

GO/NO-GO DECISION-MAKING METHOD ON BUSINESS DEVELOPMENT OF SOFTWARE DEVELOPMENT IN INDONESIA

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Received April 2018; accepted December 2018

Abstract

Entrepreneurs start their business by planning their business either documented or undocumented. The business plan is executed after considering various aspects of the related business has been met. Execution of business plan (Go / No-Go decision) is thought to be a repeating activity by entrepreneurs as well as innovation that always done for developing and sustaining the business. Effective decision-making method of business plan execution are required to generate time, energy and resource efficiency, especially in the business plan execution of the software development field. This research uses qualitative method with sample size of 9 of software development companies in Indonesia, and it is intended to answer research questions: “What method are effective for entrepreneurs / new entrepreneurs in the field of software development to take Go / No-Go decisions from business plans that have been compiled.” The result of this research is Go / No-Go decision-making method on business development of software development can be decomposed into: Assumption Exploration, assumption selection, assumption testing and take a decision. Some of the main keys are: the business should consider market, product, technology, economy, competition and organization as group of assumptions; and when take a decision, several ways to be taken are: looking at difficulty level and resistance of assumptions, conducting trial and error (doing design fast, and tested to customer), conducting market test and seeing result, and interview with user.

Research paper

Keywords: Business Development, Decision, Go / No-Go, Method

Reference to this paper should be made as follows: Taufik, C., & Karyadi (2018). Go/No-Go Decision-Making Method on Business Development of Software Development in Indonesia, *Journal of Entrepreneurship, Business and Economics*, 6(2), 71–90.

Introduction

Statistics conducted in the United States mention the percentage of companies that can survive several years from the time of its establishment. Here is a quote from Schaefer (2011):

The latest statistics from the Small Business Administration (SBA) show that “two-thirds of new employer establishments survive at least two years, and 44 percent survive at least four years. This is a far cry from the previous long-held belief that 50 percent of businesses fail in the first year and 95 percent fail within five years”.

Schaefer (2011) mentions 7 causes of failure of a business and one of them is “Lack of Planning”: “It is critical for all businesses to have a business plan. Many small businesses fail because of fundamental shortcomings in their business planning. It must be realistic and based on accurate, current information and educated projections for the future.”

A business plan can be created by a new company or an established company. Activity to create a business plan leads to the action of decision-making Go / No-Go decision. The execution of a business plan can occur when the business owner owns the firm belief that all business-related factors are eligible to continue his business.

This attracted the attention of the proposer team, because in addition to the frequent discovery of a business setback and also can occur often the condition of the execution of a business. It is necessary to research how to collect information, process it and produce a Go / NO-GO decision quickly,

so as not to waste time, energy and resources, especially in the field of software development. Kuratko (2016) mentions that there are two phases that are very critical for entrepreneurs, namely prestart-up and start-up. Here is a quote from Kuratko (2016):

The major focus in this chapter is on the prestart-up and start-up phases, because these are the critical segments for entrepreneurs. During these two phases, five factors are critical: (1) the relative uniqueness of the venture, (2) the relative investment size at start-up, (3) the expected growth of sales and/or profits as the venture moves through its start-up phase, (4) the availability of products during the prestart-up and start-up phases, and (5) the availability of customers during the prestart-up and start-up phases.

After a business plan has been made and it is decided to go further, the entrepreneur will face both phases. Thus entrepreneurs should always monitor both so as to be passed well, and if there are obstacles that indicate the decline of business, then the entrepreneur may decide not to continue.

The amount of higher education in Indonesia that leads its students to competence in the field of Information Technology / IT quite a lot, and the development of information technology is very fast, especially because of the information media that allows the emergence of new technologies can be directly adopted / utilized by users. This raises the possibility of a new entrepreneur in the field of information technology, especially software development / software development. Besides, the need for software in Indonesia will continue to grow.

Companies in the field of software development has also been established, so that the experience of establishing new entrepreneurs can be obtained from the founders of the company. These conditions support the implementation of this research. The structure of this paper consists of introduction, literature, methods, result and discussion and conclusion. Next, we are going to discuss the methods of this research.

Literature

Go / No-Go decision-making is usually related to several activities: business development (business development), innovation, and business planning. Business development is an activity undertaken to develop an established company through the creation of a new business whose idea can come from creative employees. The business development process has been patented by Marvin et al. (2008) and here is a quote:

A business development process utilizing; a business development database comprises collecting data for ideas from a plurality of sources". One type of collected idea data, from said step of collecting is filtered in order to identify potential business opportunities.. An. opportunity analysis is then performed, on said identified potential business opportunities' to determine valid business opportunities. Resources are committed to the valid business opportunities, a business proposal is developed. This developed business proposal to a potential buyers. Success of the submission is determined and the business-opportunity is executed if the submission is a success.

In business development process there is one stage that is opportunity analysis. These stages determine whether an opportunity will be followed by a business proposal. If a business proposal is approved by the buyer, then business development will be executed. So in opportunity analysis there is a further decision / no further. According to Cohendet and Simon (2015), stages of innovation in a company can be seen in the following figure:

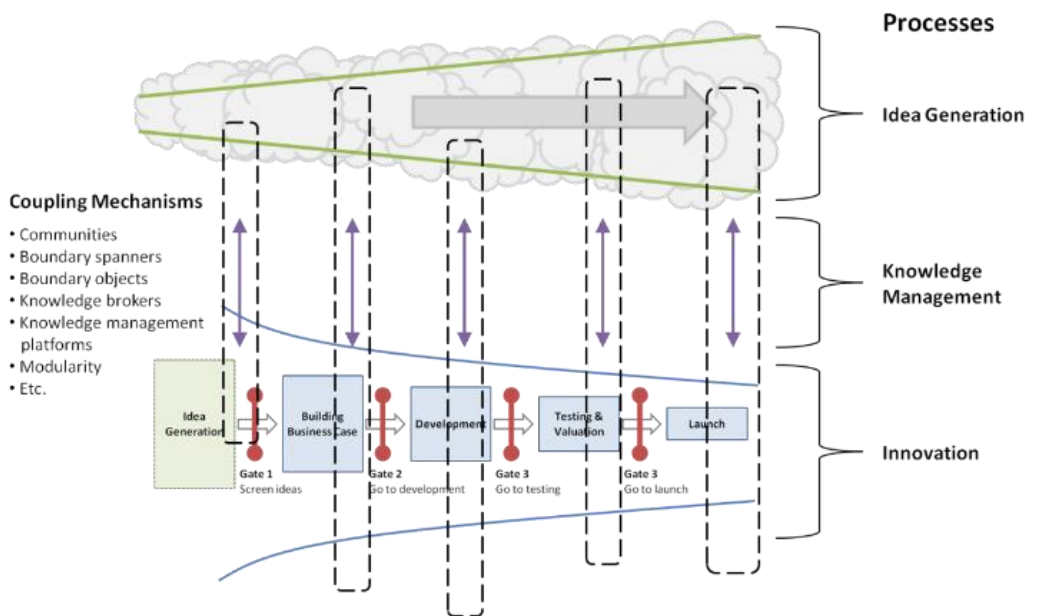


Figure 1. Innovation Stages and Idea Generation

Cohendet and Simon (2015) mention in his article: A major lesson learned from creative industries (Pixar, Google, Ubisoft, Whirlpool, Philips, Siemens, 3M, etc.) is that, contrary to traditional industries (where the process of idea generation and the process of project management tend to be

sequential), the process of idea generation and the process of management of innovative projects in creative industries are run in parallel.

According to Cohendet and Simon (2015), innovation stages need to be parallelized with idea generation, it is meant to constantly adjust every activity at innovation stage (building business case, development, testing & valuation and launching). In Figure 1 we can see that there is a Testing and Valuation stage intended to test an idea/opportunity. After passing the testing and valuation stage, the idea/opportunity can be continued to Launching process. A quote from Duening et al (2014): *Probably one of the best methods to use to ascertain the marketability of an innovation is the opportunity assessment plan. The opportunity assessment plan is usually shorter than a business plan; focused on the opportunity and market rather than the business; and has no financial, marketing, or organizational plan. it is used to determine if the innovation has at least three to five unique features (unique selling propositions) compared to the competitive product or service presently on the market and filling the same need. The opportunity assessment plan also determines if the product or service has a viable market that is large enough, growing, and accessible enough to warrant pursuing the innovation.*

According to Duening et al (2014) opportunity assessment only focuses on opportunities and markets only and not to finance, marketing, or organization. Business / business feasibility studies or also called business project analysis is the study of whether or not a business is carried out with a

continuous profitable. This study essentially discusses the basic concepts related to business process selection and decision making to be able to provide economic and social benefits over time.

According Sunyoto (2014) business feasibility study results in principle can be used, among others, to do the following things: 1. Pioneering new ventures, such as opening a store, building a factory, setting up a service company, opening a business, and so forth; 2. Developing existing businesses, for example to increase factory capacity, expand business scale, replace equipment / machinery, add new machines, expanding business scope, and so on; 3. Choosing the most profitable type of business or investment / project, such as a choice of trading business, choice of goods or services business, manufacturing or assembly, project A or project B etc.

Employers will always be at risk during their business, but in the face of this risk entrepreneurs have a "Want to Take Risk" attitude compared to managers or employees working in a company. As explained by Koudstaal et. al. (2015):

Overall we conclude that, when it comes to attitudes towards risk and uncertainty, entrepreneurs are different but in a rather subtle way. The Merriam-Webster dictionary website defines an entrepreneur as "...a person who starts a business and is willing to risk loss in order to make money". In terms of their willingness to risk losses, entrepreneurs indeed appear to be distinct.

Lane et al. (2010) in his paper on critical success factors in determining innovative and rapid solutions to the field of software development processes mentioned:

They are all driven by business value and they are all prepared to make the needed investments. They exploit opportunities by taking calculated risks. They follow concurrent engineering practices to accelerate cycle times. They focus on their core business areas and continually look for solution patterns that they can reuse and can reuse in different and novel ways. They have proactive management that believes in small agile teams. As a result, they provide a culture and environment that supports innovation and arrange time for team members to investigate, play with, and learn from candidate solutions.

Therefore, according to Lane et al (2010), one of the success factors in determining innovative and fast solutions is to take into account the risks in running an opportunity. In making decisions, an entrepreneur faces the limitations of information so more often use his intuition. York and Danes (2015) explains this:

Entrepreneurs tend to be overly active, face time constraints, and hence, tend to rely on intuition. According to Stanovich and West (2000), intuition as a basis for decision making is fast, automatic, effortless, implicit, and emotional (referred to as System 1). System 2 refers to reasoning, which is slower, conscious, effortful, explicit, and logical. Levels of System 2 thinking include unstructured, clinical, and assisted (e.g., training).

Stanovich and West (2000) reveal there are two decision-making systems of entrepreneurs as in the above quotation. System 1 uses intuition, while System 2 refers to several reasons or causes. Decision making in business mostly face multiple criteria. Velasquez & Hester (2013) mentioned eleven methods of multi-criteria decision making (MDCM):

The following eleven MCDM methods were identified throughout the review: 1) Multi-Attribute Utility Theory, 2) Analytic Hierarchy Process, 3) Fuzzy Set Theory, 4) Case-based Reasoning, 5) Data Envelopment Analysis, 6) Simple Multi-Attribute Rating Technique, 7) Goal Programming, 8) ELECTRE, 9) ROMETHEE, 10) Simple Additive Weighting, and 11) Technique for Order of Preference by Similarity to Ideal Solution.

According to Velasquez & Hester (2013), the nearest MDCM methods for business are: Case-based Reasoning and Simple Additive Weighting. Both of methods needs quantitative process that will give the resistance for entrepreneurs that need simplicity and speed of decision making process.

Suryana (2008) mentioned that there are two studies or analyzes that can be used to determine whether or not a business is feasible to start and develop, i.e. business feasibility studies and strength, weakness, opportunity and threat (SWOT) analysis. From these studies can be obtained Go / No-Go decision, but of those studies is executed long enough because many items that must be considered in business.

Hallam & DeVora (2010) in his paper on Technology-based business incubation: A study of the differences and similarities between private, university, and government incubation mentioned:

The first round is the feasibility study round in which a complete assessment of the 9 items on the checklist is performed in view of understanding the environment for establishing and launching a technology incubator. This round will provide the basis for a Go / No-Go decision on the incubator. Lack of coverage of any of the items on the checklist will reduce the probability of making a successful Go / No-Go decision.

This is an example how to obtain Go / No-Go Decision using feasibility study. Market needs, stakeholder values, mission and goals, organization design and governance, facilities and services, staffing, detailed business plan, network development and economic impact are 9 items on the checklist for establishing and launching a technology incubator.

As explained in the opening that in addition to the frequent deterioration of a business and also can occur often the condition of the absence of execution of a business, it is necessary to research how to collect information, process it and produce the decision of Go / No-Go quickly, so as not to waste time, energy and resources, especially in the field of software development.



Figure 2. ESTD Method of Decision-Making Go / No-Go

From the previous thesis (Taufik: 2008), new knowledge was obtained that the Go / No-Go decision-making process requires several steps:

Go / No-Go assumption *exploration*, assumption *selection*, assumption *testing* and take a *decision*. This method can be seen in figure 2 and we can call it as ESTD Method.

These steps can be called as a method because each step can be decomposed into several supporting activities. The first step is exploration of Go / No-Go assumptions that include activities such as surveys, interviews, and literature studies. The second is the selection of assumptions, it also requires some support activities, such as focus group discussion, benchmarking, business model mapping model. The third is assumption testing, which can be market testing, re-surveys, and user interviews. Fourth is Go / No-Go decision making, which is usually by determining important assumptions to note, and ignoring others.

Methods

This research is intended to answer research questions: “What method are effective for entrepreneurs / new entrepreneurs in the field of software development to take Go / No-Go decisions from business plans that have been compiled.” The research method used is qualitative method that includes: Design the Research Question, Research Data Collection, Analysis and Data Interpretation, Data Validation and Verification, and Generalization. The number of company to be taken data is 10, this is in accordance with the proposal submitted to the Directorate General of Higher Education. To obtain the data we determine the companies to be visited / taken data. Samples visited / mailed as many as 32 software development companies. Of the 32 companies

there are 6 companies that have closed, and 9 companies have responded to requests for discussion / interview. The author makes the questioners submitted to the respondent at the time of the interview. The question group are: profile, business plan, business assumptions, constraint and advices. Profile question group includes questions about: date of establishment of company, initial capital; number of last company asset; number of founder team; and number of current employees. Business-plan question group includes question about: background of establishment, the behavior of creating business plan and updating it, conformity of business plan with executed business, speed of execution of business plan and the consideration, and the measures toward the business plan execution. Business assumption question group includes: selection of assumption group, the process of finding the assumptions, determination of the assumptions that most affect business execution, the way to test the group of assumptions, how to make a decision regarding the assumption test result.

Result and discussion

In Table 1 we can see profiles of companies that have provided responses / answers to the questioners submitted. There are 9 companies (P1 s / d P9) with the establishment time from 2 years to 9 years. The number of employees also varies in the increase, there are fixed number of which up to 18 times the amount.

In terms of the number of company assets (in million), the current asset value varies from IDR 20 million to IDR 2.8 billion. We classify asset

values into three groups, below IDR 100 million (small company), below IDR 500 million (medium company) and above or equal to IDR 500 million (large company). The increase in assets varies from 2 to 267 times from the beginning of its establishment. This data could be a reference of the relationship between how they are make a decision in execution of business plan.

Table 1. Companies Profile

Item	P1	P2	P3	P4	P5	P6	P7	P8	P9
Establishment time (year)	5	5	9	3	8	5	2	7	4
Asset increase	6	2	267	50	7	n/a	15	100	20
Employment increase	8	12	8	2,8	18	6	4	2	1
Initial asset	480	500	3	10	50	200	10	1	1
Current asset	2.800	1.200	800	500	350	n/a	150	100	20

We can see in Table 2 that in the case of a business plan, it can be seen that in companies with assets \geq IDR 500 million (large company) there are two companies that do not make business plans and the two companies are always making business plans in writing. In the category of the company, the company that creates the business plan, the business plan is immediately executed when it is considered feasible, while that does not make the written business plan indirectly execute it but reconsider. Increased asset companies that do not directly execute their business plan far greater than the direct execution. 3 of the 4 large companies stated that the business plan did not fit the plan, it means that they are using business plan but the plan is changed while executed.

Table 2. Business Plan’s Items

Business plan	P1	P2	P3	P4	P5	P6	P7	P8	P9
Always documented	Y	Y	T	T	T	Y	Y	Y	Y
Always updated	Y	Y	T	Y	T	T	Y	Y	Y
Execution confirm with business plan	Y	T	T	T	Y	Y	Y	T	Y
Executed directly when completed	Y	Y	T	T	Y	T	Y	Y	Y

Companies with assets of between IDR 100 million and IDR 500 million (medium enterprises), 3 out of 4 companies always make business plans in writing, two of the business plan makers always update them, and 3 out of 4 companies say they execute their business plan when deemed worthy. One company with assets under IDR 100 million states always make business plans neatly, always update, and immediately execute its business plan. In the category of large companies (assets above or equal to IDR 500 million), the choice of assumptions on: market, product, technology, economy, competition and organization. The company is choosing to pay attention to all aspects of the business. While small companies choose the market, product, competition and environment that focus to consider business plan execution.

In terms of searching for business related assumptions, all companies conduct research / business research in the form of surveys, and there are some companies that use business model canvas as a tool to display these

assumptions. Determination of the most influential assumptions on the business conducted by companies the object of this study is different, but the way that can be used by other companies. The following are the various ways in which: take advantage of prior experience (internal discussion), pay attention to the business model canvas, benchmark with competitors, prospective consumer interviews, using research results and discussions with outside sources. The way of testing of assumptions that have been found and determined as the most influential assumption is: 1. See the level of difficulty and resistance of the assumptions; 2. Conduct trial and error (make design fast, and tested to customers); 3. Conduct a market test and see the results; 4. Interviewing the user.

Table 3. Groups of Assumptions

Assumption group	P1	P2	P3	P4	P5	P6	P7	P8	P9
Market	Y	Y	Y	Y	Y	Y	Y	Y	Y
Product	Y	Y	T	Y	T	Y	Y	Y	Y
Technology	Y	Y	Y	T	Y	Y	Y	Y	T
Economic	Y	Y	Y	Y	T	Y	T	Y	T
Competition	Y	Y	Y	T	T	Y	Y	Y	Y
Organization	T	Y	T	Y	T	T	Y	Y	T
Environment	T	Y	T	T	T	Y	Y	Y	Y

The use of Assumption group in Go / No-Go decision making on the business plan on firms that are the object of research can be explained as follows:

1. One of the four major companies requires a group of important assumptions (market, product, technology, economy, competition and organization) to be fulfilled. Two companies that experienced a huge increase in assets just did not require everything to be met. They prefer the few users / consumers who want to receive the product then the business is immediately executable;

2. Four companies are being the object of research have a similarity in determining the decision Go / No-Go, that is not necessarily all groups of assumptions are met. For them enough that there are primary assumptions that are met then the execution of his business plan.

3. A small company that becomes the object of research has the opinion that the whole group of assumptions must be met first (showing go decision) and then execute the business plan.

From the data on Business Plan we can observe that business plans do not always have to be written and neat, because the most important is to determine the execution decision whether executed or not after obtaining information about some assumptions that support the business. Making a business plan well does not guarantee a business's success. The more influential is how to decide the execution of a business plan.

Asghari et al. (2010) mention that in the one of startup development steps (pre-seed, seed, start-up and expansion/exit), that is in the seed step, the entrepreneurs tend to be hesitate with the idea because they will think that their idea would not be accepted or accepted by the market. Thus, the decision making in this step would be important.

As mentioned by Stanovich and West (2000) that there are two decision-making systems of entrepreneurs: System 1 using intuition and System 2 refers to several factors of cause or reason. In this study also found that the tendency of entrepreneurs to use intuition to take decisions. It is evident that of the many groups of assumptions that are considered important, quite a few are required to be met first (priority). But proof of factors that affect business (business assumptions) also become an important part in decision making.

Marvin et al. (2008) explains that it is needed an opportunity analysis before deciding on Go / No-Go a business proposal to develop the company's business. He mentioned that the willingness to buy from consumers is a key factor in making this decision. In this study we can see that not only the willingness to buy from consumers to consider, but there are other assumptions that are considered primary also need attention.

This is related to Schaefer's (2011) statement, which mentions that planning is the main thing, "It must be realistic and based on accurate, current information and educated projections for the future."

Cohendet and Simon (2015) requires testing and evaluation of a business idea before launching a business. While Duening et al. (2014) mentioned the opportunity assessment only focused on opportunities and markets only and not to finance, marketing, or organization. Most of the research firms agree with that opinion, but there are companies that require not only the market to be considered. This is related to the continuity of the company, so it can continue to operate and survive the existence of competition with players in similar business.

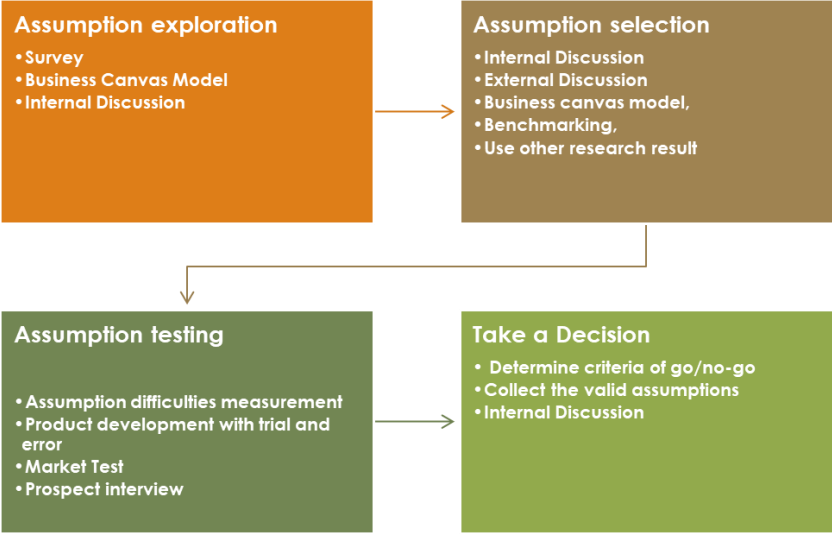


Figure 3. ESTD Method of Decision Making Go / No-Go Method on Business Development of Software Development

From Taufik (2008), the previous Go/ No-Go decision-making method (Assumption Exploration, assumption selection, assumption testing and take a decision) were implemented by each of the firms that became the object of the study. It can be observed from data obtained in this research that in each stage there are several sub supporting activities. Figure 3 is a picture of Go/ No-Go decision-making method for business development software development.

Conclusion

Making a business plan well does not guarantee a business's success. The more influential is how to decide the execution of a business plan. In making Go / No-Go decisions a business plan, several companies in Indonesia

use a particular method. They are using several groups of assumptions as a key of decision parameters. Go / No-Go decision-making method on Business Development of Software Development can be decomposed into: Assumption Exploration, assumption selection, assumption testing and take a decision. Some of the main keys are: Considering aspects: market, product, technology, economy, competition and organization; Decision making with: Looking at difficulty level and resistance of assumptions, conducting trial and error (Doing design fast, and tested to customer), Conducting market test and seeing result, and Interview with user. For further research, it is advisable to implement Go / No-Go decision-making method to prospective entrepreneurs to prove the effectiveness and efficiency of the method.

Acknowledgement

The authors would like to thank DIPA DRPM, the Ministry of Technology and Higher Education for the support of this research fund.

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