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Modification on the Lean Start-ups Methodology (LSM) based Strategic Model of Indonesian Digital Start-ups Accelerator

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Abstract   *Modification on the Lean Start-ups Methodology (LSM) based Strategic Model of Indonesian Digital Start-ups Accelerator. In 2018, The government of Indonesia created a economic roadmap (plan) that aims the establishment of digital economics in 2020 but only 0.03% of all the entreprises considered to be sigital start-ups, thus an acceleration to reach this goal is necessary. Government and local leading entreprise manage accelerator program based on LSM. There are problems in implementing LSM in Indonesia: (1) data requirement, (2) validation process and (3) product inputs. Thus, the existing strategic model of the start-ups accelerator have to be modified to overcome this problem. This research modifies the model with three main process: pre-incubation, incubation, post incubation. The modification in pre-incubation is made to overcome the problem number (1) and (3), while the modification in incubation process to overcome the problem number (2). Post-incubation is made to increase the capasity of start-up accelerator.*

Key words: strategic model; LSM; digital start-ups; accelerator

[1]Introduction

The history of business can be devided into four stages of era (Pink, 2010), It starts in aglicultural era when all industries depended on natural resources. During the 17th century, the industrial era began. It was the first time when steamer applied to the manufacturing machines thus production becomes trivial and competion between industries had been tougher until now. Other may refers this era as Industry 1.0 until 3.0. The third stage is information era. In this era, everyone can create and access information about business such as product, service, price, etc via internet thus the amount of information was significantly increased. This huge amount of information is the beginning of conceptual era (Industry 4.0). Business needs a better concept than before because the potential customers cannot distinguish which products or services

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are better (or more suitable to them), since the supply of informations is much greater than the demand.

Indonesia did not start the industrial era during 17th century. Industrial era began in 1826 when european brought manufacturing machines during the colonialization to produce sugar. Indonesia is 100 years away from the developed countries to start the second stage of business era. In this case the acceleration in developing Indonesian (and the other developing countries) business is necessary thus the they can compete in the war of digital economic of conceptual era even thought they started the industrial era later than the developed countries. The dramatic progress of internet has driven to digital economy (Watanabe, Naveed, Tou & Neittaanmaki, 2018). The main of circular economy to companies can be sorted by setting digital technologies (Bressanelli, Adrodegari, Perona & Saccani, 2018). The online single market will lead to social decelopment and sustainable economic recovery as the concrewtw digital agenda (Serbu, 2014). In 2018, The government of Indonesia created a economic roadmap (plan) that aims the establishment of digital economics in 2020. This goal is achievable because Indonesia has potential for the digital start-ups since it is the fourth most populated country in the world and has big potential market. Digital economy has broaden its coverage not only to business sector but also daily life services such as education, health, and banking by its mobilizing resources and growing population (Hojeghan & Esfangarch, 2011). Recently, there are seven start-ups, classified into unicorn in South-East Asia and four of them are from Indonesia : Go-Jek ($10 million valuation), Tokopedia ($7 million valuation), Traveloka ($2 million valuation), and BukaLapak ($1 million valuation). Unicorn is one of start-ups classification with valuation between $1 million until $10 million. It is significant to consolidate the resources to analyze the innovation growth, social infrastructure, productive and economic direction by organizational system to run business in digital economy (Zatsarinny & Shabanov, 2019). Digital economy introduces new concept of accessibility by potential measure concept (Tranos, Reggiani and Nijkamp, 2013).

This plan devides the people into two groups, people who is ready to participate and people who is not ready with the sudden changes. This can be observed by the digital devides in Indonesia, that 30,4% of Indonesia people do not have smartphone and keep their feature phones regardless of their income level. Only 29,9% of these feature phone user had accessed the internet. Regardles of this condition Indonesia still have to develop their digital business. Digital business is new in developing

country, thus most of the enterprises are start-ups and very few of them are firm companies. Start-ups are a specifc type of enterprise that aim to initiate new business models (Blank, 2010). The process of entrepreneurship has transformed by its nature as the role of digital technologies (Reuschke & Mason, 2020). Internet revolution has brought changes and insight on economic context; technological challenges and social (Berdykulova, Sailov, Kaliazhdarova & Berdykulov, 2014). In Indonesia, Badan Ekonomi Kreatif (BEKRAF) – The council of creative economics – stated that digital start-ups is only 0.03% of all the existing 26.71 million registered enterprises based on BPS (Badan Pusat Statistik) – The council of statistic – in 2016. Now, It is only two years to the appointed time thus the government have to improve the strategic model in empowering (growing and developing) start-ups to accelerate the progress.

The combination of digitization of internet and information towards general goal technology come to vast new array of new economy (Carlsson, 2004). Recently, the economy comes with emerging forms and new of consumption resulted from shifting conventional commercial exchanges (Ertz & Boily, 2020). The way people run daily lives and business have been changed surprisingly by internet through unprecedented conveniences and services (Watanabe, Naveed, Tou & Neittaanmaki, 2018). Digital economy is the continuum of old economy thorugh manufacture sectors by providing digital infrastructure and equipment (Kim, 2006). It includes different challenges as found in digital economy compared to industrial economy (Teece, 2018). Since 2016, Government iniates a project to empower digital startups organized by KOMINFO (Kementerian Komunikasi dan Informatika), the ministry of communication and informatics. This project is called "Gerakan Nasional 1000 Start-up Digital" or "The National March of 1000 Digital Start-ups." The goal of this project is to create new 1000 developed digital start-ups. Let assume that this project will succesfully create 1000 new digital start-ups thus the number of digital start-ups in Indonesia will increased from 0.03% to 0.04%. This kind of project is well-known as "start-up accelerator" (Mansoori et al, 2016; Pauwels et al, 2016). There is another start-up accelerator called "DILo" (Digital Innovation Lounge). It is organized by PT TELKOM – the leading digital companies in Indonesia – since 2013 and had created new digital start-ups since then. Each start-up accelerator has capacity about the number of start-up participants, thus increasing the growth of digital start-ups and developing the existing digital start-ups cannot be accomplished in two years without any changes. Government have to make collaboration with the leading digital start-ups and suggest

them to organized the similar projects to accomplish their vision in 2020. A Strategic model to organize start-up accelerator is necessary as a guideline. The model have to imply the key to accelerate the development of the digital start-ups within the short period of time.

This research examines the project DILo (The first digital start-ups accelerator in Indonesia), break them down into step-by-step strategic model, analyze its weakness and improve it. The main purpose of this research is to create the improved strategic model. Later, the model can be used as a guideline for leading start-ups to organize a project accelerating the growth and development of digital start-ups. The research about a strategic model to develop a start-up usually focuses on a certain aspect , like the developing model in creating business value (Ehrenhard et al., 2016), creating network (McGrath et al, 2017), creating e-innovation for validation purposes called Go-to-market strategy (Kuester et al, 2017), conceptualized the terms of paradoxes and logic of digital economy platform (Haberly, MacDonald-Korth, Urban, Wojcik, 2019). Large- scale of international negotiations and more on national reforms and regional agreements- there will be important challenges and create many opportunities for innovative applications (Martin, 2018). The adoption of information technologies support the public policy needs and tackle social isolation to provide farm information (Hennessy, Lapple & Moran, 2016). This research aims to create the strategic model in developing start-ups in the whole process, from the very beginning to be an independent start-ups that have ability to develop another start-ups to promote the growth rate of digital start-ups in Indonesia. The differences between this model and the previous models are listed in the Table 1.

Table 1. Differences between start-ups accelerator models (LSM and its derivative)

No	Content	Eric Ries (LSM)	Y Mansoori	I Utoyo (DiLo)	This Reserach
1	Give specific number of stages in iteration proces	No	No	Yes (5)	Yes (5)
2.	Has pre-incubation and post-incubation	No (only incubation)	No	Yes	Yes

3.	Include developed start-ups to empower other	Not specified, depends on the case	No	No	Yes
4.	Detailed process about how to do the pivot in iteration proces	No	Yes	No	Yes
5.	Matching the team during pre-incubation process	Do not have pre-incubation	No	No	Yes

Methodology

This research examines the strategic model and the weakness of DILo (start-ups accelerator) to improve it. The data is collected by the published record of DILo in a book form (Utoyo, 2017). The data from the book contains the classification of participants. This classification consists of 5 classes (Class 1 – 5) and this research adds a new class called Class 0, thus there are 6 classes. The classification is based on the number of stage(s) the participants have passed and class 0 is defined as class for participant who did not selected to join the incubation (do not pass the selection in pre-incubation). If the this start-ups accelerator project is without an error, thus all the participants should be in the Class 5. In fact, there are some participant classified in the Class 4 or below. In this point of view, there are still room for the strategic model of this project to be improved.

DILo only selects the digital start-ups with highest potential amongst the other, thus all participant in Class 1 or higher can be considered to be a digital start-up. The development of start-ups occured in process between Class 1 to Class 5 (Incubation and Investment EXPO). The forming of digital start-ups occurs during the Pre-Incubation when participant with business idea meet participant with expertise in digital technology thus the growth of digital start-ups promoted before Class 1. The previous research (Nirwan and Dhewanto, 2015) concluded that the main problems of implementing start-ups based on LSM are (1) The required data cannot be collected in short period of time, (2) There is no clear condition wheter an aspect is considered valid or not thus it is difficult to state that innovation has be made to change that aspect, and (3) start-ups need feedback from customer to validate their products. An interviews with the technical operator of DILo were made to collect the practical data

in 17 cities. The purpose of this interview are to clarify the findings of the previous research with DILo and compare the data from the interview and the book.

From the compared data, the strategic model of the project is improved by modifying the model with another development model. Most of the other development model are usually used to solve a specific problem like choosing crativity (Wheeler, 2002) from big data or creating a network (McGrath et al, 2017). Analyzing the social innovation in the project will also increas the interest of people to join the project (Zulazli, H. 2017; Suzana et al., 2017). The modified (improved) model should be able to be managed by another start-up to accelerate the growth of digital start-up, thus this research also interpret s the data of start-up in Class 0 to Class 1 (Pre-Incubation).

Literature Review

Lean Start-ups Methodology (LSM) is a set of practice to improve or develop a start up throught multiple stages of validation (Ries, 2011). It is the most well-known methodology to develop a start-up. The purpose of this cyclical process of methodology is to conduct an experiment by collecting data and evaluation to validate all business aspects one by one with a rapid iteration. The idea of this methodology is to collect as many data as possible, create an innovation from that data to improve the aspect of a start-ups and repeat the process until it is considered valid. Then, collect new data to validate another aspect of the start-ups. There are three main problems in implementating LSM in Indonesia (Nirwan and Dhewanto, 2015) : (1) The required data cannot be collected in short period of time, (2) There is no clear condition wheter an aspect is considered valid or not thus it is difficult to state that innovation has be made to change that aspect, and (3) start-ups need feedback from customer to validate their products. On the other hand, start-ups cannot offer imperfect products to customer because it has potential to drop the further interest about the later product.

Start-up and Digital Start-ups

Start-ups are a specifc type of enterprise that aim to initiate new business models (Blank, 2010). Later, the term "initiate new business model" can be translated to create products or services under the condition of uncertainty (Ries, 2011). Start-up is human instituion trying to create business without a precise business model. Business model is is a concise representation of how an interrelated set of decision variables in the areas of venture strategy, architecture and economics are addressed to create sustainable competitive advantage in defined markets (Morris et al., 2015). There is

no a single business model that is compatible to all kinds of business, every business has different problem to solve and the business companies have to select the most compatible business model to solve the problems (Foss and Saebi, 2017). Start-ups are usually trying to solve a new problems thus there is not any perfect business model to be applied, they have to make their own business model using the previous model as guideline.

The guideline must consisted of the relatable elements of business model. Many researches are trying to break down all the business model elements by review (Foss and Saebi, 2015, 2017) and visulaised model like Business Model Canvas (Osterwalder and Pigneur, 2010). Business Model Canvas (BMC) is a set of business model elements representedins a tabular style, called "canvas." It is represented in Fig 1. There are nine cells in Fig 1. Each cell represents one business model element. These nine cells are (1) value proposition, (2) customer segmentation, (3) access, (4) relation, (5) activities, (6) resources, (7) key partner, (8) cost structure and (9) revenue stream. BMC do not explain how a business should be managed but it explains what business model elements a business should concerned about, thus it is a suitable guideline to build a new business model.

Fig 1. Business Model Canvas

Start-ups are classified based on the resoure (business model element number 6 in BMC) and result or revenue (business model element number 9 in BMC) to four difference classes (Dalcin et al, 2017). This idea is implemented to define the development and growth of digital start-ups. The expertise of digital technologies is

also included into the resource start-ups and treated as horizontal axis in fig 2, then the revenue is considered to be the vertical axis.

In Figure 2, all start-ups begin in area I when they have low income level and experience. The start-ups in area II have expertise in digital technology but do not have the experience to build a business. The growth of digital start-ups defines when start-ups in area I moves to area II. The start-ups in area III are defined as deveoped start-ups. Start-up accelerator is trying to move start-ups in area II to area III. Start-up in area II and III are classified to be digital start-ups. This research do not concern about start-ups in area IV, because start-ups in the other than digital start-ups of business are also necessary for the economics growth. Usually process of a start-up to grow and develop are classified into two different processes, thus acceleration occures when both of growth and development achivable in on start-up accelerrator project.
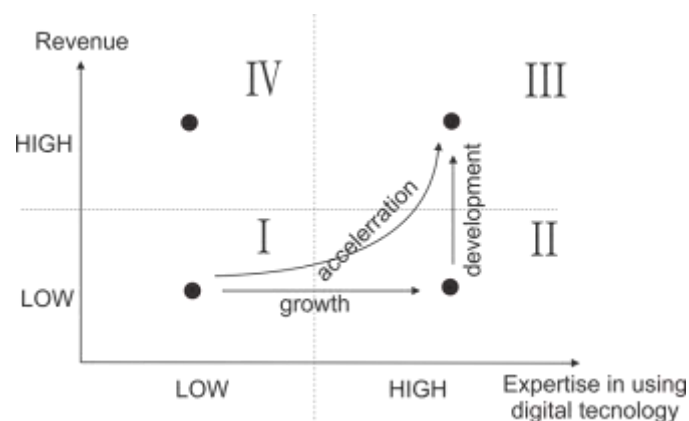

Figure 2. Start-ups classification

The development of Indonesian digital start-ups

In figure 2, the idea of digital start-up development is to transform start-ups in area II to area III. The popular model to accelerate start-ups development is Lean Start-up Methodology (LSM). The lean startup methodology by (Ries, 2011) was inspired by the principles of the lean manufacturing by avoiding waste and optimizing resource spending like Closed-Loop Supply Chain (Konstantaras et al, 2010; Maiti and Giri, 2015; Christy et al, 2017) but applied in data and human resources when the product is recycled (reevaluated) when it is considered not valid compared to the customer data. It is also inspired by the work of Steve Blank (Blank, 2006). LSM is the improved version of "discovery-driven planning" (McGrath and MacMillan, 2000) and

"probe and learn" (Lynn et al., 1996). In technical definition, LSM is cyclical process to validate a business element (such as customers, products, etc.) by evaluating the initial idea with the data from customer through real practices. If a business element is considered valid, then start-up begins to generate another cyclical process to validate the other business element.

DILo classified the business elements into five main elements: (1) customers, (2) products, (3) business model, (4) market, and (5) value (Indra Utoyo, 2017). In this case, the LSM is managed with five stages, each stage is to validate the mentioned business element. The strategic model of this start-up accelerator is represented in fig 3. The cyclical process in fig 3 is occured in each validating process whenever a business element is considered to be not valid. The process is continued to the next stage if the business element is considered valid.
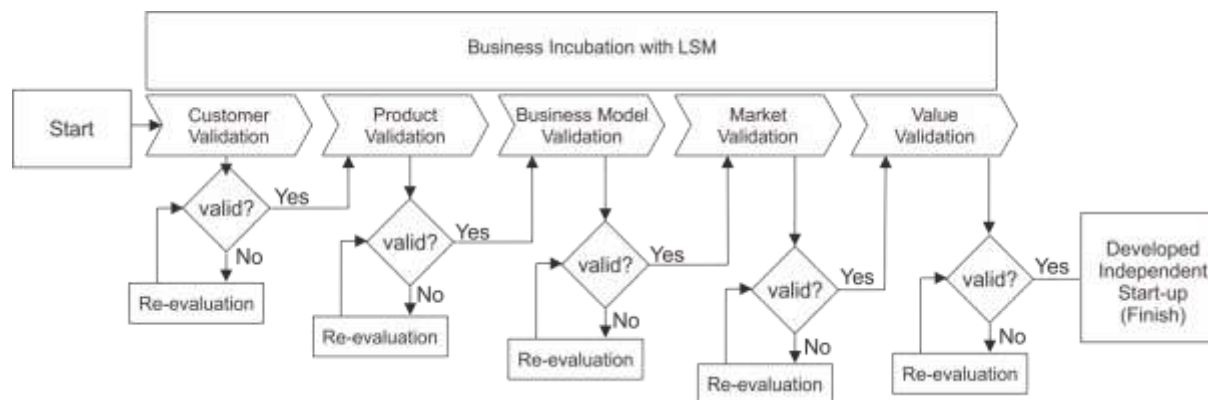

Figure 3. LSM with five stages of validation

There are problems when implementing this LSM in Indonesia (Nirwan and Dhewanto, 2015). The strategic management should be managed based on the cultural background of the society, because management is technically and culturally specifics (Hofstede, 1984). The biggest problem of implementeting the LSM based on the social and cultural issue is recieving the feedback from customer to develop the start-ups. Most of Indonesian people are practical (50%), they do not pay attention to some innovation unless it is already validated in the practical way, only 30% interested in nonpratical idea, and 20% are do not really care about innovation (Sebastian, 2014). Then, it is difficult for a start-up to just validate their idea based on customer inputs without real products. On the other hand. Start-up cannot promote their product recklessly because it will drop the future interest about their product. The solution for

this problem is to collect some of the 30% people , who is interested in ideas to give input to each other in a certain kind of event. DILo defines this event as "pre-incubation."

The strategic model of start-ups accelerator with pre-incubation is represented in fig 4. In fig 4, the project started with a workshop to give basic knowledge to the start-up participants. Then, they promote their ideas to the other participants and all the other participant have to give them inputs. This input is the initial data to validate their idea and to improve their product before promoting them to the real potetial customer outside the project. Before developed in the incubation, the organizer of the start-up accelerator would select digital start-ups with the biggest potential to be developed in incubation process. In the end of DILo, each start-up participant promote their business value in term of ideas, products, or service product to the potential investor. Their business valueis considered to be valid if they get the invesment.
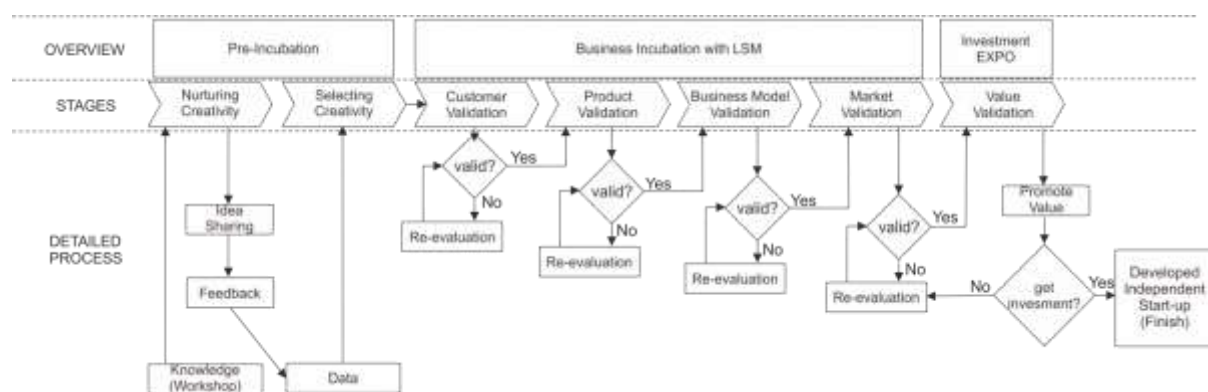

Fig 4. Start-up accelerator project with pre-incubation

The Growth of Indonesian digital start-ups

In figure 2, the idea of digital start-up growth is to transform start-ups in area I to area II. This transformation is quite difficult because of the digital devides in Indonesia. Economics factor is not the main cause of digital divides, because income level is only significantly correlated with the ownership of smartphones, and not significantly correlated with the adoption and use of the mobile Internet. However, educational level and age are significantly correlated with the adoption and use of the mobile Internet. The result of the previous research suggested that even giving smartphone to whole population will be ineffective unless users have related knowledge and skills to use

the mobile Internet. In this sense, the importance of ICT education should be emphasized (Puspitasari and Ishii, 2016).

In DILo, some of the participants are not equiped with expertise in utilizing digital technology, some of them are not classified into digital start-ups and even some of them just bring their idea to the pre-incubation event. Later, they meet another participant who has expertise in utilizing digital technology but has a decent or rather does not have idea but want to be a start-up founder. When the participants with great business idea meet participant with IT background, then a new digital start-up occured. It promotes the growth of Indonesian digital start-up (Utoyo, 2017).
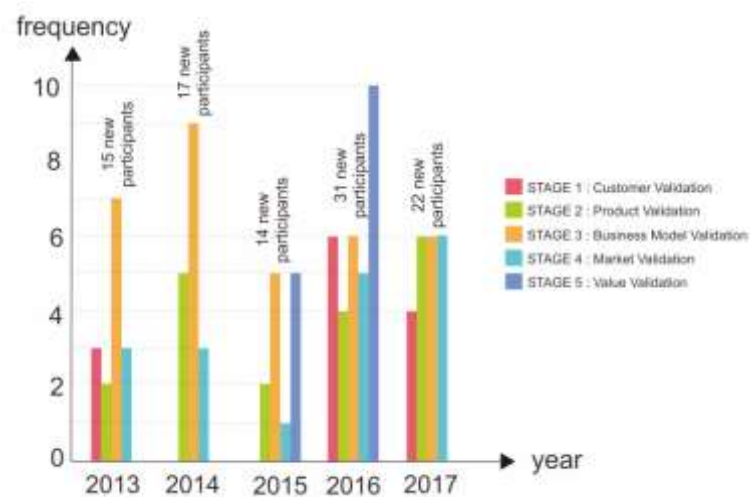
Result

Figure 5. The Start-ups classification based on the stages they have passed in DILo (2013-2017)

Figure 5 is built based on the published data (Utoyo, 2017). The stages 1 to 3 are managed in one month and stage 4 needs one to two years to be completed, thus there is no start-ups participant classified in the Class 5 because the graphic was made in the same year and the validation program was still running. The presented data is based on the year of registry. If a start-up participants passed all the stages in 2017 but registered to the project in 2015, then they are still counted in 2015 participant not 2017. Each year, the project has maximum capacity of 2500 start-ups but from the maximum number of start-up pass the pre-incubation is only 31 (the 4th year) start-ups. Some of them joined into on start-up, but the number of rejected start-ups is much

greater than the selected one. It means that there are problems in the pre-incubation process.

The findings from the interview mentioned that there are problems in the pre-incubation process: (1) the location of the start-up accelerator, (2) the method of selecting creativity and (3) most of the start-ups do not have basic of digital expertise but do not find partner to help them. The first problem is the most common issues. This program is organized in only 17 cities to develop the digital star-ups all around the country. Some of the participant still find a problem to access the pre-incubation consistently until the selection process. Next, start-ups cannot just "choose" which feedback suitable for their business. Start-up participants do not have the ability to select the appropriate data and use it to modify their product thus most of them do not selected by the organizer to join the incubation process. This research modifies the startegic model by adding step-by-step process to choose the right data. The last problem is that nondigital start-up participants do not find the other partner to help them with the technical problem thus they arenot classified in the digital start-ups and cannot join the incubation process.

During the incubation, the main problem is the validation method. DILo does not specify indicator about how a business element is considered to be valid in each stages of LSM. The reason behind this issue is because start-ups have to make their own business model, thus every participant start-ups has a different business model. This issue will trigger a problem if the startegic model is used to organized by other digital start-ups/companies. This research breaks the validation method down into some steps with indicator using BMC as guideline. The customer validation have to satisfy the business element number 2, 3 and 4 of the BMC. The product validation have to satisfy the business element number 5, 6 and 7. The business element number 8 and 9 will be stable if the previous element in BMC are solid, thus they are used as indicator in business model validation and market validation. The last validation uses the business element number 1, if participant start-ups get investment then they can succesfully deliver their value proposition to the potential investor.

Discussion

Some modification are built to improve the strategic model. As an overview, the modifications into three categories. The first modifications are added in pre-incubation this modification promotes both growth rate and the development of digital start-ups.

The second modifications are added in the incubation process, it promotes start-ups development. The last modification, this research adds post-incubation process to promotes the growth rate of digital start-ups in Indonesia.

First in the pre-incubation. This research does not modify the workshop in the very begining of project because knowledge and skill to use digital technology are the main keys to promote the growth rate of digtal start-ups in Indoensia (Puspitasari and Ishii, 2016). The modification added before the workshop, specificly between registration and the workshop. The start-up accelerator should create a list of all the registering participants accessable via internet. The list contains basic information about their business idea and their basic needs. For example, a participant has business idea but do not have skill in using digital technology or a participant has expertise in technology but cannot make a new business model. With this list, each participant can develop their start-up, create communication, form a new digital start-ups even before the project is started officially. In the previous project, the number of participant with business idea is greater than the number of participant with digital technology expertise, thus the organizer of start-up accelerator project should create a collaboration with another institution. Most of the start-up participants are undergraduate students and fresh graduates, thus this research suggests a collaboration with universities or institutes, especially in the department of information sciences. In fact, DILo has a keypartner of university thus they can adjust a collaboration agenda like internship that student with digital technologies expertise must help the program by participating the project and join the business without the expertise. This idea leads the possibility to reduce the number of jobless fresh graduate and it is a social innovation that has potential to increase the interest to join this project.

The next problem is start-up cannot choose the right data to improve their product or services. This problem is also occured in the incubation because LSM uses data to validate each business model elements. This research adds the model of business innovation cycle to process data in the strategic model to solve this problem. Business innovation cycle consists of three steps (choosing, matching and executing) to create innovation from the data. From the overall data received during the pre-incubation, start-ups have to choose with data containing inputs and applicable to improve their products. For beginner start-ups this process must be organized manualy, later start-ups can choose the data with application classifying which input are suggestion,

compliment or disapprovement. The next step is matching the chosen data with the socioeconomics opportunity. All improvement is good, but not every improvement is necessary thus start-up have to create priority in improving their products or services using data. The indicator of necessary improvement is how the data matches the socioeconomics opportunites, how many data has similar inputs with it, and This addition gives guide to start-up about how to collect the right data for the product or service innovation. The last step is executing the selected data from matching process. If the result do not meet the expectation, then start-ups have to select another data. The strategic model of start-up accelerator with modifications in pre-incubation is represented in Figure 6.
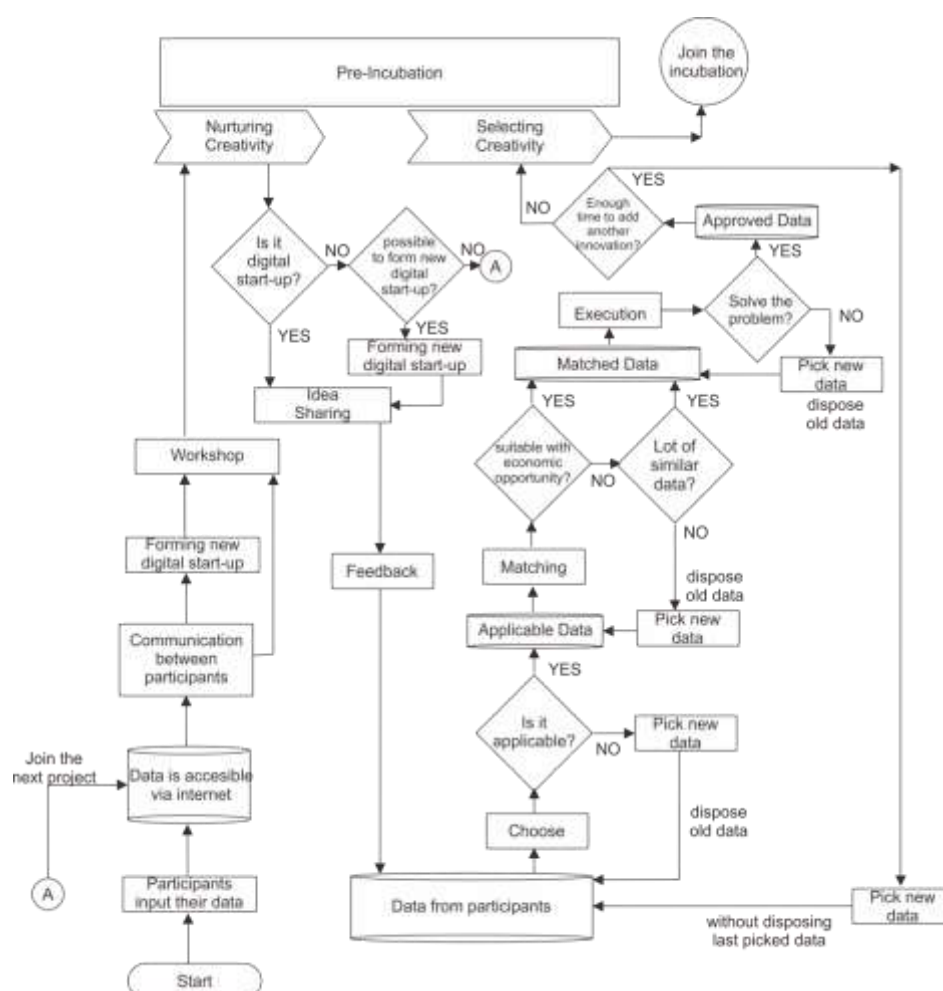

Figure 6. Modification on the pre-incubation process of start-ups accelerator

The first stage in incubation is customer validation. The participants have to define their customer segmentations, (how these customer access their services, and how they maintain their relation with customer. First, participant defines the segmentation

of their potential customer, each segmentation will recieve different treatment of service or product. Participant must build a system where customer can access their service or product. After several promoting, customer will buy the service/product and give their inputs. Inputs are classified on the how they access the service and about the products. Participants save the inputs about product for the next stage and uses the inputs about how they access the product to validate the business element number 3 in BMC, "access." The communication between customer and participant is an indicator of the element number 4 in BMC, "relation." If most of the customers use their time to give input to the participants, then the relation between customer and participant runs smoothly. The last element to validate is "customer segmentation," even though it should the first thing to be defined. This element is considered valid if at least one customer in this segmentation use the product or service. This modification is represented in Figure 7.
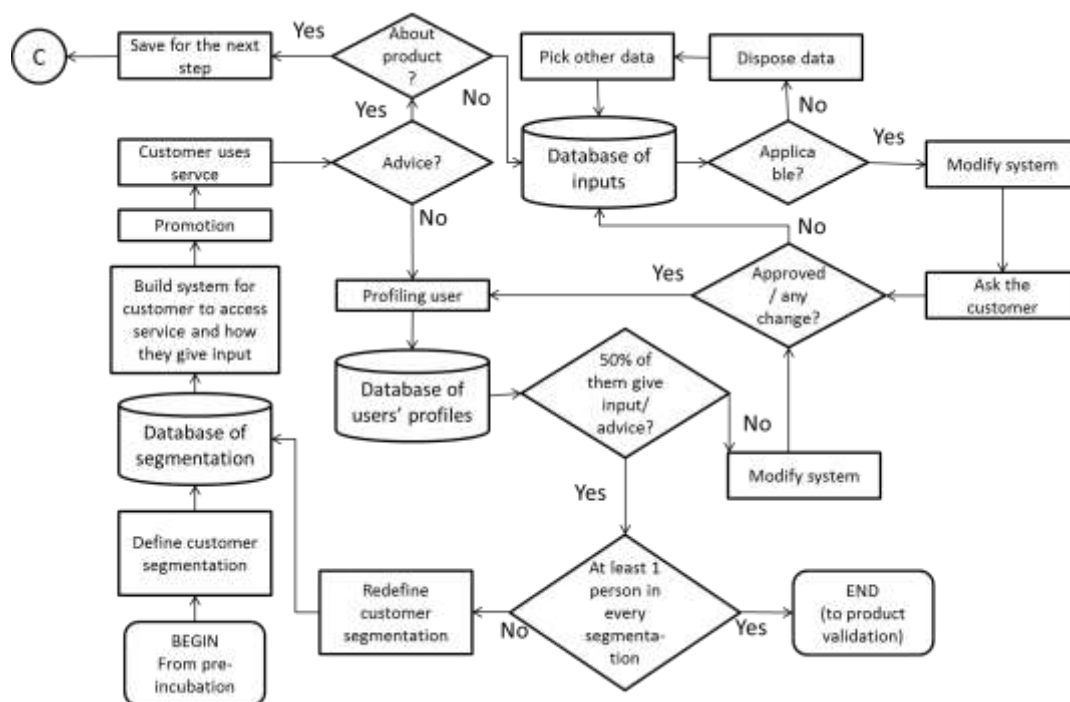

Figure 7. Modification on customer validation stage of incubation

The modification on the stage of product validation is made to satisfy the business element number 5, 6, and 7 in the BMC. The process of manufacturing product or service is highly varied, thus it is difficult to create the precise strategic model for product validation. This research focuses the stage of product valdation based on the customer inputs. Digital start-ups usually do not use physical resource as their key

resources, their resources are the system they built. Reeveluate the system based on inputs are validation of this business element. Participants enter the data of their partners including suppliers, check their working or product performances, and create modifications based on customer inputs. The validating process in this stage is presented in Figure 8.
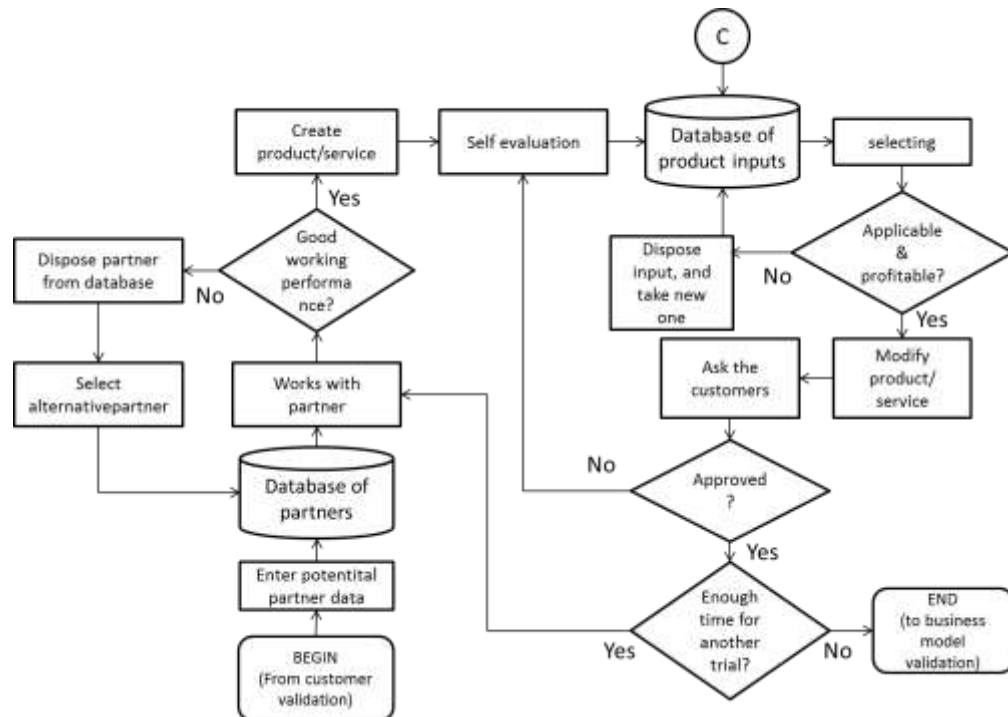

Figure 8. The modification on the stage of product validation

The next stage is business model validation. Business model is the summary of all business activities, thus income is the best indicator for its validation. If participants can cover their cost with revenue within certain period then they are passed. In this period, participant will reevaluate their business activity. There is no further modification in incubation process, in the market validation, start-up accelerator will gives more capital to observe the markets.

To incrase the growth rate of Indonesian digital start-up, this research suggest post-incubation process. In this process, the participant passing all the stage have to create the accelerator program after certain amount of time and use the same method. This suggestion will cover the capasity in the existing accelerator.

Conclusion

There are three problem in implementing LSM in Indonesian start-ups : (1) The required data cannot be collected in short period of time, (2) There is no clear condition wheter an aspect is considered valid or not thus it is difficult to state that innovation

has be made to change that aspect, and (3) start-ups need feedback from customer to validate their products, on the other hand failed product will decrease the further attraction about the product.

To solve this problem, this research modify the existing strategic model of start-ups accelerator into three main process. The first process is Pre-Incubation. In the Pre-Incubation a start-up accelerator have to display the data about business idea and technical experts thus the can team up and form a new digital start-up even before the first meeting. In this process, each participant recieve inputs from the other participants before even promoting it to the potential customer thus this will cover the problem number (1) and (3). The next modifications are made in the incubation process, the existing model do not state the criteria to consider an aspect is valid or not. This research uses BMC to state that condition. The last process is post-incubation. When the participant managed to pass all the stages of validation and developed into firm digital start-ups they have to create another accelerator to increase the capasity of start-up accelerator. This process should be regulated in the addition point of regulation about accelerator program managed by government.

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