

DEVELOPMENT OF HIGH-END SEAPLANE PRODUCTS AND SERVICES: EVALUATION THROUGH SWOT ANALYSIS

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ABSTRACT

The purpose of this study was to evaluate the development potential of products and services in the context of high-end seaplane services using SWOT analysis. The research identifies strengths and weaknesses in customer experience, safety aspects, route flexibility, and comfort offered by high-end seaplane services. The results of the SWOT analysis provide insight into product and service development strategies that can be applied to enhance competitiveness and expand market share in the high-end seaplane service industry. This research uses SWOT analysis to evaluate the strengths, weaknesses, opportunities, and threats in the context of high-end seaplane services. The strengths of high-end seaplane products and services include comfort, luxury, safety, and customer satisfaction. Furthermore, the study identifies product and service development opportunities, such as growing demand in luxury tourism and potential new market segments. The conclusions of this study provide a summary of the findings and implications for the development of high-end seaplane services. The study also suggests the scope of further research to further the understanding of the industry. Overall, this research contributes to the development of effective strategies to strengthen the position of high-end seaplanes in the global aviation industry.

Keywords: Seaplane Service; Performance Evaluation; SWOT Analysis

INTRODUCTION

Tourism products are a series of services that not only have an economic segment but also are social, psychological, and natural. There are three main components of the tourist product, as stated by Middleton (2001:124), namely attractions, amenities or facilities, and accessibility. The development of tourism is one way to make attractions attractive and can make visitors interested in visiting. The things that need to be considered in the development of tourism are: first, the ease of moving from one place to another. The elements that affect the movement are connectivity between regions, no barriers, and the availability of means of transport (Simanjuntak et al., 2023).

Increasingly entering the twenty-first century, aircraft are increasingly developing technology with the emergence of many seaplanes. A seaplane is an aircraft that has a float on the bottom of its body that is useful for conducting operations in the water. In addition, it also has a landing gear system so that, at a certain time, it can still carry out operations from and to land. In some countries, seaplane operations are very well supported, so the activities become very supportive, especially for tourism, marine, and fishing. In places or areas that are not accessible by land transport, if large-bodied or other aircraft cannot be operated, then this seaplane is very suitable to operate (Ghifari and Ahjudanari, 2021).

Indonesia is an archipelago with scattered locations and is separated by water. According to the results of a study of satellite imagery conducted by the Institute of Aeronautics and Space (LAPAN) in 2002, there are as many as 18,306 islands in Indonesia. It is hoped that with the

seaplane mode of transportation, connectivity and the economy, especially the tourism sector in Indonesia, will increase. In 2019, TMBUH recorded a gross domestic product of 5.02% (Fauzi et al., 2021).

Using seaplanes is one of the temporary or nomadic tourism solutions. A seaplane transport is a fixed-wing aircraft capable of taking off and landing on water. Hydroplanes that can also take off and land at airfields are a subclass called seaplanes. The type of aircraft operating in Indonesia is owned by Travira Air Company, namely the Grand Caravan C-208 amphibian 8-seater and the Airfast Indonesia DHC-6-300 (amphibious), as well as the seaplane owned by API Banyuwangi, which is a Cessna 172 SP aircraft with a qualified high wing so that it can be installed with a floating kit to become a seaplane and has STC approval. So the aircraft is very suitable to support the Indonesian tourism industry because of the geographical location of Indonesia, the majority of which is an archipelago that separates the other islands with a wide expanse of ocean.

Seaplane is free-floating, has no brakes, seaplane will always move depending on the circumstances caused by wind, water currents, propeller thrust, and inertia. There are three positions or attitudes on a seaplane to move in the water: the idling position, the plowing position, and the planning position or position on the step. A seaplane with the engine at low RPM will remain at rest or resting on the water; this is called the idling position. The current speed of the boat is usually below 6 or 7 knots so that sea water does not hit the propeller, which can corrode. In calm and light wind conditions, the lift must be well controlled and at full strength so that the muzzle of the aircraft can rise, reduce water jets to the propeller, and improve the maneuverability of the aircraft (Ghifari and Ahyudanari, 2021).

The Ministry of Transportation will prepare seaplane transportation to support the tourism sector. Therefore, it is very important to prepare reliable and competent human resources to support this seaplane program. Indonesia has more than 17 thousand islands, of which the majority are oceans. Therefore, seaplanes can be a solution for Indonesia in opening access to connectivity or accessibility to the smallest islands in Indonesia as well as tourist facilities. Perguruan Tinggi Kementerian Perhubungan, Akademi Penerbang Indonesia (API) Banyuwangi, do soft-launch amphibious aircraft or seaplanes with functional flight test land to land at Banyuwangi International Airport.

Seaplanes are faster than ships and can take off both on land and in the water (Aroonsaengmanee et al., 2020). However, in addition to having these advantages, aircraft belonging to the aircraft category have a risk of accidents. Data on aircraft accidents in Indonesia from 1967 to 2014 recorded as many as 32 aircraft accidents. For seaplane accidents worldwide, there were 374 accidents from 2000 to 2020, which were dominated by the approach and landing flight phases, which were the highest at 141 accidents (Ispandiar et al., 2022). To prevent seaplane accidents, it is necessary to understand the standard needs of waterbase facilities so that they can serve seaplane operations. Waterbase requirements include technical standard facility requirements and operational standard facility requirements.

In this context, this study has the objective of exploring and analyzing the development potential of products and services in high-end seaplane services using the SWOT analysis approach. With a deep understanding of the strengths, weaknesses, opportunities, and threats affecting the industry, the study is expected to provide valuable insights to industry stakeholders, companies, and researchers in the field. By conducting a systematic and in-depth analysis, this study aims to make a significant contribution to the development of an effective strategy to strengthen the position of high-end seaplane services in the global aviation industry. The results of this evaluation are expected to be the basis for the Indonesian Academy of Aviators Banyuwangi to innovate.

IMPLEMENTATION METHOD

Research Subject

The subject studied in this study is the development of high-end seaplane products and services. Researchers will give questions to company leaders who are entitled to fill them, as well as managers and employees at the Indonesian Aviation Academy, Banyuwangi. Due to the application and the Keoemilikan seaplane already being there for a long time in the Indonesian Aviation Academy, Banyuwangi is then suitable for SWOT analysis. This study uses a qualitative-descriptive approach. Qualitative research is descriptive and tends to use inductive analysis. Qualitative research is also known as interpretative research, nature research, or phenomenological research. The qualitative approach emphasizes the meaning, reasoning, and definition of a certain situation (in a certain contest), as well as more research on matters related to daily life (Rukin, 2019:6). In this study, the descriptive approach will describe, explain, record, and analyze the existing conditions and what is happening during the interview.

Data Collection Tools

In this study there is data that needs to be collected. The data that needs to be collected, such as:

1. Primary Data

Research data sources were obtained directly from original sources or first parties (Supriyono, 2018: 48). Primary research The data referred to in this study is the data obtained from the interviews of the interviewees, namely the company, to determine its strengths, opportunities, and weaknesses and conduct field observations.

2. Secondary Data

Secondary data is a source of research data obtained indirectly through an intermediate medium. The secondary data in this study were obtained from the documents in the company related to the problem, such as the company profile, organizational structure, vision, and mission of the company.

Research Procedure

Data collection is one of the things that will affect the overall research results. The data collection in this study is:

1. Interview

Interview is a data collection technique that is carried out through face-to-face and direct questions and answers between data collectors and researchers to sources of data. There are two types of interviews: structured and unstructured. A structured interview means that the researcher knows exactly what information he wants to extract from the respondents, so the list of questions has been made systematically. Unstructured interviews are free interviews in which researchers do not use interview guidelines that contain questions to be asked specifically and only strengthen the important points that want to be explored by respondents (Firman, 2015: 63). In this study, using a structured interview with interview guidelines, researchers get information related to the nature of the problem and the object of research to be investigated.

2. Documentation

Documentation relates to a special activity in the form of the collection, processing, storage, and dissemination of information (Firman, 2015:67).

Documentation obtained in this study is in the form of photographs, recordings, and reports perused associated with the problems to be investigated.

Data Analysis Method

To obtain the results of the business development strategy, the first step that needs to be done is to summarize the basic input information needed to formulate a strategy. The second stage is the matching stage that produces alternative strategies by combining internal and external factors. The third stage is the decision stage that will determine which alternative strategy is most suitable for use (David, 2004:32). The tool used in drawing up the strategy is SWOT analysis. SWOT analysis is used to determine what strategy is used after looking at the strengths, weaknesses, opportunities, and threats of high-end aircraft services obtained from the results of interviews. Below is the SWOT analysis matrix:

Table 1. SWOT Matrix

	Strength (S) determines 1-10 internal strength factors	Weakness (W) determines 1-10 internal weakness factors
Opportunities (O) determine 1-10 external factors	S-O strategy creates a strategy that uses strengths to capitalize on opportunities	W-O strategy creates a strategy that minimizes weaknesses to take advantage of opportunities
Threats (T) determine 1-10 external force factors	S-T strategy creates a strategy that uses force to become a threat	W-T strategy creates a strategy that minimizes weaknesses to take advantage of opportunities

The SWOT matrix above facilitates research in obtaining research results. This is because the SWOT matrix can clearly describe the external opportunities and threats faced according to their strengths and weaknesses. This matrix can produce four alternative possible cells, namely the strategy of strength-opportunity, strength-threat, weakness-opportunity, and weakness-threat.

RESULTS AND DISCUSSION

Strength

Strength is a condition that becomes a strength in the organization. Strength factors in the organization. Strength factors are a special competence or a superior competence contained in the body of the organization itself. These factors are a plus or comparative advantage of an organization. Based on the results of the analysis that has been carried out, the strengths of Seaplane Services are:

1. Reach access to all regions throughout Indonesia.

Accessibility is a measure of the ease with which a location can be reached from other locations through the transportation system. The measure of affordability or accessibility includes the ease of time, cost, and effort involved in moving between places or regions.

2. Have good connectivity in flight.

Connectivity is the relationship between one space and another space so as to create continuity between the functions of the space both on a macro and micro



scale, which involves movement and activities that cause interaction between individuals in it.

3. Become a recommendation in the development of seaplane aviation in Indonesia
A recommendation is a suggestion that advocates (justifies, reinforces). In addition, another meaning of recommendation is sooth, or asking for attention that the person called can be trusted well (usually stated with a letter).

Weakness

Weakness is a condition or everything that is a weakness or deficiency contained in the body of the organization. Basically, a weakness is a natural thing in an organization. But the most important thing is how the organization builds a policy so as to minimize the weaknesses that exist. Based on the results of the analysis, the strengths of the seaplane service are:

1. Lack of Maneuverability
Ability is the capacity to perform various cognitive tasks, and physical ability refers to the capacity to perform physical actions.
2. Lack of Climbing Speed
Speed is the ability to cover a distance in the shortest possible time.
3. Relatively slow diving speed
Diving is an activity carried out by humans in a hyperbaric environment, or an environment that has high pressure. Diving is carried out at a pressure of more than 1 absolute atmosphere, both in water and in a chamber of high-pressure dry air.

Opportunities

Opportunity is an environmental condition outside the organization that is beneficial and can even be a weapon to advance a company or organization. Based on the results of the analysis, the strengths of the seaplane service are:

1. Can be developed into water tourism
Water tourism is a whole activity whose activities are carried out on marine or nautical media and include coastal areas, surrounding islands, as well as ocean areas in the sense of the surface, inside, or basically included in the Marine Park.
2. Accommodating connectivity needs at priority tourist destination locations
Priority tourist destinations are geographical areas within one or more administrative regions in which there are tourist attractions, public facilities, tourism facilities, accessibility, and interrelated communities.
3. Logistics and transportation support the people's economy in the surrounding area.
Transportation logistics is an effort to manage and provide transportation facilities and infrastructure for the smooth distribution of logistics.

Threats

Threats are external conditions that can interfere with the smooth running of an organization or company. Threats can include things from the environment that are unfavorable to an organization. Based on the results of the analysis, the strengths of the seaplane service are:

1. Plane Crash Due to Inadequate Engine
The machine is an input in the production process that requires energy to carry out production process activities. The energy in question is energy in the form of fuel, lubricating oil, electric power, water, for factory purposes, and others.
2. Accidents Caused by Collisions with Animals

An accident is a legal event of transportation in the form of an incident or disaster that is not desired by the parties and occurs before, during, or after the implementation of transportation due to human actions or damage to transportation equipment, causing material, physical, and mental losses.

3. Engine Damage or Aircraft Carrier Due to Lack of Maintenance

Maintenance is an activity to maintain existing facilities and repair, make adjustments, or replace them as necessary to obtain a production operating condition that fits existing planning.

SWOT Matrix

The SWOT matrix is a combination of internal factors, namely strengths and weaknesses, with external factors, namely opportunities and threats, that will form four alternative strategies from a combination of both strategies, namely S-O (strengths and opportunities), ST (strengths and threats), WO (weaknesses and opportunities), and WT (weaknesses and threats) (Rangkuti 2001). Here below is the SWOT matrix, among others:

Tabel 2. Seaplane Service SWOT Matrix

Internal Strategy Factor Analysis Summary (IFAS)	Strenght (S)	Weakness (W)
	<ol style="list-style-type: none"> 1. Reach access to all regions throughout Indonesia. 2. Have good connectivity in flight. 3. Become a recommendation in the development of seaplane aviation in Indonesia. 	<ol style="list-style-type: none"> 1. Lack of Maneuverability 2. Lack of Climbing Speed 3. Relatively slow diving speed
Eksernal Strategy Factor Analysis Summary (IFAS)	Opportunities (O)	Threats (T)
	<ol style="list-style-type: none"> 1. Can be developed into water tourism 2. Accommodating connectivity needs at priority tourist destination locations 3. Logistics transportation supporting the people's economy in the surrounding area 	<ol style="list-style-type: none"> 1. Plane Crash Due To Inadequate Engine 2. Accidents Caused By Collisions With Animals 3. Engine Damage Or Aircraft Carrier Due To Lack Of Maintanance

IFES and EFAS Matrix

The determination of factor values in making a SWOT matrix consists of an internal strategy factor analysis summary (IFAS) and an external strategy factor analysis summary (EFAS). the matrix below IFES and EFAS, among others:

1. Matrix Internal Strategy Factor Analysis Summary (IFES)

Ahmad (2020) said to know for sure the company's position, it must first calculate the weight (A) and rating (B) factor points as well as the total amount of weight and twig multiplication ($c = axb$) on each S-W factor. The way to give value is to give a rating for strength and chances of getting a rating of 3 (strong) or 4 (very strong). As for weaknesses and threats, get a rating of 1 (very weak) or 2 (weak). Give each factor a weight ranging from 0.00 (not important) to 1.0 (all important). The sum of all weights must be equal to 1.0.

Table 3. Internal Strategy Factor Matrix

Internal Strategy Factors	Weight (a)	Rating (b)	Skor (axb)
Strenghtness (S)			
Reach access to all regions throughout Indonesia.	0,11	4,00	0,44
Have good connectivity in flight.	0,12	4,00	0,48
Become a recommendation in the development of seaplane aviation in Indonesia.	0,12	4,00	0,48
TOTAL STRENGHTNESS	0,35		1,40
Weakness (W)			
Lack Of Maneuverability	0,09	3,00	0,27
Lack Of Climbing Speed	0,06	2,00	0,12
Relatively slow diving speed	0,09	3,00	0,27
TOTAL WEAKNESS	0,24		0,66
TOTAL OVERALL	0,59		2,06

Based on Table 4.2, we obtained a total score of 2.06. Previously, according to Rangkuti (2001), if the score obtained is 1.00 to 1.99, it indicates a weak internal position. A score of 2.00 to 2.99 indicates an average. A score of 3.00 to 4.00 indicates a strong internal position. From the total score of 2.06, it can be concluded that Seaplane Services is currently in a strong position because the company's internal conditions are above average. The above results show that the internal factors of seaplane services are relatively strong in utilizing a variety of strengths. The dominant strength factors for each company have a score value of 0.59.

2. Matrix Ekternal Startegy Factor Analysis Sumary (EFES)

Just like the IFES matrix, to know exactly the position of the company, it must first calculate the weight (A) and rating (B) factor points and the total number of weight and twig multiplications ($c = axb$) on each o-t factor. The way to give value is to give a rating for strength and chances of getting a rating of 3 (strong) or 4 (very strong). As for weaknesses and threats, get a rating of 1 (very weak) or 2 (weak). Give each factor

a weight ranging from 0.00 (not important) to 1.0 (all important). The sum of all weights must be equal to 1.0 (Ahmad, 2020). So, among others, as follows:

Table 4. External Strategy Factor Matrix

Internal Strategy Factors	Weight (a)	Rating (b)	Skor (axb)
Opportunities (O)			
Can be developed into water tourism	0,10	3,00	0,3
Accommodating connectivity needs at priority tourist destination locations	0,10	3,00	0,3
Logistics transportation supporting the people's economy in the surrounding area	0,13	4,00	0,52
TOTAL OPPORTUNITIES	0,33		1,12
Threats (T)			
Plane Crash Due To Inadequate Engine	0,13	4,00	0,52
Accidents Caused By Collisions With Animals	0,06	2,00	0,12
Engine Damage Or Aircraft Carrier Due To Lack Of Maintanance	0,06	2,00	0,12
TOTAL THREATS	0,25		0,74
TOTAL OVERALL	0,58		1,86

Based on Table 4.3, according to Rangkuti (2001), if the score obtained is 1.00 to 1.99, it indicates a weak external position. A score of 2.00 to 2.99 indicates an average. A score of 3.00 to 4.00 indicates a strong internal position. The results of the total weighted score are 1.86, so it can be said that the seaplane service business development strategy has been able to manage opportunities well. Despite this, seaplane services still have to anticipate various threats from the company's external environment. Based on the above score value of 0.58, the main opportunity that can be used for seaplane service is to be a logistics transportation service supporting the people's economy in the surrounding area.

CONCLUSION

Based on the calculation of IFAS, the results of the internal condition of the seaplane service were obtained. Internal conditions obtained scores for a strength factor of 1.40 and a weakness factor of 0.66, with a total IFAS table score of 2.06, indicating that the strength of the seaplane service is greater than the weakness. On the results of the calculation of EFAS, seaplane service. Internal conditions obtained scores for an opportunity factor of 1.12 and a weakness factor of 0.74, with a total IFAS table score of 1.86, indicating that the opportunity for seaplane service is greater than the threat. This means that seaplane services are in a very advantageous position because they have strengths and opportunities that can be utilized to the fullest.

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