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The Implementation Of Business Model Canvas And Swot Analysis In Public Service Agency Marine Geological Institute (Mgi) Bandung

By

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Abstract

The transformation of Public Service Agency in Marine Geological Institute (PSA MGI) has a new vision and expansion of the primary tasks and functions. These changes must be properly anticipated not only at the organizational level, but also important for the business model. This paper aims to analyze aspects of the business model canvas (BMC) from current conditions into ideal plans for the future. Supported by SWOT analysis of BMC aspects, strategic issues, design thinking and empathy map of PSA MGI.

A qualitative research method and descriptive approach is also supported by a literature review and case study were employed, Primary data obtained from an in-depth interview with top level management in PSA MGI. Secondary data used obtained from various sources. BMC processing uses a comprehensive analysis based on theoretical framework

The results of comparison between current and the next plan the next plan of the Business Model Canvas combined with SWOT analysis are 1) customer segments need new customers oil & gas multi national company, mining company national & global and marine research global. 2) customer relationships, there are additional input i.e: excellent consulting service, post survey services and future plans, hotline center. 3) value proposition are experienced g&g experts, post-survey evaluation. 4) additional revenue streams are revenue from post-survey consulting and revenue from equipment rental support from partners

Keywords: Business model canvas, marine geological institute, public service agency, SWOT analysis

Introduction

Marine Geological Institute (MGI) as one of the work units of Agency of Research and Development Energy and Mineral Resources (ARDEMR) became a Public Service Agency (PSA) that implemented the Financial Management Development of PSA on December 4, 2017 which came into effect on January 1st, 2018 according to the Decree of the Minister of Finance of the Republic of Indonesia No: 921/KMK.05/2017. With the stipulation of PSA MGI that implements financial management, PSA MGI is given the flexibility of financial management in accordance with Government Regulation No. 23 of 2005 (Wijaya & Riauwati, 2022). This service change demands rapid innovation so that PSA MGI is more ready to face new challenges. The successful innovation is the creation and implementation of new processes, products, services, and methods which are the result of real development in terms of efficiency, effectiveness or quality of results (Mulgan & Albury, 2003 in Muluk, 2008).

The transformation of PSA MGI has a new vision and expansion of the primary tasks and functions. These changes must be properly anticipated not only at the organizational level, but also important for their business model. Change is an activity or process that makes something or someone different from previous circumstances and processes that cause changes in individual behavior patterns (Atkinson, 1987 and Brooten, 1978 in Saefullah and Rusdiana, 2016).

The new vision of PSA MGI which is engaged in geological surveys and marine geophysics that are professional, independent and the international standard of marine survey. To realize this vision, PSA MGI carries out the following missions: a. implementation of R&D in the ESDM sector in the marine area of the Republic of Indonesia that is superior and useful, b. carry out studies in the formulation, evaluation, and recommendation of policies related to the latest national strategic issues, b. Carry out survey services/technology in the field of marine geology, c. developing a program of activities, human resources, R&D facilities and infrastructure in the field of marine geology (Wijaya & Riauwati, 2022).

This paper aims to analyze aspects of the business model canvas (BMC) from current conditions into ideal plans for the future. Supported by SWOT analysis of BMC aspects, strategic issues of customers segment, design thinking and empathy map of PSA MGI.

Literature Review

A business model is a conceptual tool containing a set of objects, concepts and their relationships with the objective to express the business logic of a specific firm. Therefore we must consider which concepts and relationships allow a simplified description and representation of what value is provided to customers, how this is done and with which financial consequences (Osterwalder et al., 2005). A business model articulates the logic, the data, and other evidence that support a value proposition for the customer, and a viable structure of revenues and costs for the enterprise delivering that value (Teece, D.J., 2010).

Business model depicts the rationale of how an organization creates, delivers, and captures value (economic, social, or other) in relationship with a network of exchange partners (Massa & Tucci, 2013). Business model is simplification of real systems that are used for

explaining performance and competitive advantage (Zott, Amit, & Massa, 2011).

The use of term "business model" became popular in the literature during the development of IT and the Internet in the 1990s (Pateli and Giaglis, 2003). Osterwalder, Pigneur and Tucci (2005) explain that the concept of business model that appeared for the first time in an academic article in 1957 and then in the title and abstract papers in 1960 but only became popular in the 1990s. Informed by Zott et al, (2011) analyzed the presence of the term business model in a variety of different publications, during the period 1975 to 2009. The results show that the attention focused on the concept that met between 1995 and 2010.

The business model concept of Osterwalder and Pigneur (2010), named Business Model Canvas (BMC). Osterwalder and Pigneur stated that strategy needs to be distinguished from business models. Strategy is a driver for the creation of business models because it guides companies in the definition of their business model. Therefore, a company's strategy may be formulated before its business model is created (Barquet, et al, 2013). Business Model Canvas allows business model to be simple, relevant and intuitively understandable, while not oversimplifying the complexities of how enterprises function (Osterwalder & Pigneur, 2010). BMC Model Canvas is a powerful visualization tool and clearly shows all the components and their interconnections (Stefan et al., 2014). The BMC model is a graphic presentation of a number of variables that show the values of an organization. The BMC model can be deployed as a strategy tool for the development of a new organization (Mičieta,, 2020).

Canvas Business Model was developed through an extensive investigation of business models and represents the consensus of a large group of experts from academy and industry. Moreover, a detailed process to use Canvas Model was proposed to support the development and management of business models. Finally, there is empirical evidence that supports the performance of this model. It has been applied successfully by many organizations, such as IBM and Ericsson (Osterwalder & Pigneur, 2010). The domain of public governance has been strengthened through the solutions to complex public problems and the focus on creating value for public policy recipients. The union of these areas along with the science of design provided a basis for the creation of a new public governance canvas model that allows for the redesign of organizational management models (Martins et al, 2019).

Nine elements in Business Model Canvas, which are depicted in Figure 1: value proposition, customer segments, distribution channels, customer relationship, revenue streams, key resources, key activities, key partners and cost structure. These elements are described below.

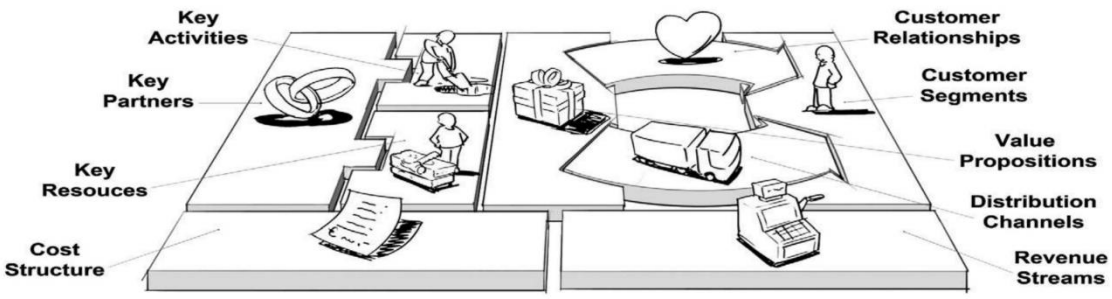


Figure 1. Elements of Canvas Business Model (Osterwalder & Pigneur, 2010)

Empathy map is a tool used to discover the demographic characteristics of customers

and develop a better understanding of their environment, behavior and aspirations (Figure 2). Empathy map was created to produce a stronger business model because the customer profile guides the creation of a better value proposition, a more comfortable way to approach customers, and how to deal with customers accordingly. Which in the end will provide a deeper understanding of how customers get satisfaction with the value of the product/service when compared to the price paid (Osterwalder & Pigneur, 2010).

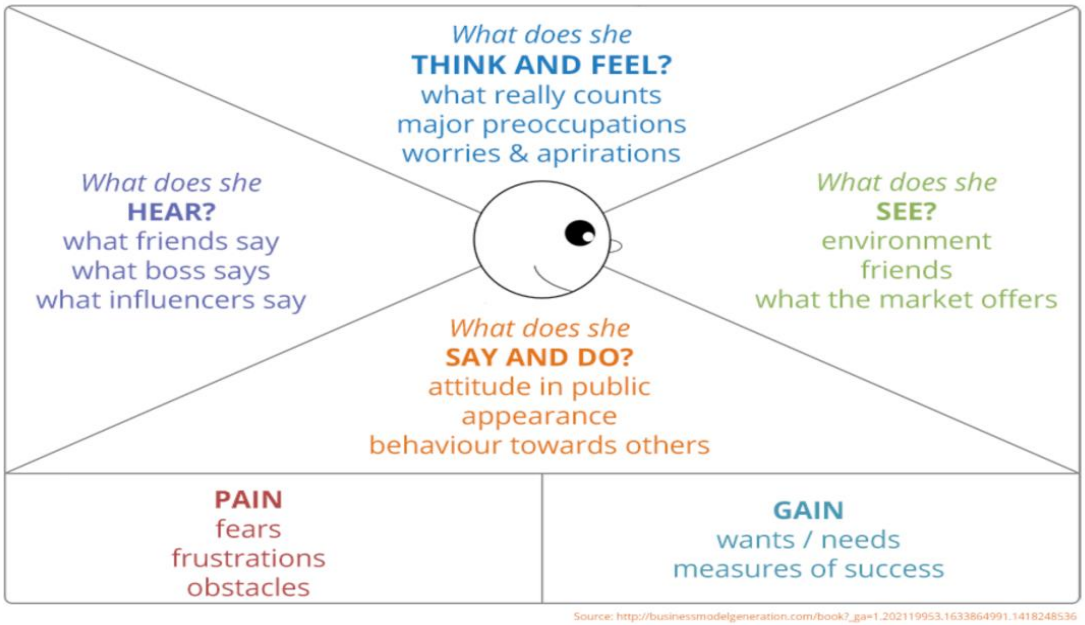


Figure 2. Empathy map of business model canvas (Osterwalder & Pigneur, 2010)

Adapted from Mulyana et al, 2018, PSA of MGI business model was adopted from nine building block of business model canvas (Osterwalder and Pigneur, 2010) and also SWOT analysis. SWOT Analysis is a tool used for strategic planning and strategic management in organizations. It can be used effectively to build organizational strategy and competitive strategy. In accordance with the system approach, organizations are wholes that are in interaction with their environments and consist of various sub-systems. In this sense, an organization exists in two environments, one being in itself and the other being outside. It is a necessity to analyse these environments for strategic management practices (Gurel & Tat, 2017)

Methodology

This research follows a qualitative research method and descriptive approach. This method is also supported by a literature review and case study were employed, which are exploratory methods (Karlsson, 2008). Primary data obtained from an in-depth interview with top level management in PSA MGI. Secondary data used obtained from various sources i.e., PSA MGI in document, official reports, archives, papers of journals (Jurnal Geologi Kelautan and Bulletin of Marine Geology), regulations, and other relevant data sources.

Regarding BMC processing, it uses a comprehensive analysis as a figure 3 of Theoretical Framework, i.e., strategic issues within the Ministry of Energy and Mineral Resources and across agencies, design thinking, empathy maps and SWOT analysis.

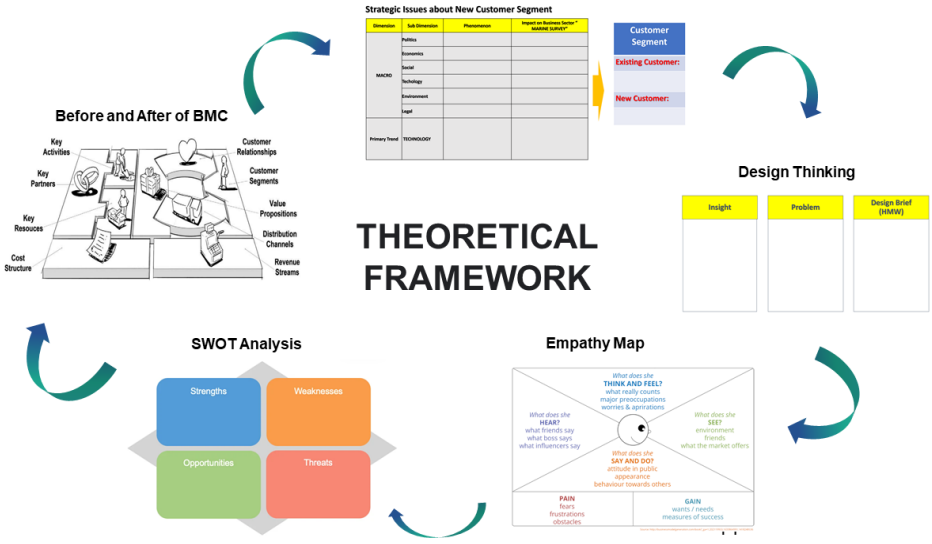


Figure 3. Theoretical framework

Results and Discussion

Currently Business Model Canvas of PSA MGI

Firstly, business model as a method, then business model from the aspects of its components, and the business model as a business strategy. Meanwhile elements in the Business Model Canvas (BMC) include Customer Segment, Value Proposition, Channel, Customer Relationship, Revenue Stream, Resources Key, Key Activities, Key Partnership and Cost Structure. To construct business models using this approach starts from the Customer Segment, followed by Value Proposition, Channel, Customer Relationship, Revenue Streams, Key Resources, Key Activities, Key Partners and Cost Structure.

Currently business model canvas (BMC) of marine geological survey services with Survey Vessel of Geomarin III of PSA MGI as a detail see figure 4.

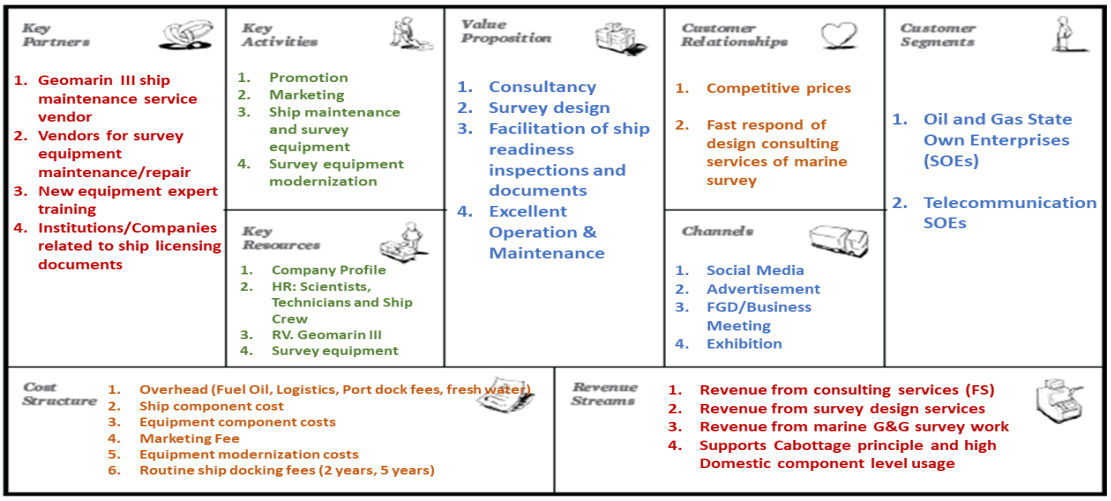


Figure 4. Currently business model canvas (BMC) of marine geological survey services with Survey Vessel of Geomarin III of PSA MGI

Strategic Issues of Customer Segments

According to the strategic issues regarding the new customer segments of PSA MGI, a table was created which includes dimensions, sub dimensions, phenomena and impacts on the field of marine geological and geophysical survey services. The dimensions are macro conditions and the main trend. The sub dimensions consist of political, economic, social, technological, environmental and legal aspects. The main trend is only related to technology (Table 1).

The result of deepening this strategic issue is the opportunity for new customers, namely multi-national oil & gas companies, mining companies as well as national & global marine research companies.

Table 1. Strategic issues about new customer segment of PSA MGI

Dimension	Sub Dimension	Phenomenon	Impact on Business Sector "G&G MARINE SURVEY"
MACRO	Politics	Government support regarding the use of domestic marine survey vessels	Encouraging demand for oil and gas/mining/marine infrastructure survey services with high TKDN and domestic capabilities
	Economics	Oil and gas exploration and mining activities at offshore have declined during the pandemic	Marine G&G survey business is decline
	Social	The marine industry supports the world's maritime axis	Increasing demand for Marine G&G survey services in the Energy and Mineral Resources (EMR) and other sectors
	Techology	Survey technology is getting more sophisticated and efficient	Project costs become more efficient and competitive
	Environment	Oil and gas exploration and underwater mining reduce forest damage	Increasing the profile of Marine Survey Services
	Legal	Legally there are related regulations: the principle of Cabottage and high Domestic component level usage	Launching a domestic survey service business
Primary Trend	TECHNOLOGY	The development of 3D Surveys: MBES and Multi Channel Seismic	Survey vessel of Geomarin III with MBES 3D Bathymetry equipment is getting ready to meet market demand

Design Thinking and Empathy Map

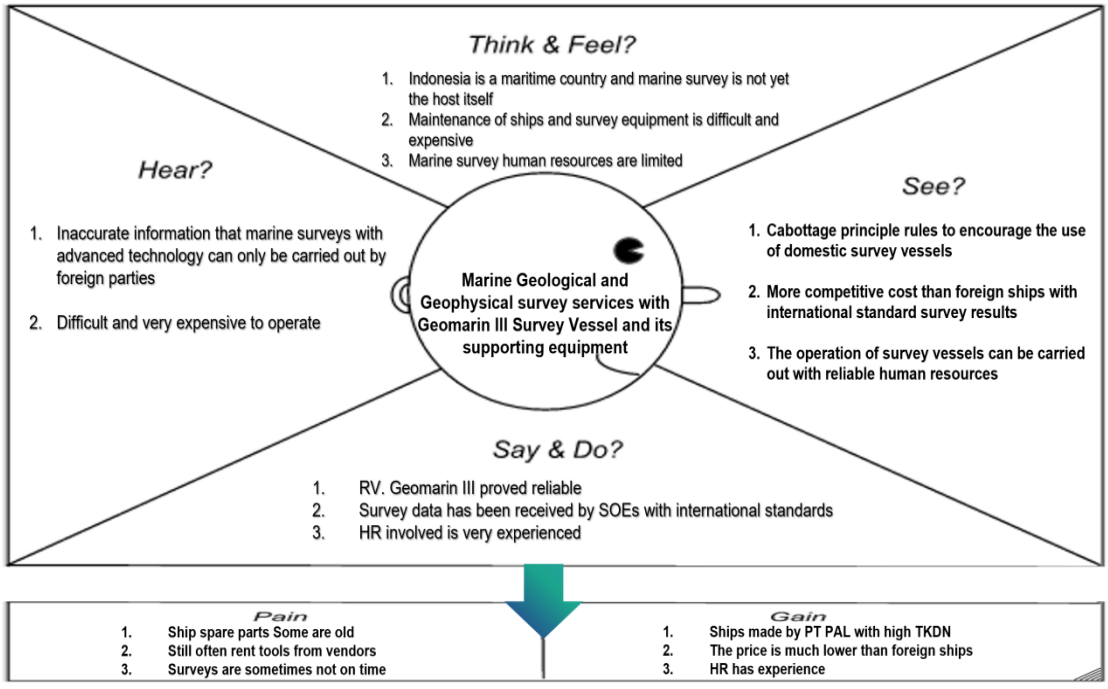
Regarding design thinking for geology and geophysical (G&G) marine survey services, it includes three things, first insight, second problem and third design brief which details are in table 2. Design briefs of this study are firstly, Survey vessel of Geomarin III and equipment must be of international standard with accreditation, secondly need to collaborate with the right vendors and avoid too many foreign spare parts, thirdly need recruitment of crew and technicians who are still young and potential, fourthly Planning is getting tighter, survey preparation must be better and the need to purchase new equipment of commercial value.

Regarding the empathy map of customer insight for geology and geophysical (G&G) marine survey services can seen in figure 5. About say and do of the empathy map i.e. RV. Geomarin III proved reliable, survey data has been received by SOEs with international standards, and human resources involved is very experienced.

Table 2. Design thinking of marine geological survey services with RV Geomarin III of PSA MGI

Insight	Problem	Design Brief
1. Indonesia is a maritime country but marine surveys have not hosted themselves	1. Marine surveys are still dominated by foreign ships	1. Geomarin III vessels and equipment must be of international standard with accreditation
2. Maintenance of ships and survey equipment is difficult and expensive	2. Ship maintenance and equipment costs are expensive because they often come from abroad	2. Need to collaborate with the right vendors and avoid too many foreign spare parts
3. Marine survey human resources are limited	3. Crew and technicians most are over 50 years old	3. Need recruitment of crew and technicians who are still young and potential
4. Expensive survey fees and high risk	4. Survey costs often increase, the number of survey days increases and some are still renting tools	4. Planning is getting tighter, survey preparation must be better and the need to purchase new equipment of commercial value

Figure 5. Empathy map of marine geological survey services with RV. Geomarine III of PSA MGI



SWOT Analysis and The Next Plan of Business Model Canvas PSA MGI

To develop this BMC, PSA MGI organization started from capturing condition at this time, followed by a Strength-Weakness-Opportunity-Threat (SWOT) analysis. The SWOT analysis can be used to design a prototype business model improvement and business models of the future. The detailed building block colored green, blue and yellow from SWOT analysis with three paramaters: strength value, opportunity value and threat value (Figure 6).

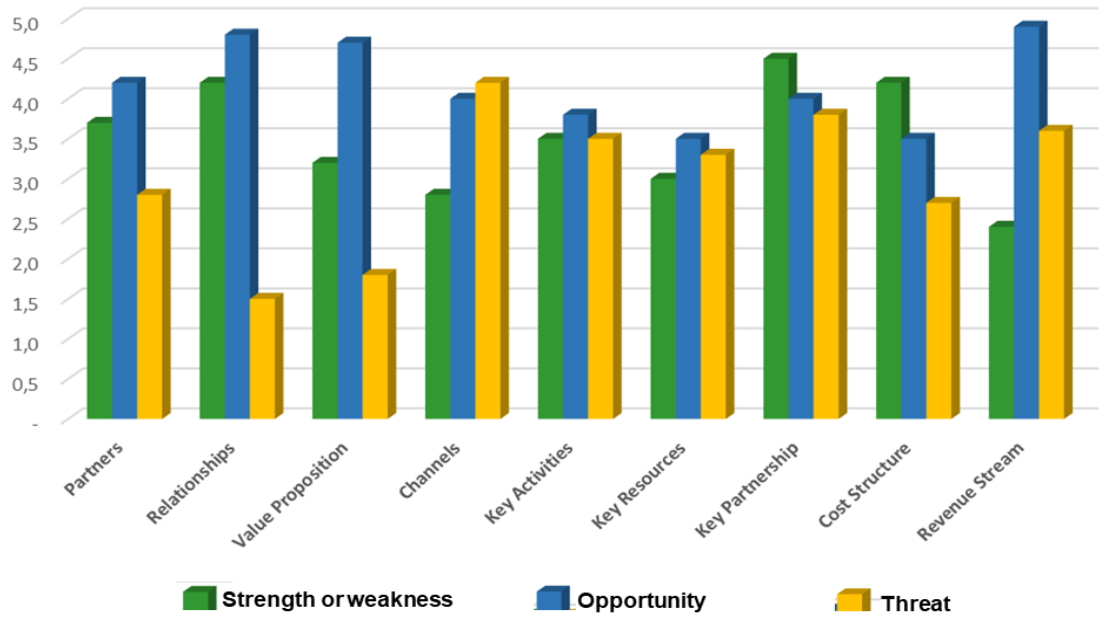


Figure 6. SWOT analysis of PSA MGI

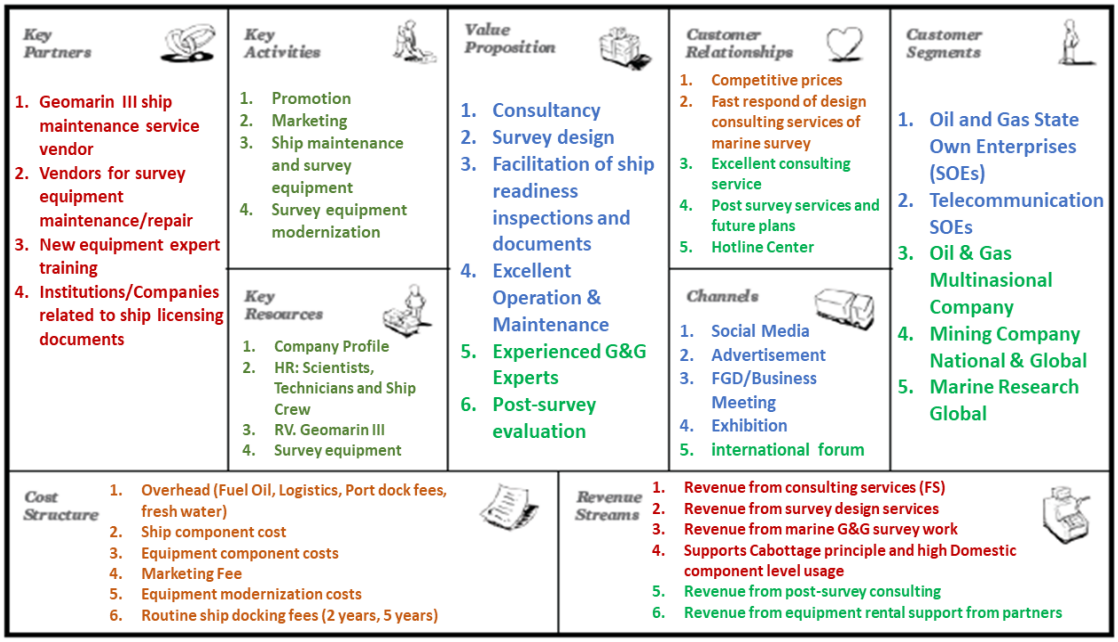


Figure 7. Next plan of business model canvas (BMC) of marine geological survey services with RV. Geomarin III of PSA MGI

The steps in the next plan of the Business Model Canvas combined with SWOT Analysis of G&G marine survey PSA MGI ares as follows:

Customer Segments

Customer segments or partners of PSA MGI include existing and new customers. Partners building block colored blue from SWOT analysis with opportunity high value (4.2). Existing customers i.e.: Oil and Gas State Own Enterprises (SOEs), Telecommunication SOEs. New customers i.e.: Oil & Gas Multi National Company likely Adaro Power, Medco Power etc., mining company national & global, as well as marine research global.

Customer Relationships

Customer Relationships building block colored blue from SWOT analysis with opportunity value (4.8) and strength value (4.2). Customer Relationships i.e., competitive prices and fast response of design consulting services of marine survey, excellent consulting service, post survey services and future plans and hotline Center.

Value Proposition

Value Proposition building block colored blue from SWOT analysis with opportunity value (4.8) and strength value (4.2). Value Proposition is a benefit offered to the market segments served i.e.: consultancy, survey design, facilitation of ship readiness inspections and documents, excellent operation & maintenance, experienced g&g experts, and post-survey evaluation

Channels

Channels building block colored yellow as a highest value from SWOT analysis with threat value (4.2) and opportunity value (4.0). Channels: social media, advertising, FGD/business meeting, exhibition and international forum.

Key Activities

Key Activities building block colored blue from SWOT analysis with opportunity value (3,8), strength value (3,5) and threat value (3,5). Key Activities: promotion, marketing, ship maintenance and survey equipment, survey equipment modernization.

Key Resources

Key Resources are resources that belong PSA MGI used to realize the value proposition. Key Resources building block colored blue from SWOT analysis with opportunity value (3,5), threat value (3,3) and strength value (3,0). Generally a Company Profile, Human resources (Scientists, Technicians and Ship Crew RV. Geomarin III), Survey equipment

Key Partnership

Key partners building block colored green from SWOT analysis with strength value (4,5), opportunity value (4,0) and threat value (3,8). Key Partners: RV. Geomarin III maintenance service vendor, vendors for survey equipment maintenance/repair, new equipment expert training, institutions/companies related to ship licensing documents.

Cost Structure

Cost Structure is the composition of the cost to operate PSA MGI realize the value proposition provided to customers. Cost Structure building block colored green from SWOT analysis with strength value (4,2), opportunity value (3,5) and threat value (2,7). Efficient cost structure is the key of the profits earned PSA MGI organization. Cost Structure: revenue from consulting services, revenue from survey design services, revenue from geological and geophysical marine survey work, supports cabotage principle and high domestic component level usage, revenue from post-survey consulting, and revenue from equipment rental support from partners, overhead (fuel oil, logistics, port dock fees, fresh water), ship component cost, equipment component costs, marketing fee, equipment modernization costs, routine ship docking fees.

Revenue Stream

Revenue Streams building block colored blue from SWOT analysis with opportunity value

(4,9), threat value (3,6) and strength value (2,4). Revenue Streams: revenue from consulting services, revenue from survey design services, revenue from geological and geophysical marine survey work, supports cabotage principle and high domestic component level usage, revenue from post-survey consulting, and revenue from equipment rental support from partners

Conclusion and Recommendation

Strategic issues regarding the new customer segment of PSA MGI, a table was created which includes dimensions, sub dimensions, phenomena and impacts on the field of marine geological and geophysical survey services. The result of deepening this strategic issue is the opportunity for new customers, namely multi-national oil & gas companies, mining companies as well as national & global marine research companies.

Design thinking for geology and geophysical (G&G) marine survey services, it includes three things, first insight, second problem and third design brief. Geomarin III vessels and equipment must be of international standard with accreditation. Need to collaborate with the right vendors and avoid too many foreign spare parts.

The empathy map of customer insight for geology and geophysical (G&G) marine survey service, RV. Geomarin III proved reliable, the result of survey data has been received by SOEs with international standards, human resources involved is very experienced.

Comparison current and the next plan of the Business Model Canvas combined with SWOT Analysis of G&G marine survey PSA MGI are 1) customer segments need new customers oil & gas multi national company, mining company national & global and marine research global. 2) Customer relationships, there are additional input i.e: Excellent consulting service, post survey services and future plans, hotline center. 3) Value proposition are experienced g&g experts, post-survey evaluation. 4) Additional revenue streams are revenue from post-survey consulting and revenue from equipment rental support from partners

Recommendation

Based on the analysis for current and the next plan comparison of the Business Model Canvas (BMC) combined with SWOT analysis of G&G marine survey MGI PSA, it is recommended to increase new value customers, additional input of customer relationships, additional value proposition and additional revenue streams.

If these recommendations are carried out optimally and synergistically, the business model for the marine survey of PSA MGI will be more maximal and the results will be higher and the level of organizational success ratio will be higher.

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