

Gong, Y., & Yang, X. (2024). Understanding strategies for digital government transformation: A strategic action fields perspective. *International Journal of Information Management*, *76*. https://doi.org/10.1016/j.ijinfomgt.2024.102766

Gritt, E., Forsgren, E., & Pandza, K. (2024). Liminal digital transformation in public sector: The case of UK policing. *Journal of Strategic Information Systems*, *33*(3). https://doi.org/10.1016/j.jsis.2024.101851

Haggège, M., Gauthier, C., & Rüling, C. C. (2017). Business model performance: five key drivers. *Journal of Business Strategy*, *38*(2), 6–15. https://doi.org/10.1108/JBS-09-2016-0093

Haverila, M., Haverila, K., & Twyford, J. C. (2021). Identification of key variables and constructs in the context of wine tasting room: importance-performance analysis. *International Journal of Wine Business Research*, *33*(1), 80–101. https://doi.org/10.1108/IJWBR-02-2020-0006

He, K., Bouncken, R. B., Kiani, A., & Kraus, S. (2024). The role of strategic orientations for digital innovation: When entrepreneurship meets sustainability. *Technological Forecasting and Social Change*, *205*. https://doi.org/10.1016/j.techfore.2024.123503

Heikka, E. L., & Nätti, S. (2018). Evolving value propositions in knowledge-intensive business services. *Journal of Business and Industrial Marketing*, *33*(8), 1153–1164. https://doi.org/10.1108/JBIM-12-2017-0306

Ho, L. H., Chang, P. Y., & Yen, T. M. (2016). Using modified IPA to define quality improvement strategies: A study of air-conditioning industry in Taiwan. *TQM Journal*, *28*(2), 180–194. https://doi.org/10.1108/TQM-04-2014-0039

Huan, T. C., & Beaman, J. (2007). Executive learning exercise and trainer's notes for importance-performance analysis (IPA): Confronting validity issues. *International Journal of Culture, Tourism and Hospitality Research*, *1*(4), 315–327. https://doi.org/10.1108/17506180710824208

Ikasari, D., Widiastuti, & Andika, R. (2022). The Quality Analysis of Smart Zoning Application Web Using Webqual and Importance Performance Analysis Method, Case Study Election of Senior High School in Depok. *HORA 2022 - 4th International Congress on Human-Computer Interaction, Optimization and Robotic Applications, Proceedings*. https://doi.org/10.1109/HORA55278.2022.9799927

Jafari-Sadeghi, V., Amoozad Mahdiraji, H., Alam, G. M., & Mazzoleni, A. (2023). Entrepreneurs as strategic transformation managers: Exploring micro-foundations of digital transformation in small and medium internationalisers. *Journal of Business Research*, *154*. https://doi.org/10.1016/j.jbusres.2022.08.051

Kouptsov, A., & Srai, J. S. (2023). Value proposition-driven reconfiguration of business models in dynamic industries: a design-science approach. *Business Process Management Journal*, *29*(6), 1838–1866. https://doi.org/10.1108/BPMJ-03-2023-0178

Krishnappa, N., Radhakrishna, V., & Ravi, H. (2025). Embracing smart grids: financial feasibility of private investments in renewable energy projects. *Management & Sustainability: An Arab Review*, 1–19. https://doi.org/10.1108/MSAR-12-2024-0226

Lafuente, E., Szerb, L., & Rideg, A. (2020). A system dynamics approach for assessing SMEs' competitiveness. *Journal of Small Business and Enterprise Development*. https://doi.org/10.1108/JSBED-06-2019-0204

Lindič, J., & da Silva, C. M. (2011). Value proposition as a catalyst for a customer focused innovation. *Management Decision*, *49*(10), 1694–1708. https://doi.org/10.1108/00251741111183834

Lindström, C. W. J., Maleki Vishkaei, B., & De Giovanni, P. (2024). Subscription-based business models in the context of tech firms: theory and applications. *International Journal of Industrial Engineering and Operations Management*, *6*(3), 256–274. https://doi.org/10.1108/ijieom-06-2023-0054

Liu, Y., Guo, M., Han, Z., Gavurova, B., Bresciani, S., & Wang, T. (2024). Effects of digital orientation on organizational resilience: a dynamic capabilities perspective. *Journal of Manufacturing Technology Management*, *35*(2), 268–290. https://doi.org/10.1108/JMTM-06-2023-0224

Lobo, S., Malaarachchi, D. N., Samaranayake, P., Elias, A., & Teh, P. L. (2024). Integrating design for lean six sigma (DFLSS) with the stage gate phases of the innovation management assessment framework (IMAF). *Benchmarking*. https://doi.org/10.1108/BIJ-04-2023-0205

Lobo, S., & Samaranayake, P. (2020). An innovation management assessment framework. *Benchmarking*, *27*(5), 1633–1656. https://doi.org/10.1108/BIJ-02-2019-0085

Magal, S. R., Kosalge, P., & Levenburg, N. M. (2009). Using importance performance analysis to understand and guide e-business decision making in SMEs. *Journal of Enterprise Information Management*, *22*(1–2), 137–151. https://doi.org/10.1108/17410390910932795

Maguire, T., Daffern, M., Bowe, S. J., & Mckenna, B. (2019). Evaluating the impact of an electronic application of the dynamic appraisal of situational aggression with an embedded aggression prevention protocol on aggression and restrictive interventions on a forensic mental health unit. *International Journal of Mental Health Nursing*, *28*(5), 1186–1197. https://doi.org/10.1111/inm.12630

Market Research Indonesia. (n.d.). *Indonesia digital SME adoption is accelerating*. Market Research Indonesia. https://marketresearchindonesia.com/insights/articles/indonesia-digital-sme-adoption-is-accelerating?utm_source=chatgpt.com

Martilla, J. A., & James, J. C. (1977). Importance-performance analysis. *Journal of Marketing*, *41*(1), 77–79. https://doi.org/10.1177/002224297704100112

Matzler, K., & Sauerwein, E. (2002). The factor structure of customer satisfaction: An empirical test of the importance grid and the penalty-reward-contrast analysis. *International Journal of Service Industry Management*, *13*(4), 314–332. https://doi.org/10.1108/09564230210445078

McLeay, F., Robson, A., & Yusoff, M. (2017). New applications for importance-performance analysis (IPA) in higher education: Understanding student satisfaction. *Journal of Management Development*, *36*(6), 780–800. https://doi.org/10.1108/JMD-10-2016-0187

Mikulić, J., & Prebežac, D. (2008). Prioritizing improvement of service attributes using impact range-performance analysis and impact-asymmetry analysis. *Managing Service Quality*, *18*(6), 559–576. https://doi.org/10.1108/09604520810920068

Mitavskiy, B., Rowe, J., & Cannings, C. (2009). Theoretical analysis of local search strategies to optimize network communication subject to preserving the total number of links. *International Journal of Intelligent Computing and Cybernetics*, *2*(2), 243–284. https://doi.org/10.1108/17563780910959893

Mohammed, F., Alzahrani, A. I., Alfarraj, O., & Ibrahim, O. (2017). Cloud Computing Fitness for E-Government Implementation: Importance-Performance Analysis. *IEEE Access*, *6*, 1236–1248. https://doi.org/10.1109/ACCESS.2017.2778093

Morecroft, J. D. W. (2007). *Strategic Modeling and Business Dynamics: A Feedback Systems Approach*. Wiley.

Musa, R., Pallister, J., Robson, M., & Mohd Daud, N. (2010). Application of importance-performance analysis (IPA) to formulate customer satisfaction strategies in the direct sales industry in Malaysia. *Business Strategy Series*, *11*(5), 277–285. https://doi.org/10.1108/17515631011080687

Ofoegbu, C. (2023). Feasibility assessment of harvest residue gasification for bioelectricity and its financial impact on conventional plantation forestry. *Sustainable Environment*, *9*(1). https://doi.org/10.1080/27658511.2023.2206506

Ologeanu-Taddei, R., Hönigsberg, S., Weritz, P., Wache, H., Mittermeier, F., Tana, S., Dang, D., Hautala-Kankaanpää, T., & Pekkola, S. (2025). The relationship of digital transformation and corporate sustainability: Synergies and tensions. *Technological Forecasting and Social Change*, *210*. https://doi.org/10.1016/j.techfore.2024.123809

Ormanović, Š., Ćirić, A., Talović, M., Alić, H., Jelešković, E., & Čaušević, D. (2018). *Importance-performance analysis: Different approaches* [University of Sarajevo, Faculty of Sport and Physical Education]. https://www.researchgate.net/publication/328123456_Importance-performance_analysis_Different_approaches

Osterwalder, A., Pigneur, Y., Bernarda, G., Papadakos, T., & Smith, A. (2014). *Value proposition design: How to create products and services customers want*. John Wiley & Sons.

Parkinson, J., Mulcahy, R. F., Schuster, L., & Taiminen, H. (2019). A transformative value co-creation framework for online services. *Journal of Service Theory and Practice*, *29*(3), 353–374. https://doi.org/10.1108/JSTP-04-2018-0098

Piepponen, A., Ritala, P., Keränen, J., & Maijanen, P. (2022). Digital transformation of the value proposition: A single case study in the media industry. *Journal of Business Research*, *150*, 311–325. https://doi.org/10.1016/j.jbusres.2022.05.017

Prajogo, D. I., & McDermott, P. (2011). Examining competitive priorities and competitive advantage in service organisations using Importance-Performance Analysis matrix. *Managing Service Quality*, *21*(5), 465–483. https://doi.org/10.1108/09604521111159780

Ringle, C. M., & Sarstedt, M. (2016). Gain more insight from your PLS-SEM results the importance-performance map analysis. *Industrial Management and Data Systems*, *116*(9), 1865–1886. https://doi.org/10.1108/IMDS-10-2015-0449

Rojas-García, J. A., Elias-Giordano, C., Quiroz-Flores, J. C., & Nallusamy, S. (2024). Profitability enhancement by digital transformation and canvas digital model on strategic processes in post-Covid-19 in logistics SMEs. *Social Sciences and Humanities Open*, *9*. https://doi.org/10.1016/j.ssaho.2023.100777

Saeedikiya, M., Salunke, S., & Kowalkiewicz, M. (2025). The nexus of digital transformation and innovation: A multilevel framework and research agenda. *Journal of Innovation and Knowledge*, *10*(1). https://doi.org/10.1016/j.jik.2024.100640

Sánchez-García, J. Y., Núñez-Ríos, J. E., López-Hernández, C., & Rodríguez-Magaña, A. (2023). Modeling organizational resilience in SMEs: A system dynamics approach. *Global Journal of Flexible Systems Management*, *24*, 29–50. https://doi.org/10.1007/s40171-022-00322-z

Schiuma, G., Carlucci, D., & Lerro, A. (2012). Managing knowledge processes for value creation. *VINE*, *42*(1), 4–14. https://doi.org/10.1108/03055721211207815

Song, D., Tan, Z., Wang, W., & Zhai, R. X. (2025). Digital transformation and corporate social responsibility engagement: Evidence from China. *International Review of Financial Analysis*, *97*. https://doi.org/10.1016/j.irfa.2024.103805

Sterman, J. D. (2000). *Business Dynamics: Systems Thinking and Modeling for a Complex World*. Irwin McGraw-Hill.

Sumbal, M. S., Tariq, A., Amber, Q., Janovská, K., & Ferraris, A. (2024). Tech revolution unleashed: Navigating the winds of digital transformation in the fast lane. *Journal of Innovation and Knowledge*, *9*(4). https://doi.org/10.1016/j.jik.2024.100551

Sun, F., Li, J., & Bai, F. ping. (2024). Mechanism of digital business model innovation for common prosperity: based on resource orchestration perspective. *Chinese Management Studies*. https://doi.org/10.1108/CMS-12-2023-0710

Tontini, G., & Picolo, J. D. (2014). Identifying the impact of incremental innovations on customer satisfaction using a fusion method between importance-performance analysis and Kano model. *International Journal of Quality and Reliability Management*, *31*(1), 32–52. https://doi.org/10.1108/IJQRM-05-2012-0062

Tsoukatos, E. (2008). Applying importance-performance analysis to assess service delivery performance: Evidence from greek insurance. *EuroMed Journal of Business*, *3*(2), 144–162. https://doi.org/10.1108/14502190810891209

Tung, T., Jai, T. M., & Burns, L. D. (2014). Attributes of apparel tablet catalogs: Value proposition comparisons. *Journal of Fashion Marketing and Management*, *18*(3), 321–337. https://doi.org/10.1108/JFMM-12-2012-0073

Wang, X., Wang, N., Sun, W., Xu, A., & Zhang, Z. (2024). Digital transformation and enterprise violation risk: A "motivation-opportunity-attitude" framework. *Heliyon*, *10*(20). https://doi.org/10.1016/j.heliyon.2024.e39125

Weng, Q., Wang, D., De Lurgio, S., & Schuetz, S. (2024). How do small-to-medium-sized e-commerce businesses stay competitive? Evidence on the critical roles of IT capability, innovation and multihoming. *Internet Research*. https://doi.org/10.1108/INTR-01-2023-0061

Westergren, U. H., Mähler, V., & Jadaan, T. (2024). Enabling digital transformation: Organizational implementation of the internet of things. *Information and Management*, *61*(6). https://doi.org/10.1016/j.im.2024.103996

Yang, K. F., Yang, H. W., Huang, C. H., Peng, Y. W., & Chen, W. C. (2021). Adopting Importance Performance Analysis to Evaluate Service Quality of Dried Pork Industry. *Proceedings - 2021 International Conference on Advanced Enterprise Information System, AEIS 2021*, 71–74. https://doi.org/10.1109/AEIS53850.2021.00020

Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). Sage Publications.

Zhu, Q., Huang, S. Z., & Koompai, S. (2024). Digital transformation as a catalyst for green innovation: An Examination of high-tech enterprises in China's Yangtze River Delta. *Sustainable Futures*, *8*. https://doi.org/10.1016/j.sftr.2024.100277

Zhu, Q., Zhang, X., Pan, Y., & Liu, X. (2024). Optimizing environmental regulation policies for digital transformation in energy enterprises in China: An evolutionary game theory approach. *Journal of Environmental Management*, *370*. https://doi.org/10.1016/j.jenvman.2024.122935

Ziaie, A., ShamiZanjani, M., & Manian, A. (2021). Systematic review of digital value propositions in the retail sector: New approach for digital experience study. *Electronic Commerce Research and Applications*, *47*. https://doi.org/10.1016/j.elerap.2021.101053