

Design of Business Model on Digital Printing Startup Using Business Model Canvas Approach

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Abstract—PT. ABC is a startup engaged in the field of printing that offers online-based printing services with a variety of printing products. As time goes by, more and more competitors are entering the online printing business with considerable growth. To be able to survive in competition, PT. ABC requires a business strategy that can evaluate all aspects of the business that PT. ABC has. Based on the explanation above, it is necessary to analyze the business model run by PT. ABC so that it can be done the design and improvement of the existing business model. The Business Model Canvas was chosen as the method used to map the nine block aspects of PT. ABC's business. The nine blocks consist of Customer Segments, Value Propositions, Channels, Key Activities, Key resources, Key Partnerships, Revenue Streams, and Cost Structure. The nine blocks will be analyzed and processed using SWOT analysis. The SWOT analysis will be done to know the strengths, weaknesses, opportunities, and threats contained in the existing business model PT. ABC.

Keywords—*Business Model Canvas, SWOT Analysis, Printing Company BMC.*

I. INTRODUCTION

The rise of incubator programs and kick-start startup held by the government and other institutions makes the emergence of many startups that move in the field of IT. [1]. PT. ABC is one of the startup that was present since 2017 which is engaged in the field of printing online. The huge growth in the printing market and the absence of major players in the industry, is the background of the PT. ABC establishment. Based on IDC (International Data Corporation) report 2016, printing and printing industry worldwide continues to grow rapidly until the year 2017 that reached US \$ 9 Billion. This figure has increased significantly compared to 2012 which is US \$ 5.3 billion. Even in the coming 2020s, the printing industry growth reaches USD 47.2 billion worldwide. In Indonesia, the printing industry grew to 14.9% during 2016. [2]. The size of the market in the printing business has led many competitors to take advantage of this emerging market. The presence of competitors with large business and funding strategies will surely make the PT. ABC position in the market become threatened. It is necessary to design a new strategy, so that PT. ABC can compete and survive against market competition. The reason

for the necessary changes is based on the ongoing shift from analog to digital production technologies and media products, bringing about new business opportunities on the supply side in combination with changes in the media use on the demand side. The economic situation of major parts of the printing industries is a challenging task. The

task for printers is to understand which technologies, processes and markets fit best to implement successful business strategies [3]. Based on the facts above, research to evaluate existing business models is very important to conduct.

One way to devise a strategy that can evaluate all aspects of PT. ABC's business is to evaluate the business model that PT. ABC has run. Business model design is chosen because according to research conducted CB Insight, business model mismatch is one of the top 10 causes of failed startup. [4]. To illustrate all aspects of the business that PT. ABC has run, the Canvas Business Model method will be selected as one of the methods used in this research. The Canvas Business Model is chosen because it is simpler, and easier to describe the existing problems and their connections so that they are easier to understand. The Canvas Business Model can be simply delivered through nine component blocks, namely consumer segment, channels, customer relationship, value proposition, key activities, key resources, key partners, cost structure, and revenue streams.

This research will be mapping the existing canvas business model and SWOT analysis, which will be used for strategy determination, and business model of canvas proposal. With the proposed new business model, it is expected that PT. ABC can become more competitive against an increasingly dynamic market.

II. LITERATURE REVIEW

A. *Business Model Canvas*

The Canvas Business Model is a tool used to describe, visualize, rate and change business models. The Canvas Business Model offers a new concept in the business model that makes it easy for its users to be able to parse an elaborate concept into a simpler one where the concept is visualized through a single canvas sheet consisting of nine basic blocks that show the logic of thinking about how a

business can make money by considering which components required in the planning of a business model. [1]. Table 1 below shows nine blocks of Canvas business model according to Business Model Generation and Value Proposition Canvas [5].

TABLE I. BLOCKS OF BUSINESS MODEL CANVAS

Blocks	Explanations
Value Propositions	Value Proposition describes the bundle of products and services that create value for a specific Customer Segment
Customer Segments	Customer segments are the community of customers or businesses that aimed by company to sell their product or services to
Channels	Channels are the touch points through which an organization liaises with its customers and as such, play a huge role in defining the customer experience
Customer Relationship	Customer Relationships describe the types of relationships that established by the company with specific Customer Segments
Key Activities	The Key Activities Building Block describes the most important things a company must do to make its business model work
Key Resources	Key Resources describe the most important assets required to make the business model work
Key Partnerships	Key Partnerships Building Block describes the network of suppliers and partners that make the business model work
Cost Structures	Cost Structure describes all costs incurred to operate the business model
Revenue Streams	Revenue Streams represent the ways company generates cash from each Customer Segment

B. SWOT Analysis

Strength, weakness, opportunities, and threat (SWOT) analysis is used to assess the strengths and weaknesses of the company's resources and external opportunities and challenges. [8]. Every organization has its strengths and weaknesses in terms of functional business. [6]. No firm is as strong and equally weak in all areas of the business. Internal strengths / weaknesses are combined with outside opportunities / threats and clear mission statements, providing the basis for revenue goals and strategies. These goals and strategies are set to leverage internal strengths and overcome weaknesses *SWOT Indicator*:

When performing 3 variables analysis of Strengths and Weakness, Opportunities, and Threats, each of these variables will be divided into 4 sub-variables derived from the Business Model Generation Book. [1]. These four dimensions are Value Proportion, Cost / Income, Infrastructure consisting of Key Resources, Key Activities and Key Partnership, and customer relationship consisting of Customer Relationship, Channel and Customer Segment. After that we will calculate the weight and score on each indicator and then mapped into the SWOT quadrant.

Once the indicators on the SWOT variable are determined, the next step is to determine the weight, rating, and score. Weights obtained from the calculation of weighted questionnaires based on the importance or urgency of handling with a scale of 1 to 5. Here is a formula of calculating the relative weight of an indicator:

$$Indicator\ Weight = \frac{\sum Urgency\ Value\ of\ Indicator\ in\ One\ Variable}{Urgency\ Value\ of\ Indicator}$$

Score obtained from the multiplication of the rating and weight on each indicator. The rating value is derived from the value-5 to 5 rating quiz results for the strength & weakness variables, and 1 to 5 for the opportunity and threat variables. Scores on the sub variable on each variable will be summed, and each of the opposite variables will be mutually minus to get the final result in the form of coordinates (x, y) so that the final result will be the variable position in the SWOT quadrant which will be depicted as in figure I according to Rangkti. [8].

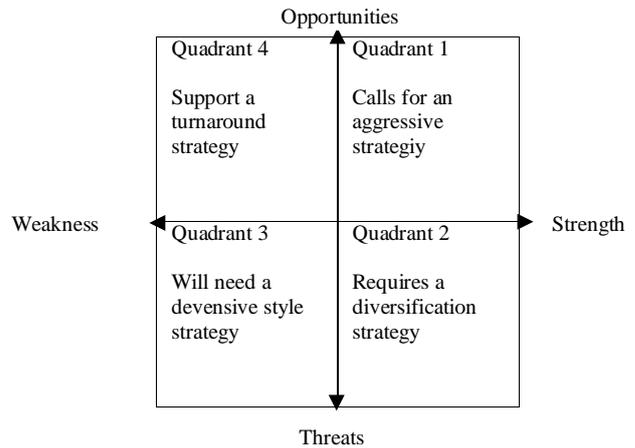


Fig. 1. SWOT Quadrant

III. METHODOLOGY

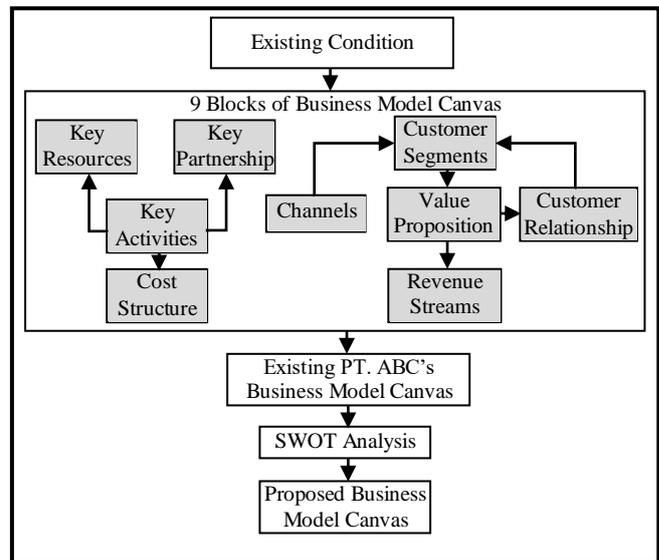


Fig. 2. Conceptual Model

This research was conducted through several stages that can be seen in Figure 1. After determining the topics and issues to be discussed, the next step is to collect primary data. The data contains about the existing condition of the business run the company, which is obtained from the interview to the startup owner. In addition, the related data to be used as a consideration for the proposed business model is also provided by the company. The existing condition of the company will be converted into a 9 block business model of

the canvas which refers to the Business Model Generation. [1]. The result of the conversion will generate the full existing business model canvas that startup was running. After that SWOT analysis will perform to make the proposed final business model. SWOT analysis is performed to evaluate the strengths, weaknesses, opportunities, and threats on the startup business model.

Before performing SWOT analysis, the indicator of the question will be determined. Once the indicators are determined, the next step is to generate a list of questions in accordance with those indicators, which will be answered by startup employees. It contains the question to determine urgency and rating of each indicator. The weight and score calculation will be performed based on the explanation on chapter II, it will generate the variable position on the SWOT quadrant as the final result.

IV. RESULT AND ANALYSIS

A. Existing Model Business Canvas

The following is figure 3 which shows the description of the existing business model from PT. ABC obtained from interviews with startup owners.

Existing Business Model Canvas				
Key Partnership	Key Activities	Value Proposition	Customer Relationship	Customer Segment
Small-medium printing enterprise Custom product suppliers Printing materials suppliers Hosting & Domain Provider Delivery services company	Website & Mobile Apps Development Sales & Marketing Partner Selection Order Distribution & Monitoring	Fast response CS Web-based order Product quality guarantee Free design Order tracking Free Delivery	Membership Priority Service Personal Assistance Channels Direct Marketing Website	Corporat customer Individual customer
	In-house Production Product Delivery			
Key Resources				
	Hosting/server Hardware Staff developer Customer service staff Production & operational staff			
Cost Structure		Revenue Stream		
Marketing costs (3%) Operational costs (42%) In-house production costs (29%) Partner's production costs (20%)		10% Partners's margin (80%) In-house production product selling (20%)		

Fig. 3. Existing Business Model

B. SWOT Calculation

The mapping results from the nine blocks of the canvas business model will be used as a basis for proposing a business model by considering the SWOT analysis. Table II shows the calculation of weight and score for each indicator that has been determined.

TABLE II. SWOT INDICATORS CALCULATION

Variable	Sub Variable	Indicators	Weight	Score		
Strength & Weakness	Value Proposition	Conformity with customer needs	0.37	3.3		
		The power of network impact	0.26	-1.0		
		Customer satisfaction	0.37	3.3		
	Cost/Revenue		High profit margin	0.14	-1.7	
			Recurrence of revenue streams	0.11	0.7	
			Diversified revenue streams	0.10	0.3	
			Revenue predictability	0.09	-0.7	
			Collect revenue before expense	0.06	-1.7	
			Continuity of revenue streams	0.12	0.7	
			Expense predictability	0.14	2.3	
		Cost structure conformity with business model	0.11	1.3		
Infrastructure		Efficient operating Costs	0.15	-0.3		
		Resources are difficult to imitate	0.09	-1.7		
		Effectiveness of the use of key resources	0.14	-1.7		
		Efficient key activities	0.15	-1.0		
		Key activities are difficult to imitate	0.09	-2.3		
		Excellent execution quality	0.14	-0.7		
		Customer Relationship		Balance of production and outsourcing	0.14	-2.0
				Dependence on partners	0.11	1.3
				Good relationship with partners	0.14	1.3
				Low customer turnover	0.14	-2.3
Opportunities	Value Proposition	Well segmented customer segments	0.13	0.0		
		New customer sustainability	0.09	0.3		
		Easy-to-find channels	0.13	-2.0		
		Effectiveness of channels	0.09	-2.0		
		Conformity channels with customer needs	0.09	0.7		
		Strong customer relationship	0.11	-0.3		
		Compatibility with customer segments	0.08	-2.0		
		Brand strength	0.13	-3.3		
Opportunities	Value Proposition	Ability to be able integrate better product and service	0.22	3.7		
		Ability to be able to fulfill additional customer needs	0.34	3.3		
		Ability to be able to create new value propositions	0.24	3.7		
		Ability to be able to do another job to fulfill customer needs	0.20	3.0		

TABLE II, CONT. SWOT INDICATORS CALCULATION

	Cost/Revenue	Opportunity to replace one-time transaction with repetitive one	0.26	4.0	
		Opportunity to create a new revenue stream	0.28	4.3	
		Opportunity to raise the price	0.20	3.7	
		Opportunity to reduce several cost	0.26	3.7	
	Infrastructure	Opportunity to use cheaper resource with the same result	0.12	3.3	
		Opportunity to get key resources better from partners	0.14	4.0	
		Opportunity to standardize key activities	0.12	3.3	
		Opportunity to improve efficiency	0.13	3.7	
		Opportunity to improve efficiency using technology	0.16	3.0	
		Opportunity to get strong collaboration to focus on core business	0.12	4.0	
		Use of channel's partner to reach customer	0.08	2.7	
		Ability of partners to be able to complete value proposition	0.13	3.0	
		Customer Relationship	Benefits from a growing market	0.09	3.7
			Opportunity to serve a new customer segment	0.08	4.0
	Better service through the better segmented		0.13	3.7	
	Channel's effectiveness and efficiency improvement		0.11	3.0	
	Increase profit margin through a direct service		0.13	3.7	
	Ability to be able to harmonize the better channels and customer segment		0.14	3.0	
	Opportunity to improve customer relationship		0.10	4.3	
Opportunity to improve personalization	0.11		3.0		
Ability to be able to recognize and release the unfavorable customers	0.11		3.0		
Threats	Value Proposition		Substitution of products and services	0.18	4.3
		The better price and value of competitors	0.19	4.3	
	Cost/Revenue	Threats of margin by competitors and technology	0.18	4	
		Depends on a single revenue stream	0.15	4	
		Unpredictable costs	0.14	3	
		Growth costs faster than revenue	0.14	3.3	
		Threats	Infrastructure	Resources supply disruption	0.10
The threats of resources quality	0.13			2.7	
Key activities disruption	0.18			3	
The threats of key activities quality	0.16			3.3	
The threats of losing partners	0.10			2.3	
Collaboration between partners and competitors	0.11			3.3	
Depends on a single partner	0.23			2.3	
Customer Relationship	Declining growth		0.18	3.7	
	Competitors threaten market share		0.19	3.7	
	Rapid growth of competitors		0.18	4.3	
	Customer Relationship	Threat of competitors on the channels	0.15	4.3	
		Threatened channels become irrelevant to customers	0.15	3.3	
		Relationship with customers become worse	0.14	3.3	

After the results of the score calculation on the SWOT indicator are obtained, the next step is to determine the SWOT quadrant for each sub-variable by calculating coordinates as can be seen in Table III.

TABLE III. SWOT INDICATORS COORDINATE CALCULATION

Sub-Variable	Indicator	Score	Coordinate
Value Proposition	Strength & Weakness (X)	2.29	(2.19, -1.12)
	Opportunities & Threats (Y)	-1.12	
Cost & Revenue	Strength & Weakness (X)	0.2	(0.2,0.35)
	Opportunities & Threats (Y)	0.35	
Infrastructure	Strength & Weakness (X)	-0.59	(-0.59,0.57)
	Opportunities & Threats (Y)	0.57	
Customer Relationship	Strength & Weakness (X)	-1.31	(-1.31,0.34)
	Opportunities & Threats (Y)	-0.34	

C. SWOT Analysis

The following is the determination of the SWOT quadrant for each sub-variable based on the coordinates obtained from Table III.

a) Quadrant of Value Proposition Analysis

The following is the SWOT quadrant location for the sub-variable Value Proposition and proposed strategy analysis for each related block in the business model.

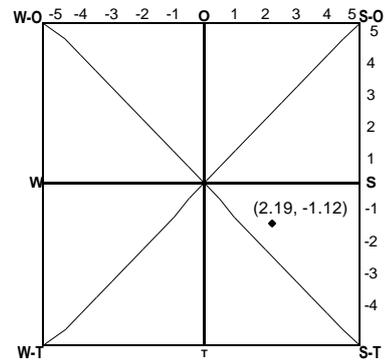


Fig.4. Quadrant of Value Proposition Sub-Variable

Based on the calculation of SWOT score Proportion Value is in quadrant 2 (S-T) with Strength & Weakness score of 2.19 and Opportunities & Threats score of -1.12. It shows that although the company faces various threats, the company still has internal strength in terms of Value Propositions. Then the SWOT strategy that must be applied is to use that power to take advantage of long-term opportunities, with a product diversification strategy. Here is a Table IV describing the strategy that refers to the variable value proposition on business model PT. ABC.

TABLE IV. ANALYSIS OF VALUE PROPOSITION SUB-STRATEGY

Operational Strategies	Proposed Strategies	Block
Increase the variety of printing products tailored to the proposed customer segment.	Various types of printing products are diverse	Value Proposition
Create a segmented website look to make it easier to search for products for each new customer segment	Website interface are segmented and categorized	Value Proposition

b) Quadrant of of Cost & Revenue Analysis

The following is the SWOT quadrant location for the sub-variable Cost & Revenue and proposed strategy analysis for each related block in the business model.

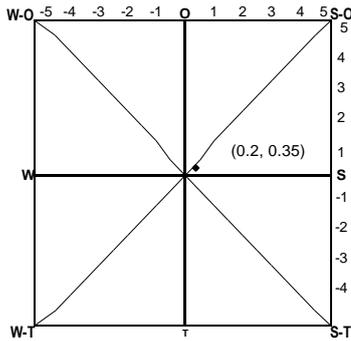


Fig.5. Quadrant of Costs & Revenues Sub-Variable

Based on the calculation of SWOT Cost and Revenue score is in quadrant 1 (S-O) with Strength & Weakness score of 0.25 and Opportunities & Threats score of 0.35. This suggests that the suggested strategy for such conditions is to support an aggressive growth policy (growth-oriented strategy). However, the strategy is considered less precise because the score achieved by the company in this variable is very small that is 0.25 for strength and 0.35 for opportunity. It shows that strength & weakness and opportunities & threats owned by the Company on the cost and income aspects are quite balanced. In addition, the company also has the opportunity to reduce the costs incurred by the company because there is a threat of a cost grow faster than income. Based on the above, the following is a Table V describing the proposed strategy that refers to the variable Cost & Revenue on the business model company.

TABLE V. ANALYSIS OF COSTS STRUCTURE SUB-STRATEGY

Operational Strategies	Proposed Strategies	Block
Evaluate the free delivery policy to reduce product delivery costs by applying minimum order condition.	Policy evaluation and reduction of free delivery costs	Cost Structure Value Proposition
Increase profit margin earned from partner production by increasing the price of the product sold.	Increased Profit Margin Partners (Increased product selling price)	Revenue Stream

c) Quadrant of Infrastructure Analysis

The following is the SWOT quadrant location for the sub-variable Infrastructure and proposed strategy analysis for each related block in the business model.

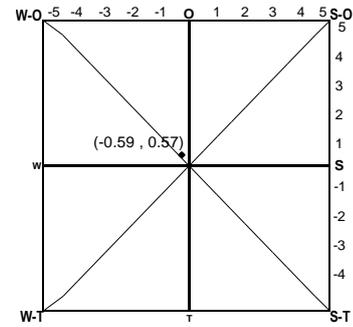


Fig.6. Quadrant of Infrastructure Sub-Variable

Based on the results of the calculation of SWOT Infrastructure scores are in quadrant 3 (W-O) with Strength & Weakness score of -0.59 and Opportunities & Threats score of 0.57. It shows that in infrastructure aspect company has big chance, but company also face internal constraint / weakness. The strategy that should be applied to this condition is to minimize the company's internal problems so as to seize the better market opportunities. When reviewed based on the calculation results of SWOT scores of infrastructure, one of the lowest scores lies in the indicator 'Balance between in-house production and outsourcing. This shows that there is an imbalance between in-house production and outsourcing resulting in an impact on corporate earnings, as well as the quality of products produced. Based on this, the strategy that will be done by the company to deal with these conditions is to balance in-house production and outsourcing by increasing in-house production, the following is a Table VI describing the proposed strategy that refers to the Infrastructure on the business model company.

TABLE VI. ANALYSIS OF INFRASTRUCTURE SUB-STRATEGY

Operational Strategies	Proposed Strategies	Block
Increase in-house production in the form of self-produced products. So that can increase income stream through in-house production	Increasing in-house production	Key Activities Revenue Stream

d) Quadrant of Customer Relationship Analysis

The following is the SWOT quadrant location for the sub-variable Customer Relationship and proposed strategy analysis for each related block in the business model.

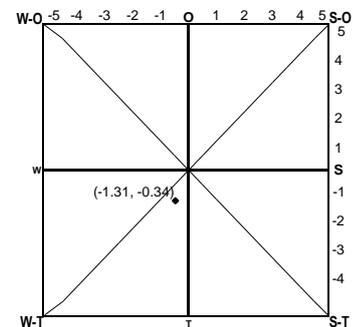


Fig.7. Quadrant of Customer Relationship Sub-Variable

Based on the calculation of SWOT score Customer Relationship is in quadrant 4 (W-T) with Strength & Weakness score of -1.31 and Opportunities & Threats score of -0.34. The suggested strategy is the application of niche market strategy. Based on this, the strategy that can be done

based on the SWOT quadrant proposal is to improve customer relationship with the corporate segment by offering certain policies. When reviewed based on the results of SWOT calculation customer relationships, one of the weaknesses that the company has is that customers can not easily find the company channel (website) therefore the proposed strategy should be applied to address it is to create key activities in the form of maximizing search engine optimization (SEO). SEO itself is a process to get internet traffic from search results on search engines for free. Based on the above, the following is a Table VII that explains the strategy that can be done if referring to customer relationship variables on the business model company.

TABLE VII. ANALYSIS OF CUSTOMER RELATIONSHIP SUB-STRATEGY

Operational Strategies	Proposed Strategies	Block
Improve customer relationships with corporate segments by specializing priority service and personal assistance only for corporate customers.	Improve priority service and personal assistance	Customer Relationship
Diversify existing segment into corporate segment, student, food & beverage SME and event.	Create new segment of student segment, SME Food & Beverage and event organizer.	Customer Segments
Create a new customer relationship that suits the characteristics of new market segments that is design consulting services for SMEs Food & Beverage and event organizer to anticipate the high level of customization on the products to be made.	Create a design consultancy services as a new customer relationship	Customer Relationship
Create new activities in the form of search engine optimization (Search Engine Optimization) so that channels can be easily found by potential customers who search through search engines.	Create search engine optimization as a new key activity	Key Activities
To do SEO, it required a new resource (employee) who has a special ability in the field of SEO and can develop a website (Developer & Digital Marketing Staff).	Creating a new resource of Developer & Digital Marketing Staff	Key Resources

V. DISCUSSION

Based on the results and analysis in the previous chapter, figure 8 is a mapping of the proposed strategies, the following is an explanation of the proposed strategies on each block on the canvas model business.

Value Proposition. The new proposed value proposition is the reduction of free delivery service by making new policies by applying minimum order, and creating new value proposition that is diversification of products sold and segmentation on the website to facilitate product search.

Customer Segments. Diversification of new segments such as student segment, event organizer, and SMEs food & beverage.

Customer Relationships. Improve priority service and personal assistance services specifically for corporate customers, and creation of new customer relationship in the

form of design consultancy services for SME segment Food & Beverage and Event Organizer.

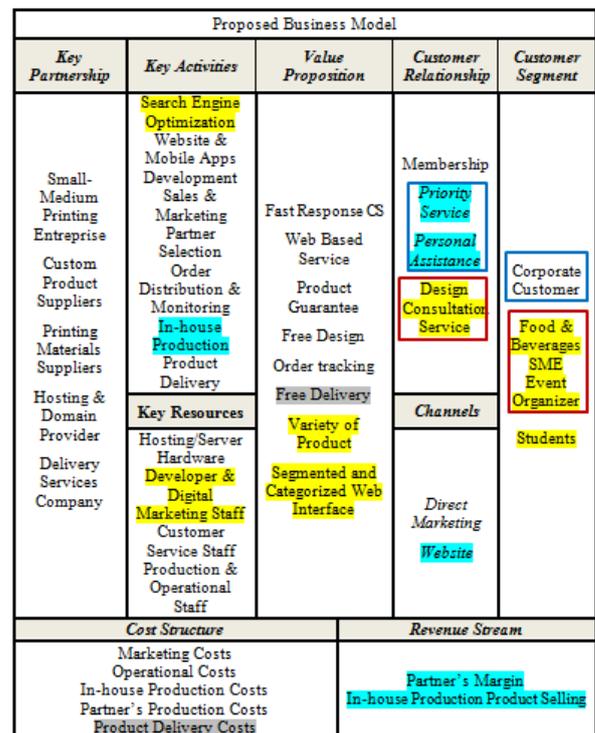


Fig.8. Proposed Business Model Canvas

Channels. Channels proposed on the business model are the same as the existing business model (direct marketing and website).

Key Activities. Creation of search engine optimization activities and increasing in-house production as a new key activities.

Key Resources. To support the proposed key activities required new key resources is the developer & digital marketing staff.

Key Partnerships. Key partnerships proposed in the proposed business model are the same as the existing ones because they are sufficient to accommodate the proposed strategy.

Cost Structures. The proposed cost structure is the reduction of product delivery cost resulting from the new policy on value proposition free delivery.

Revenue Streams. The proposed new revenue stream is the creation of a new revenue stream in the form of increasing partner margins derived from raising the product prices and increasing incomes from in-house production.

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