A Dynamic Business Modelling Approach to Design and Experiment New Successful Business Incubator Model for Indonesia

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Abstract

The dynamic systems approach was applied to real business incubators to show practical examples of their use. This proposal illustrates and discusses a strategic design tool based on a combination of conventional Business Model representation schemes and Dynamic Systems modeling. This proposal aims to determine government policy's focus on helping business incubators realize increased business performance and revenue start-up strategies. This research is useful for all stakeholders. It is hoped that this research will produce good government policies to encourage economic growth through the management of business incubators in Indonesia. This research will be intense after measuring the influencing factors. It will be processed and analyzed that policy changes will affect future business incubation models for the Indonesian nation after the Covid 19 pandemic. The method used in this research is a mixture of quantitative and qualitative methodologies. This research took samples from several business incubators at several universities in Indonesia in 2020-2023. Descriptive quantitative and qualitative analysis to reveal each aspect of the assessment: the ability to solve problems, data interpretation results serve to perfect the successful business incubator model's completeness in Indonesia.

Keywords

Dynamics System, Business Incubator, Business Incubator Model, Business Incubator Roadmap.

1. Introduction

The concept of a Business Model (BM) is an incorporated framework that guides start-up entrepreneurs to develop a shared knowledge of how their business ventures will produce value and share it among internal and external stakeholders (Massa et al., 2016; Morris et al., 2005; Zott et al., 2011; Fiet and Patel, 2008). In particular, a strong need to develop a business model to assist illustrate new firm ideas has been arising since the new economic boom (Reymen et al., 2015; Andries et al., 2013; Perkmann and Spicer, 2010).

Dynamic Systems can recommend a new model and learn about social systems attribute by dynamic problems and uncertainty, this framework to describe and initiate new strategies for management, business systems, and change

(Forrester, 1961; Sterman, 2000; Davis et al., 2007; Morecroft, 2007; Cosenz and Noto, 2016; Torres et al., 2017). New strategy management based on the business incubator field's an incorporated strategy practical is known by the Dynamic Business Incubator Model (DBIM).
Demil and Lecocq (2010) state that "management sustainability leans on anticipating and reacting to all changes that arise, giving the label 'dynamic consistency' to this company's ability to build and maintain its performance changing its business incubator governance. Uncertainty gives a very high price in the experiment. "Besides, as stated by Wrigley and Straker (2016), For this reason, management of business incubators' values to be more adaptive and responsive to manage the important adaptations by elaborating in DBIM experiments as the main factor for obtaining a sustainable competitive advantage (Andries et al., 2013).
The dynamic systems approach was then applied to real business incubators to show practical examples of their use. This proposal illustrates and discusses a tactical description scheme based on a combination of conventional BM representation schemes and Dynamic Systems (DS) modeling. This proposal aims to determine government policy on helping business incubators realize to increase their business performance and revenue start-up blueprint.

1.1 Problem Formulation
Business incubators involve many parties such as the government, business people, the community, investors, business incubator managers, academics, etc., because this requires a comprehensive picture of the consequences of changes in government policies on the business climate in Indonesia

1.2. Research Questions
The research question of this proposal consists of: What is the company's strategy from start-up regarding the primary resources, prices, main processes, customer segmentation, and others that support the success of the business incubator; What are the financial results or opinions obtained that will improve the business performance of the overall system formed; What should be the government's main focus to help the development of business incubators in the future.

1.3. Research Objectives
This proposal's research objectives in year one consist of a Literature Study of Business Incubator Dynamic Models; Making a Dynamic Model Business Incubator Questionnaire; Dissemination of a Business Incubator Dynamic Model Questionnaire. In the second year, then the research objectives would be data collection and processing and making a closed-loop diagram of a Business Incubator Dynamic Model. In the third year, the research is finally making Stock Flow Diagram for Business Incubator Dynamic Model, analyzing changes for each factor and existing policies; making the final report and accountability.

1.4. Urgency and Benefits of Research
This research is useful for all stakeholders. It is hoped that this research will produce good government policies to encourage economic growth through the management of business incubators in Indonesia.

2. Literature Review
2.1. Dynamic System for Business Incubators
To solve the problem of insufficient representation of business models, a consistent approach is needed to support DBIM modeling. The combination of DS computer simulation modeling and BM representation to generate DBIM can cover this support. DS methodology captures the dynamic aspects of society and complex management systems (Forrester, 1961; Sterman, 2000). The DS model is suitable for specific management phenomena and is constructed by mapping the structure of the business system to generate and understand the driving behavior process. The quantification of causal interactions produces a set of equations that lay the foundation for simulating possible system behavior over time (Warren, 2008). Specifically, the DS model needs feedback points of the company system and is regarded as a closed boundary. That is, it includes all important variables related to the observed phenomenon. Feedback can be positive (or enhanced) or negative (or balanced). After determining the feedback loop, use DS-based simulation software to convert the main business variables into inventory and flow charts. This diagram permits top management to simulate and observed business system behavior over time (Ghaffarzadegan et al., 2011; Sterman, 2000). Generally, the DS framework is measured by comparing the framework output with numerical data. If there are differences or inconsistencies, please calibrate the framework and attributes with specific data. After developing and measuring whether the simulation framework is appropriate with the factual condition, after the input process to

generate a "what if" analysis of how the short-term and long-term results of the alternative tactics will resolve (Zagonel et al., 2004; Martin et al., 2015). If the factual experiments are too valuable and this condition may be the example for launching a new company, simulations become an expensive scheme for developing a complicated business system and where high-value points are assigned (Davis et al., 2007).

Unlike other simulation business model principals (e.g., Agent-Based Modeling), DS leads a comprehensive view of all the consistent factors involved in the strategy development and its contribution. This comprehensive view elaborates on business feedback loops, accumulations, terms delays, and nonlinear interaction to focus on dynamic feedback processes (Sterman, 2000). Some professionals have underlined the reasons to cover this comprehensive view to illustrate BM, which consists of an essential concept of BM variables' interaction value (Baden-Fuller and Mangematin, 2013; Casadesus-Masanell and Ricart, 2010; Sanchez and Ricart, 2010). In some cases, Casadesus-Masanell and Ricart (2010) debate that BM can develop a good relationship, namely reinforcing feedback loops to reinforce the incorporated's part in several moments. They elaborate this loop as a critical dimension in successful incorporated performance and, propose that various factors of BI's decision-makers can apply its results.

2.2. State of The Art

Several studies on business written by several people in Indonesia, such as:
a. The Role of Higher Education Business Incubators in Improving the Performance of Food UKM Businesses written by Hasbullah only discusses the Incubator in the Bogor IPB environment.
b. Performance Measurement of Tenant IBT-Polman Bandung Using the Balanced Scorecard Method written by Sadikin only discusses performance measurement and uses the Balance Scorecard method
c. Wahid, A. (2018, October). Discusses the Entrepreneurship Training Model on Tenant Performance
d. Sunarso (2013) wrote about the development of the Science Technology Park.
e. Lina Gozali (2015-2020) discusses the success model of business incubators in several state universities in Indonesia but uses the PLS method, which only measures influencing factors.

There is no business incubator model design with a dynamic systems method approach in Indonesia from all the literature read and several others. This research will be intense after measuring the influencing factors. It will be processed and analyzed that policy changes will affect future business incubation DS modeling for the Indonesian nation after the Covid 19 pandemic.

3. Research Methodology

The method used in this research is a mixture of quantitative and qualitative methodologies. The quantitative methodology used in this research is
the survey method. The survey method is a research method that uses a questionnaire as the main instrument for collecting data. In this research, the questionnaire will be distributed to managers of business incubators in Indonesia. The qualitative methodology used in this research is a grounded theory research design, which is a set of procedures used to compile a theory that explains a process regarding a substantive topic (Egan, 2002). Grounded theory research is suitable for explaining a phenomenon, process, or formulate a general theory about a phenomenon that cannot be explained by existing theories.
The map of this research plan includes: (1) The process of identifying business incubator rhetoric in Indonesia, (2) Tracing previous research on business incubator rhetoric in Indonesia, (3) Creating research concepts, (4) Creating a business incubator model, which called the success model of business incubators in Indonesia, (5) Registering the model as IPR and (6) Making National and International Publications regarding the dynamic system modeling of Nusantara business incubators in Indonesia in developing the success of business incubators in Indonesia.
Business incubator DS representation schemes can be considered as tools to support structural analysis of business (Chesbrough, 2010; Sosna et al., 2010), while simulation-based methodologies such as DS provide information and analysis appropriate for strategy development from a flexible perspective for internal and external change (Morecroft, 2007; Bianchi and
Bivona, 2000). Based on a series of strategic assumptions, designing and experimenting with Business Model through DS modeling's aims to predict the dynamic implications of strategies to determine whether they will produce a future that will be better or worse than it could be without intervention (Cosenz, 2017). Practically speaking, business incubator managers can explore these models and simulate alternative scenarios based on, for example, on alternative investment policies and experimenting with what can happen under different assumptions and across multiple decision choices (Sterman, 2000; Bisbe. and Malague ~ no, 2012). To this end, the business incubator DS Modelling can be

used as a strategy simulation tool to explore how strategies, decisions, and external phenomena interact to produce the long-term behavior of key performance variables and explain why and how outcomes change and potential unintended consequences.
The business incubator structure includes seven building blocks that correspond to the core elements of business incubator DS modeling that can describe how a company operates in achieving its goals. They are (1) Business incubators; (2) Strategic Resources, (3) Value Proposition and Key Performance Indicators, (4) Main Processes, (5) Tenant Segments, (6) Cost Structure, and (7) Income Streams. DS modeling highlights the primary cause-and-effect relationships between the BM elements each identified in the building blocks, which provide the readers with a holistic perspective on business strategy and operations. This causal relationship forms a closed feedback loop of reinforcement or balancing that determines the business incubator system's behavior over time.

Subject, Place, and Time of Research from the samples from several business incubators at several universities in Indonesia in 2020-2023. The research Instruments used the research questionnaire and Observation. A questionnaire uses a rubric to reveal problem-solving skills, ability to organize material, high-order thinking soft skills, and the Observation used to measure the ability in product innovation and creativity, and ability in presentation. The Data Analysis was carried out in two ways: descriptive quantitative and qualitative analysis to reveal each aspect of the assessment: the ability to solve problems, data interpretation results serve to perfect the successful business incubator DS Modelling's completeness in Indonesia.

4. Research Roadmap

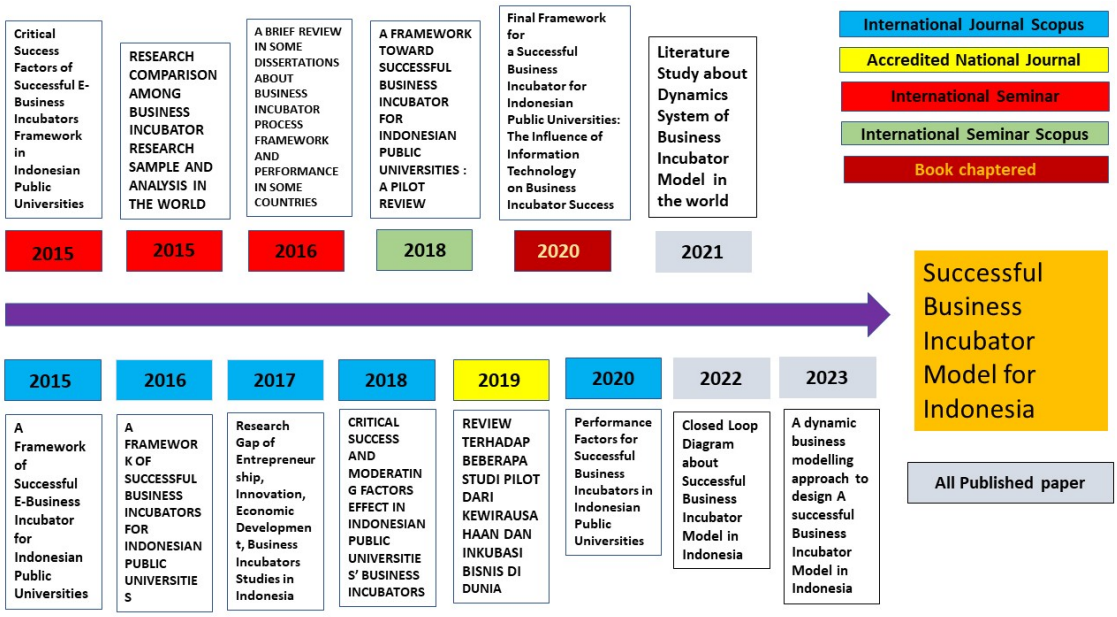

Figure 1. The research roadmap that has been and will be carried out is related to the success of business incubators in Indonesia

5. Future Work

The future work will continue the business incubator research in Indonesia in a new method. PLS's previous research describes much about the factors that substantially affect a successful business incubator in Indonesia. Shortly, the research needs to have a forecast or prediction with the changing of every factor, aspect, and situation.

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Biography

Lina Gozali is a lecturer at the Industrial Engineering Department of Universitas Tarumangara since 2006 and a freelance lecturer at Universitas Trisakti since 1995. She graduated with her Bachelor's degree from Trisakti University, Jakarta - Indonesia. She got her Master's Degree at STIE IBII, Jakarta – Indonesia, and she recently got her Ph.D. at Universiti Teknologi Malaysia, Kuala Lumpur – Malaysia, in 2018. Her apprentice college experience was in the paper industry at Kertas Bekasi Teguh, the shoe industry at PT Jaya Harapan Barutama, and the automotive chain drive industry at Federal Superior Chain Manufacturing. She teaches Production System and Supply Chain Management Subjects. She researched Indonesian Business Incubator for her Ph.D. She has written almost 70 publications since 2008 in the Industrial Engineering research sector, such as Business incubator, Production Scheduling, Plant Layout, Maintenance, Line Balancing, Supply Chain Management, Production Planning, and inventory control. She had worked at PT. Astra Otoparts Tbk as International Business Development Department for 4 years, Citibank, N.A as customer service for 1 year, PT. Pandrol as assistant marketing manager for 1 year. PT. Texmaco as a merchandiser for 3 years.

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