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Business model canvas of auto detailing and car wash home service

Ratna Ekawati*, Ardenta Toga Prawira, Arif Saptiyadi, Ayuningtyas Woro Hapsari, Galih Prihasetya, Marco Sayputra

Master Program of Industrial Engineering and Management, Universitas Sultan Ageng Tirtayasa, Banten, Indonesia

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ABSTRACT

A general supplier and service provider for office goods, air conditioners, and office car maintenance services plans to explore a new service sector: home service auto detailing. Due to the rapid growth of the home service business since the COVID-19 pandemic, it is necessary to analyze the car auto detailing business model to enable design and improvements. This study designs the business model using the business model canvas approach. The research begins by benchmarking several existing car auto detailing businesses using data from literature studies to understand their business models. The business environment is analyzed through observations, collecting data on the aspirations of business owners, and gathering customer profiles by distributing questionnaires to consumers. The result of this research is a proposed business model incorporating a business model canvas, SWOT analysis, and BPMN diagram using the SAP Power Designer approach, along with a proposed booking application software using PIECES analysis.

1. Introduction

During the mid-1990s, the term "business model" emerged as a buzzword in business discussions and practice-oriented journals, highlighting the shift from traditional to electronic business [1]. Entering this "Digital Economy" changed the competitive landscape, forcing companies to face new challenges. For example, small startups quickly became able to compete with well-established companies, even on a global level [2]-[4].

However, as the dot-com bubble burst in 2000, the success of the New Economy was questioned. Researchers began to study why many ventures failed while others succeeded [5], [6]. As a result, practice-oriented journals were no longer the only ones interested in Internet business models; scholarly journals increasingly focused on this topic as well (as seen in the frequency analysis in the next section). Since the beginning of this more academic perspective, the number of publications on this topic has been constantly rising, and the concept of business models has become relevant not only in the e-business area but also in the fields of information systems and strategic management research [7].

The main purpose of the Business Model Canvas (BMC) is to display the business model in its constituent parts and to understand the business holistically. The BMC, developed by [7], is a tool composed of nine interrelated blocks that comprehensively describe and present a business model. In other words, the BMC is a simple-to-apply tool designed to add value and contribute to business success . Therefore, the BMC is a new analytical framework to define, design, understand, and innovate new business models, as well as to enhance the understanding of existing business models [8]-[10].

The nine elements of Osterwalder and Pigneur's BMC can be represented through four factors: (a) customer interface, (b) product, (c) infrastructure management, and (d) financial aspects. However, it is essential to note that not all business models can be divided into these four dimensions. Thus, to confirm the association of the four factors of the business model with the nine elements of the Business Model Canvas, the research problem was formulated as follows: What is the association of the four main areas of the

*Corresponding author:
Email: ratna.ti@untirta.ac.id

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entrepreneurs' business model with the Business Model Canvas? The research objective is to describe the association of the four main areas of the entrepreneurs' business model with the Business Model Canvas. Finally, the research hypothesis was formulated.

The four main areas of the entrepreneurs' business model are significantly associated with the nine modules of the Business Model Canvas from a systems perspective.

2. Material and method

Orion is a newly established business. Therefore, the company needs to develop an appropriate business system to ensure its survival. One suitable business model for this company is the Business Model Canvas, which can help determine nine aspects of business. The research method used was descriptive, employing a case study approach. The object of the case study in this research was Orion. The sampling technique used to select respondents was non-probability sampling, specifically purposive sampling. Purposive sampling is a form of non-random sampling where the sample is selected by the researcher or based on considerations made by experts in the field [11]. For triangulation purposes, respondents included members of Orion, consumers, and academics/online business observers.

This data requirement is divided into four categories, as shown in Table 1, detailing what data is needed, the purpose of the data, and how to obtain the data. Orion uses the Business Model Canvas approach for Business Model Design.

2.1. Business Model Canva (BMC)

A business model represents the primary concept of how an organization creates, delivers, and captures value. According to [12], a business model represents the content, structure, and transaction management designed in such a way that it can create value through the exploitation of business opportunities. The business model can be explained through nine blocks showing how a business operates.

Table 1.
Data requirements

No	Data name	Type	Purpose	Source
1	External Data (Business Environment)	Secondary	Elements in business environment analysis	Internet Research Paper Observation
2	Benchmarking of auto detailing business models	Secondary	Elements in business model canvas	Internet Bench marking from existing auto detailing business
3	Internal data	Primary	Aspirations of business owners	Interview
4	Prospective Customer Data	Primary	Target consumer aspirations	Questioner

These nine blocks become interrelated parts of a business model canvas. The business model canvas is also used to describe, visualize, evaluate, and modify the existing business model. The following is an explanation of the nine blocks of the business model canvas based on [7]:

1. **Customer Segment** The customer segment block represents a group of individuals or business units that the business aims to reach and serve. According to [13], a customer segment is a party that contributes to a company's profit through product purchases.
2. **Value Proposition** The value proposition block represents the combination of products and services that create value for specific customer segments. The value proposition can resolve customer problems or satisfy customer needs. Reference [14] stated that the value proposition consists of all the company's group advantages exceeding the offer's core positioning.
3. **Channels** The channels block represents how a business communicates with its customer segments and reaches them to deliver value propositions. Reference [15] defined channels as a group of organizations that connect a company and customers through the delivery of products or services.
4. **Customer Relationships** The customer relationships block represents the various relationships businesses build with specific customer segments. Reference [13] explained that customer relationships create new relationships with new customers, maintain old customers, and offer products or services to both old and new customers.
5. **Revenue Streams** The revenue streams block shows the cash produced by each customer segment. A business model involves two kinds of revenue streams: the revenue from transactions made from one-time customer payments and the revenue from ongoing payments to either provide a value proposition to customers or support customers' past purchases.
6. **Key Resources** The key resources block represents the most critical assets for a business model. Each business model needs key resources to enable a company to create and offer value propositions, reach the market, maintain relationships with customer segments, and generate revenue. Key resources can be physical, financial, intellectual, or human.
7. **Key Activities** The key activities block shows the most important things a company must do to make the business model work. Each business model requires several key activities that are the most critical actions a business must take to operate successfully. Key activities are needed to create and deliver value propositions, reach the market, maintain customer relationships, and generate revenue.

8. **Key Partnerships** The key partnerships block represents the supplier networks and partners that make the business model work. A partner is a business entity that shares in the advantages and disadvantages of a business [16]. A business forms partnerships for various reasons, which form the basis of different business models.
9. **Cost Structure** The cost structure block shows all the expenses needed to operate a business model. This block explains the most critical costs in using specific business models. Reference [7] divided cost structure into cost reduction and value development.

2.2. SWOT analysis

SWOT analysis was popularized by Andrew in 1965. Andrew formulated the SWOT analysis to help companies develop strategies after evaluating their internal and external factors. Internal factors include strengths and weaknesses, while external factors include opportunities and threats. By evaluating these factors, the strategy aims to maximize potential strengths and opportunities while minimizing weaknesses and threats. SWOT analysis has been widely used in various research areas, including strategy development in the Muslim fashion business [17], competitiveness analysis in the halal food industry, organic restaurant business planning, environmental performance analysis, and electronic commerce application innovation [18]-[20].

SWOT Analysis is a tool for strategic planning and management in organizations. It can be effectively used to build organizational and competitive strategies. Organizations interact with their environments through a systems approach and consist of various sub-systems. An organization exists in two environments: internal and external. Analyzing these environments is necessary for strategic management practices, a process termed SWOT Analysis.

"SWOT Analysis is a simple but powerful tool for sizing up an organization's resource capabilities and deficiencies, its market opportunities, and the external threats to its future." The acronym SWOT stands for 'strengths', 'weaknesses', 'opportunities', and 'threats.' The SWOT Analysis, also called the 'SWOT Matrix,' can be formulated as 'TOWS Analysis' or the 'TOWS Matrix.' In Turkish, the acronym can be indicated as 'GZFT Analysis/Matrix' or 'FÜTZ Analysis/Matrix.'

SWOT Analysis is a strategic planning framework used to evaluate an organization, plan, project, or business activity. It is a significant tool for situation analysis that helps managers identify organizational and environmental factors. SWOT Analysis has two dimensions: internal and external. The internal dimension includes organizational factors, such as strengths and weaknesses, while the external dimension includes ecological factors, such as opportunities and threats.

Both academics and practitioners have employed SWOT as a strategic planning technique to investigate organizations' positions and develop their strategies accordingly. SWOT literature has grown extensively; however, its wide use in many different fields and contexts has limited the ability to create a comprehensive review of SWOT. While there has been a prior review study on SWOT analysis, there has not been a collective view on SWOT from the different fields where it is used. Instead, these reviews are more generic or specific to a particular field or method. Therefore, this study aims to assess, analyze, and synthesize the SWOT literature in five fields: (a) general management, (b) education, (c) marketing, (d) healthcare, and (e) agriculture. It provides an integrative historical view of SWOT analysis, enabling the development of new theoretical perspectives and frameworks.

2.3. Value chain analysis

The concept of the "value chain" was introduced by Porter to describe the full range of activities required to bring a product or service from conception through different phases of production, distribution to consumers, and final disposal after use [21]. As the product moves from one player in the chain to another, it is assumed to gain value [22]. Thus, the value chain can be used to disaggregate a business into significant activities, thereby identifying sources of competitive advantage [23].

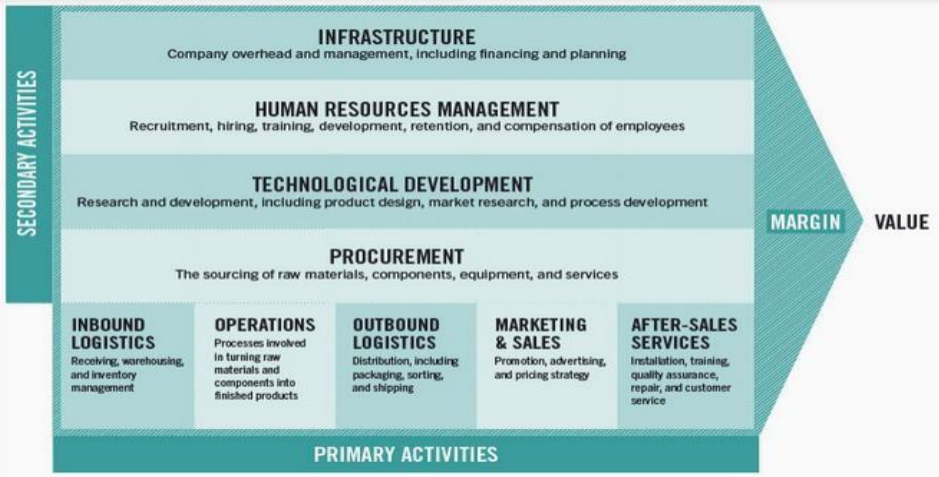

Figure 1. Value chain analysis diagram

Table 2.
Business Canvas benchmark

<table>
<tr><th>Key Partnership</th><th>Key Activities</th><th>Value Proposition</th><th>Customer Relationship</th><th>Customer Segment</th></tr>
<tr>
<td rowspan="3">• Suppliers of soap and other cleaning agents
• Equipment suppliers
• Polishing machine supplier
• Vacuum cleaner suppliers
• Compressor supplier
• Investor
• Bank</td>
<td>• Premium car wash, glass cleaner, glass coating, glass polish, velg degreaser, dan velg degreasing
• Engine cleaner dan engine degreasing
• Detailing interior dan interior degreasing
• Polish body, nano coating, wax
• Premium Car wash
• Standard car wash
• Hiring operator
• Managing human resources/payroll</td>
<td rowspan="3"><u>Customer</u>:
• Minimum waiting time
• Convenience
• Cashless payment</td>
<td>• Guarantee
• Discount voucher
• Relationship with car community</td>
<td rowspan="3">• People who like their car to always look good
• People who own luxury cars
• People who use their car for business
• People who have to transport children or pets regularly
• People who want to increase the resale value of their car
• Businesses that have company cars
• Car rental companies</td>
</tr>
<tr>
<td>Key Resources</td>
<td>Channels</td>
</tr>
<tr>
<td>• Human Resources
• Equipment
• Place and location
• Skilled operator
• Social media platform</td>
<td>• Instagram
• Twitter
• WhatsApp
• TikTok
• Website</td>
</tr>
</table>

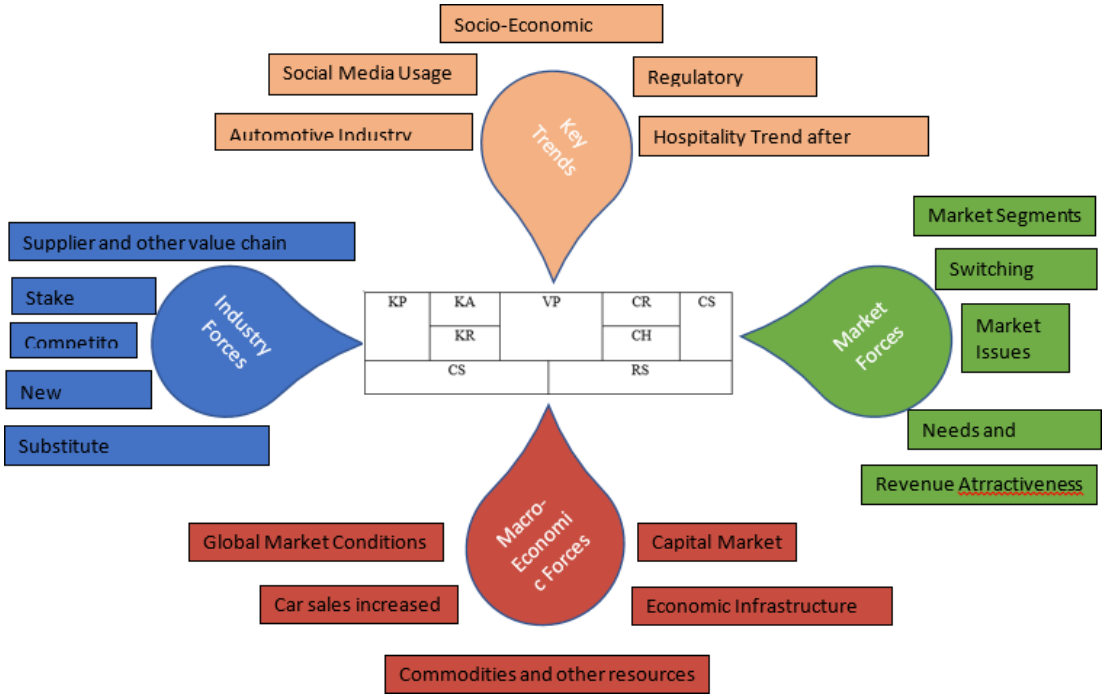

Figure 2. Business Model Environment

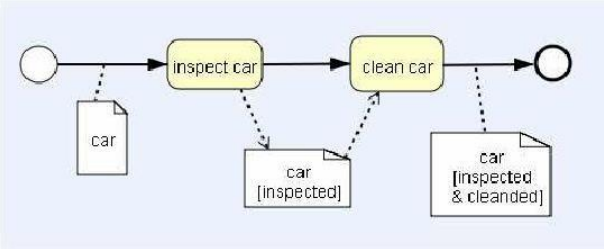

Figure 3. Initial inspection and car wash

Table 3.
Proposed Business Model Canvas

<table>
<tr><td>Key Partnership</td><td>Key Activities</td><td>Value Proposition</td><td>Customer Relationship</td><td>Customer Segment</td></tr>
<tr><td>• Suppliers of soap and other cleaning agents
• Equipment suppliers
• Polishing machine supplier
• Vacuum cleaner suppliers
• Compressor supplier
• Investor
• Bank
• Affiliate booking application</td><td><u>Quick Detailing:</u>
• Premium car wash, glass cleaner, glass coating, glass polish, velg degreaser, dan velg degreasing
• Engine cleaner dan engine degreasing
• Detailing interior dan interior degreasing
• Polish body, nano coating, wax
• Premium Car wash
• Standard car wash

<u>Car Maintenance</u>:
• Oil replacement
• Filter replacement
• Engine check and inspection
• Quick tune up

<u>Training and Development:</u>
• Hiring operator
• Managing human resources/payroll</td><td><u>Customer:</u>
• Competitive prices
• Minimum waiting time
• Convenience
• Cashless payment
• Home service
• Can see detailing process directly at home
• Quick inspection</td><td>• Personalized customer service
• 2 weeks Guarantee
• Simple booking system (WA)
• Discount voucher
• Membership card
• Relationship with car community
• Shuttle facility
• Portable tent
• Affiliate Booking
• Flexible Schedule
• Midnight service (By appointment only)</td><td><u>Car owner:</u>
• Those who wants convenience
• Those who doesn’t have time
• Those who want to be treated as VIP
• Those who wants quick maintenance at home
• People who like their car to always look good
• People who own luxury cars
• People who use their car for business
• People who have to transport children or pets regularly
• People who want to increase the resale value of their car
• Businesses that have company cars
• Car rental companies</td></tr>
<tr><td></td><td>Key Resources
• Human Resources
• Detailing Tools
• Diagnostic tools
• Operational car
• Office
• Administrator
• Skilled operator
• Social media platform</td><td></td><td>Channels
• Word of mouth
• Social media
• Search engine tools
• Website
• Referral program</td><td></td></tr>
<tr><td colspan="2">Cost Structure</td><td colspan="3">Revenue Stream</td></tr>
<tr><td><u>Investment Cost:</u>
• Operational car
• Detailing tools
• Diagnostic tools</td><td><u>Operational Cost:</u>
• Wifi
• Electricity
• Cleaning agent
• Fuel
• Maintenance of operational vehicles
• Worker salary costs
• Promotion/endorsement costs</td><td colspan="3">• Investation
• Sale of detailing services in different packages
• Sale of additional car care service
• Sale of car care product
• Affiliate programs with auto part retailers and detailing suppliers
• Sale of maintenance service</td></tr>
</table>

Over the years, this concept has been the object of fast-growing literature in economics and management. Since its introduction, value chains and value chain analysis have been extended to various applications beyond the study of individual firms. This approach is a systematic way of looking at how the company serves its customers. Value chain analysis is shown in Fig. 1.

3. Results and discussions

3.1. Auto detailing business model data collection (Benchmarking)

Mapping the car auto detailing business model requires data that refers to existing car auto detailing business owners, known as benchmarking. After obtaining a recapitulation of data regarding benchmarking, the next step is to create a car auto detailing business model, which can be seen in Table 2.

3.2. Business model environment analysis

Business environment analysis is an activity to identify and find out about data related to the business environment; the data sought is usually in the form of market forces, Industry Forces, Key Trends, and macroeconomic forces. Based on the data processing in the table above, it produces a business environment analysis of the car auto detailing business, which can be seen in Fig. 2.

3.3. Consumer aspiration

Consumers often have specific aspirations and expectations regarding the auto detailing process. These aspirations are influenced by their desire for a clean, well-maintained vehicle and the overall experience of the detailing service. Here are some common consumer aspirations for the auto detailing process.

1. **High-Quality Finish.** Consumers aspire to have their vehicles are treated with top-notch detailing techniques, resulting in a high-quality and polished finish.
2. **Attention to Detail.** Customers seek detailing services that pay meticulous attention to every detail, including both the exterior and interior of the vehicle. Protective Coating and Long-lasting Results: Aspiring for protective measures such as waxing, ceramic coating, or sealants that not only enhance the aesthetic appeal but also provide long-lasting protection against environmental elements.
3. **Convenience.** Consumers desire convenience in the detailing process. This can include mobile detailing services that come to their location, flexible scheduling options, and efficient service delivery.
4. **Customization and Personalization.** Aspiring for detailing services that can be tailored to their specific needs, allowing for customization based on the vehicle type, usage, and personal preferences. of Eco-Friendly Products: Growing environmental awareness has led consumers to aspire to use detailing services that employ eco-friendly and sustainable products, contributing to a green and responsible approach.
5. **Interior Cleanliness and Freshness.** Aspiring to have the interior of their vehicles thoroughly cleaned, sanitized, and deodorized to create a fresh and pleasant driving environment.
6. **Educational Engagement.** Some consumers aspire to learn more about the detailing process. They may appreciate detailing services that provide information on maintenance tips, product recommendations, or educational resources. Transparent Pricing and Value for Money: Aspiring for transparent pricing structures and a clear understanding of the value they receive for the money spent on detailing services.
7. **Time Efficiency.** Consumers aspire to detailing services that efficiently and effectively transform their vehicles without consuming excessive amounts of time, especially if they have busy schedules.
8. **Exceptional Customer Service.** Aspiring for a positive overall experience, including friendly and knowledgeable staff, clear communication, and responsiveness to inquiries or concerns.

Understanding and meeting these consumer aspirations can contribute to the success and reputation of an auto detailing business. By aligning services with these aspirations, businesses can build customer loyalty and satisfaction. Regularly seeking feedback and adapting services to evolving consumer preferences can help you stay ahead in the competitive auto detailing market.

3.4. Proposed Business Model Canvas

This data contains the proposed new business model in Table 3. Benchmarking of similar businesses and consumer aspirations can be seen in Table 2.

3.5. Value chain analysis

Value chain analysis of an auto detailing business involves examining the activities involved in creating and delivering the service to identify opportunities for efficiency and competitive advantage. The primary activities in this context include detailing services, customer service, marketing, and distribution, while support activities encompass infrastructure, human resource management, and procurement.

Detailing Car value chain is part of an industry's more extensive value system that includes companies either upstream (suppliers) or downstream (distribution channels), or both. The manager at Orion's Car Detailing needs to see each activity as part of that value system and how adding or reducing each activity impacts Orion's Car Detailing value chain. The decision is regarding where to sit in the value system. As per the Value Chain model, there are broadly two generic categories of activities – Primary and Supporting Activities. As illustrated in the Value Chain diagram, Auto Detailing Car has five generic categories of primary activities.

1. Inbound Logistics. These activities of Auto Detailing Car are associated with receiving, storing and disseminating the inputs of the products. It can include material handling, warehousing of physical products, and architecture to receive and store customer information for digital media companies. Detailing Car, at present, has outsourced most of its inbound logistics activities.
2. Operations. Activities that help the organization transform raw materials into finished products. This article's definition is broad – it can mean moulding plastic to make products, using customer data to serve advertisements based on usage behaviour to clients, etc.
3. Outbound Logistics. Detailing Car undertakes these activities to distribute the finished products to channel partners and final buyers. Outbound logistics include warehousing, scheduling, wholesalers' and retailers' order fulfilment, processing, and distribution networks.

4. Marketing and Sales. These activities are undertaken by Detailing Car to create means through which the buyer can buy a firm's products. These activities include marketing, pricing, sales force management, channel selection, advertising, and promotion, etc.
5. Services. Detailing Car needs to provide after-sales services and maintenance for successful product usage. Service activities of Detailing Car can include – part supply, post-sales maintenance, installation services, product forward and backend alignment of software, and training.

As the name explains, the Support Activities of Detailing Car are the ones that support the firm's Primary Activities. Porter divided the Support Activities into four broad categories. Each category of support activities is divided into several distinct value activities specific to the industry in which Detailing Car operates. The four generic support activities are:

1. Firm Infrastructure. Detailing Car's Firm infrastructure support activities include planning, legal services, finance and accounting, general management, and quality management. Athletic infrastructure activities at Detailing Car support the entire value chain, though the scope varies given that Detailing Car is a diversified company even within the industry. For example, the finance and planning at Detailing Car are managed at the corporate level, while quality management, accounting and legal issues are handled at the business unit level.
2. Human Resources Management. In an environment where each organization is striving to become a learning organization, Human Resources Management is vital to the success of any organization. HRM support activities include– Recruiting, Training & Development, Selection, Hiring, Skill Assessment, People Planning and Compensation at both the business unit and corporate levels. Human resource management affects competitive advantage in any firm, but it is a defining factor in some industries. For example, in consulting companies, HR is the primary source of competitive advantage.

Table 4.
SWOT Matrix

Internal	Strength	Weaknes
	Competitive pricing	New beginner
	Home service	Inconsistent quality
External	Easy booking system	Dependence skilled labor
	Variety services	Water and electricity from consument
	quality product and equipment	
Opportunity	Strength-Opportunity (SO) Strategies	Strengths-Threats (ST) Strategies
few competitors	Leverage Expertise for Specialized Services: Utilize the skills and expertise of our technicians to offer specialized detailing services, such as paint correction or ceramic coating, to tap into a niche market.	Competitive Pricing and Packages: Counteract competitive threats by offering competitive pricing, discounts, or bundled packages without compromising on service quality.
Rainy season	Expand Service Offerings: Introduce new services, such as interior disinfection or eco-friendly detailing, to meet the growing demand for diverse and environmentally conscious options.	Build Strong Online Presence: Using established customer base and positive reviews to strengthen your online presence. Encourage satisfied customers to leave reviews, helping to counteract potential negative online feedback.
Busy customer	Customer Education Programs: Develop programs to educate customers on the value of high- quality detailing services. This can help build loyalty and differentiate your business	Continuous Training: Implement a continuous training program for technicians to stay ahead of industry standards, ensuring consistent quality and staying competitive.
partnership with dealership or car rental agencies		
	Weaknesses-Opportunities (WO) Strategies:	Weaknesses-Threats (WT) Strategies:
Threat	Invest in Technology: Address weaknesses in technology by investing in modern detailing equipment and automation. This can improve efficiency and enhance the quality of services	Quality Control Measures: Implement rigorous quality control measures to address weaknesses in maintaining consistent quality. Regularly assess and improve processes to mitigate the risk of negative reviews.
new competitor	Diversify Staff Skills: Overcome dependence on skilled labor by diversifying the skills of your staff. Cross-train technicians to handle a variety of detailing tasks.	Collaborate for Resources: Collaborate with other businesses or industry partners to compensate for weaknesses, such as sharing resources or outsourcing certain tasks.
replicable business model	Explore New Markets: Expand to new locations or collaborate with other businesses to reach untapped markets and capitalize on growth opportunities	Adapt to Regulatory Changes: Stay informed about regulatory changes and proactively adapt your business operations to comply with new standards, minimizing the impact of potential threats.
Dry season		
High operational cost		
online reviews and reputation		

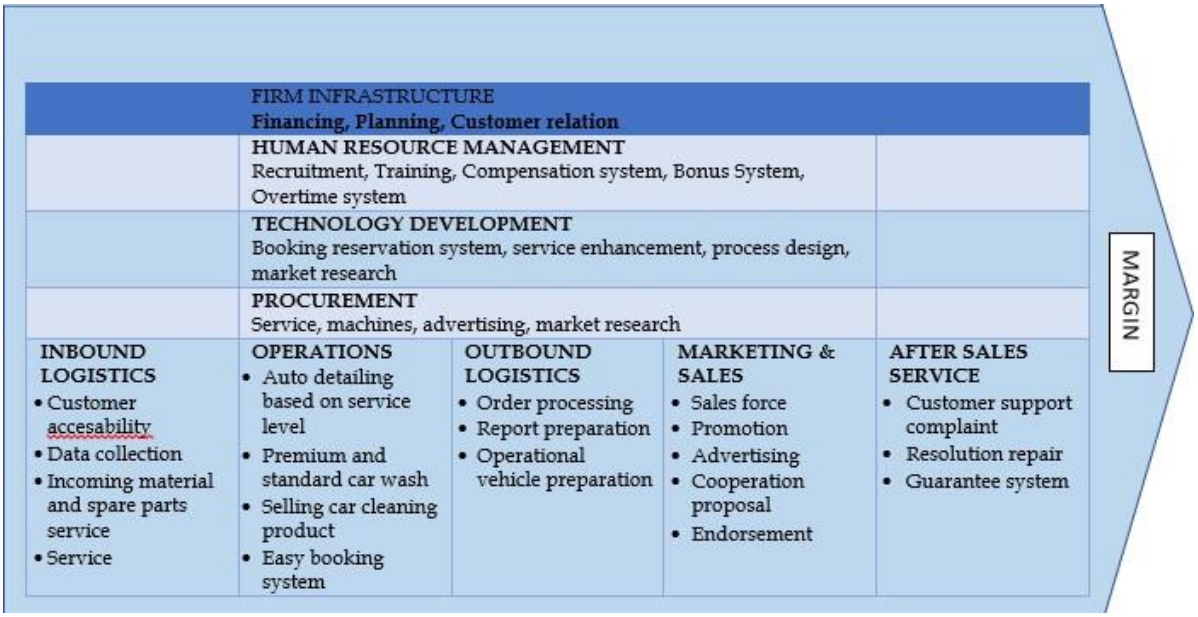

Figure 4. Value chain analysis diagram

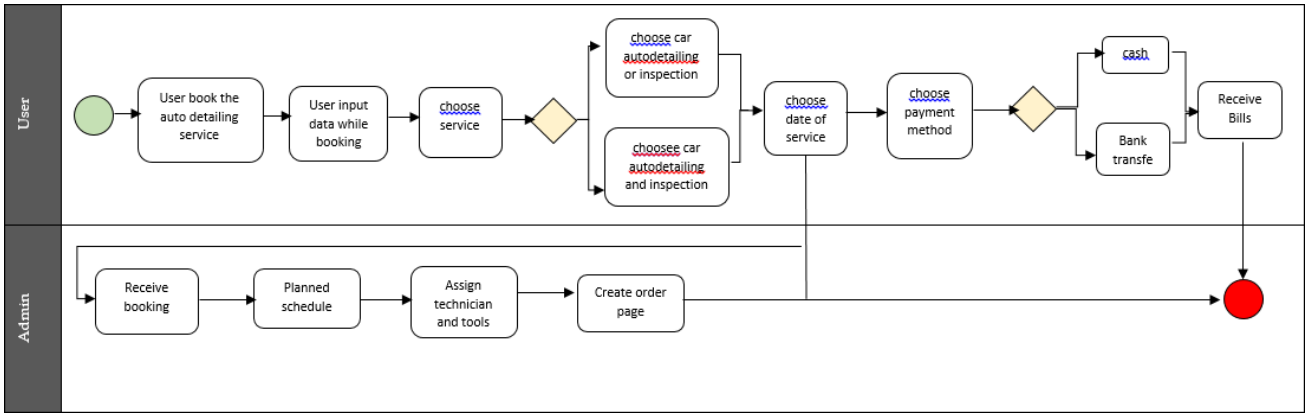

Figure 5. BPMN diagram of Orion auto detailing

3. Technology Development. Technology supports almost all activities in modern-day organizations. Technology development has become a source of competitive advantage in the technology industry. Technology development at Detailing Car may include field testing, component design, technology selection, process engineering, and feature design.
4. Procurement Activities in Detailing Car. Procurement activities at Detailing Car include activities that are undertaken to purchase inputs that are used by Detailing Car's value chain. It doesn't have purchase inputs themselves. Purchased inputs may include raw materials, supplies, machinery, laboratory equipment, office equipment, and buildings. Like all other value chain activities, procurement also employs technology for things such as–procedures, vendor management, information systems, supply chain partner qualification rules and ongoing performance evaluation.

Growth in sales is not a good goal for value chain analysis, as every manager knows that boosting sales is easy to do by dramatically reducing prices. Growth or market share is also not a very reliable goal, as often firms end up pursuing market share at the cost of profitability. Shareholder value, measured by stock price, could be a better barometer to analyse the value chain. Top management prefers it, but it is only helpful in the long run rather than a competing strategy in the short or medium term.

3.6. SOWT analysis

SWOT analysis in this research consists of 4 stages. After discussing making a Business Model Canvas (BMC) with business owners, the next step is to formulate further strategies by looking at the Orion auto detailing the business's strengths, weaknesses, opportunities, and threats. The identification results using SWOT analysis are used as a consideration for business owners to determine steps in developing business strategies; these identifications are described in a matrix as in Table 4.

Business owners can create a more robust and adaptive auto detailing business by developing and implementing these strategies. Regularly reassess strategies to ensure they align with the evolving dynamics of the market and industry.

3.7. BPMN (Business Process Model Notation) analysis

The Business Process Modelling Notation (BPMN) allows us to describe business processes through a

graphical notation. The main building blocks of a BPMN design are flow objects, which represent activities and events involved in a business process. As illustrated in Fig. 5, BPMN processes involve two special events: the starting point of the business process is graphically represented by an empty single-edge circle, and its termination point is drawn as an open double-edge circle; rounded-corner boxes represent tasks to be executed.

3.8. Proposed booking system application

To make it easier for consumers to access the services provided, we designed an installable booking application that can be applied on Android and iOS. In addition, the application is also a strong point compared to other competitors. To make the Orion Auto Detailing digital information system as shown in Fig. 5 and 6.

- Customer Benefits

- Easy to Order: Increase Company Revenue
- Easy Payment: Cash, Transfer, Online Payment
- Record Order History: Rewards and Promos
- Tracking System: All processes can be monitored by customers

- Company Benefits

- Easy to Monitor: Simple Dashboard for Administrators
- Simple Analysis Tools: Understand Customer Needs
- Easy Payments: Easily Monitor Balance Sheet and Taxes
- Step Tracking System: Support Company Progress
- Minimize Labor: Admin to Handle All Orders

The PIECES method is a method of analysis for obtaining more specific issues. Analysing a system will usually be carried out on several aspects, including performance, information, economy, application security, efficiency and customer service. PIECES Analysis (Performance, Information, Economy, Control, Efficiency and Service) uses this analysis. PIECES analysis is critical before developing an information system because, in this analysis, several significant problems and problems that are symptomatic of the main issue will usually be found. This method uses six evaluation variables, as shown in Fig. 7.

1. Performance: Performance is the first variable in the PIECES analysis method. Where has a vital role in assessing whether the process or procedure can improve its performance and see to what extent an information system is reliable in processing to produce the desired goals? In this case, performance is measured from:
   a) Throughput, i.e. the number of work /output/deliverables that can be generated at a particular time.
   b) response time, i.e. the time needed to complete a series of activities to produce specific outputs/deliverables.
2. Information (information): Assess whether existing procedures can still be improved so that the quality of information produced is better. The information presented has helpful value. This can be measured by:
   a) Outputs: A system for producing output.
   b) Inputs: Data is entered and then processed to become useful information.
3. Economic: Assess whether the existing procedures can still be improved (properly) or the cost of implementation can be reduced.
4. Control: Assess whether existing procedures can still be improved so that the quality of power and its ability to detect errors/fraud improves, too.
5. Efficiency: Assess whether the current procedure can still be improved to achieve an increase in operating efficiency, and whether it must be superior to the manual system.
6. Service: Assess whether existing procedures can still be improved by their ability to achieve improved service quality. Make the quality of service very user-friendly for end-users (users) so that users get good quality service.

DFD describes the processes involved in a system to transfer data from the input to the file storage and report generation. The logical data flow diagram illustrates data flow through a system to perform certain business functionality. DFD graphically represents the functions or processes which capture, manipulate, store, and distribute data between a system and its environment and between components of a system. DFD has often been used due to the following reasons Fig. 8.

- Logical information flow of the system
- Determination of physical system construction requirements
- Simplicity of notation
- Establishment of manual and automated systems requirements

This application includes several interface aspects and menus, including the account list page, dashboard, item details, and payment. This application is intended for admins (producers) as company owners and users (consumers) who will order auto detailing services.

User Testing. When ordering, the user must log in; if the user does not have an account, they must register an account first by entering the account list page after having a login account and being directed to the user dashboard to order service or auto detailing services. Services are divided into 2, namely Auto detail and Service. When placing an order or booking, set the date and time you want, then click Booking Now. The customer or user gets a booking number and can see the progress of the work. After that, the customer or user can make cash or bank transfer payments. The customer or user can see a track record of bookings while using the application and become a reminder when doing the next service. Fig. 9 is the view of the booker or user.

Admin Testing. The number of orders and data from consumers who order will be visible from the Admin or Owner interface. The incoming data can be processed for daily bookkeeping so that it is easy to track income and expenses, as shown in Fig. 10.

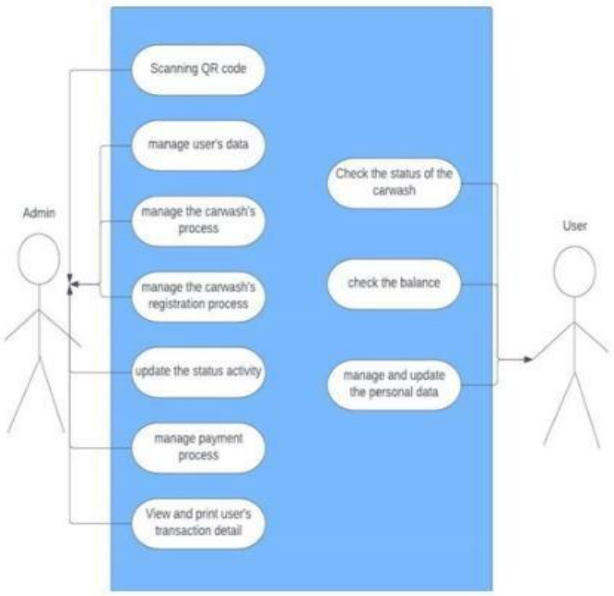

Figure 6. Use Case Diagram

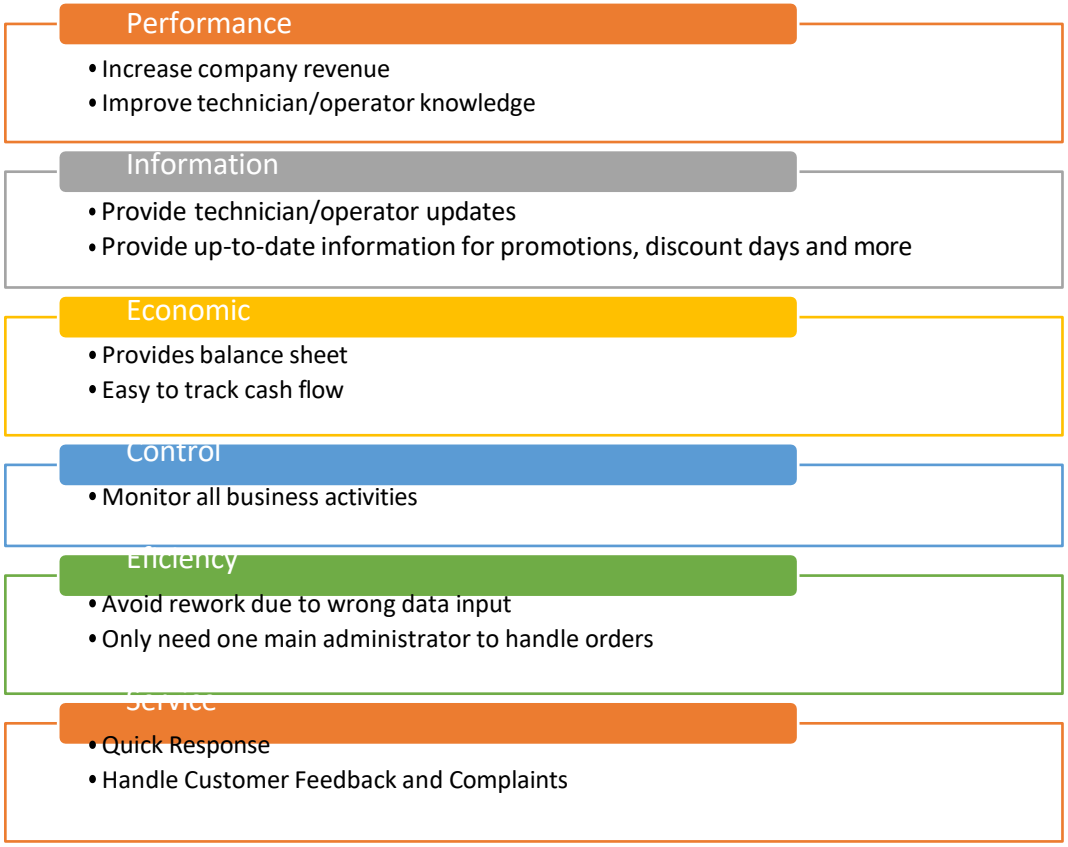

Figure 7. PIECES analysis

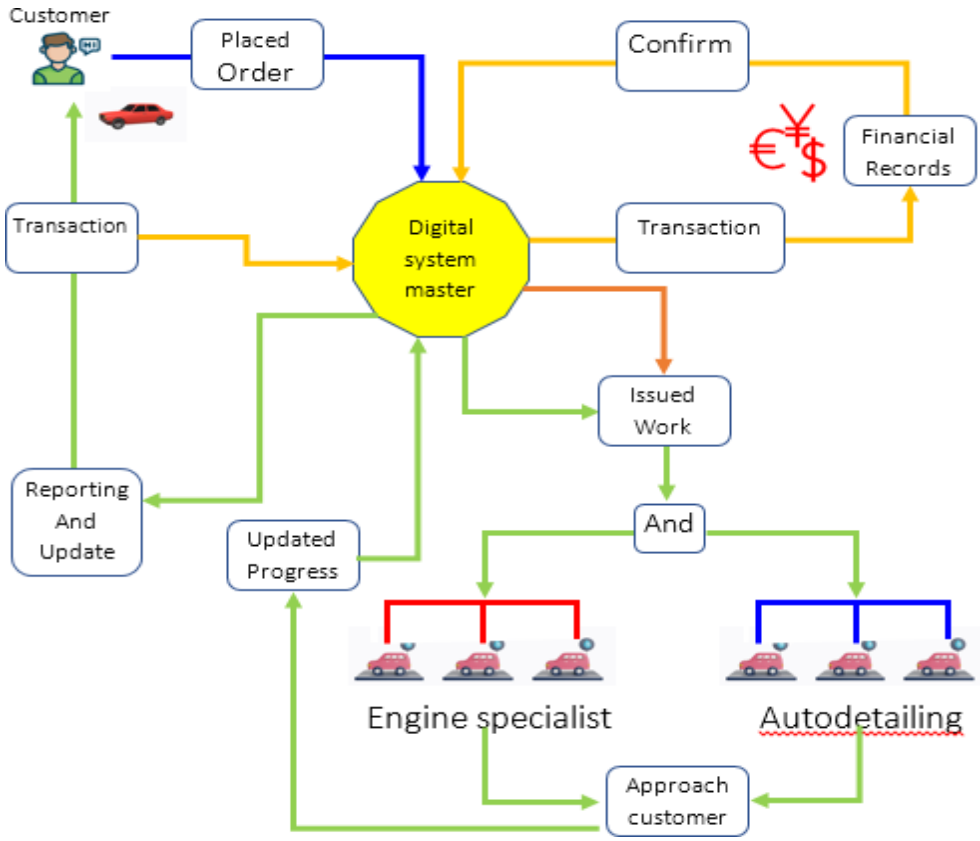

Figure 8. DFD proposed software

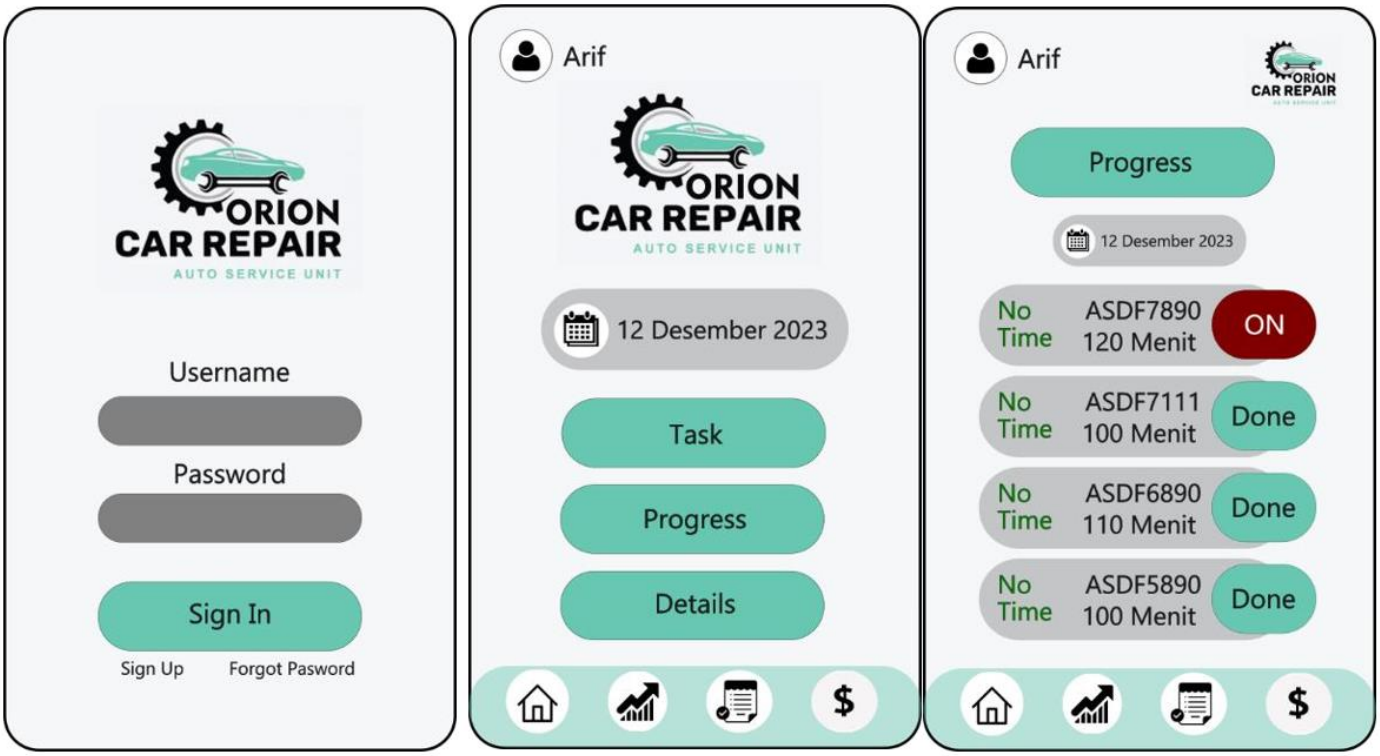

Figure 9. User interface

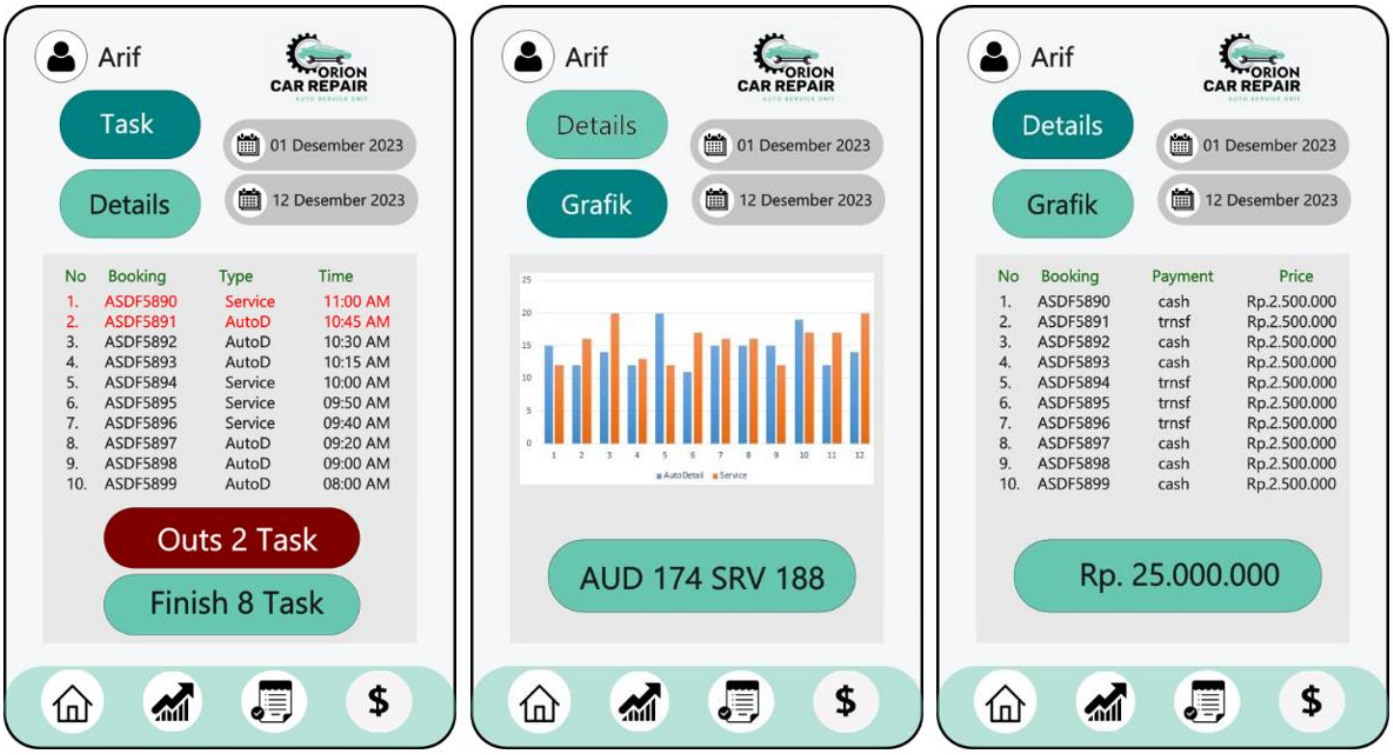

Figure 10. Admin interface

4. Conclusions

Through BMC, SWOT analysis, and BPMN analysis, it can be seen from the benchmarking results of several similar businesses that there are still several areas for improvement, such as adding new types of services and more diverse ordering and payment methods. A suggestion for further improvement is to add analysis using the IFE and EFE matrix methods or the Bayes method to determine the most effective type of promotion.

Declaration statement

Ratna Ekawati: **Conceptualization, Methodology, Writing-Original Draft**. Ardenta Toga Prawira: **Design, Creating product prototypes**. Arif Saptiyadi: **Resources, Validation, Formal analysis**. Ayuningtyas WH: **Resources, Visualization, Investigation**. Galih Prihasetya H, M. Marco Sayputra: **Writing-Review & Editing.**

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Data availability statement

The authors confirm that the data supporting the findings of this study are available within the article or its supplementary materials.

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