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A FRAMEWORK OF SUCCESSFUL BUSINESS INCUBATORS FOR INDONESIAN PUBLIC UNIVERSITIES

Lina Gozali[1,2*], Maslin Masrom[1], Teuku Yuri M. Zagloel[3], Habibah @ Norehan Haron[1]

[1]*Razak School of Engineering and Advanced Technology, Universiti Teknologi Malaysia, Jalan Sultan Yahya Petra, 54100 Kuala Lumpur, Malaysia*
[2]*Department of Industrial Engineering, Faculty of Engineering, Universitas Tarumanagara, Jl. S. Parman No 1, Jakarta, 11440, Indonesia*
[3]*Department of Industrial Engineering, Faculty of Engineering, Universitas Indonesia, Kampus UI Depok, Depok 16424, Indonesia*

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ABSTRACT

Universities play an important role in motivating young graduates to become technology entrepreneurs. The objectives of this research are to investigate the success factors for business incubators and to develop and propose a framework of successful business incubators for public universities in Indonesia. Indonesian public universities that have business incubators were considered for this research. A preliminary study was conducted with a panel of experts who have the necessary insights and experiences in managing both the incubators and the relationships within the incubators with the tenant firms. This research examines some significant measures with reference to the unique features of university business incubators in order to better understand the manner in which incubators can be assessed in a developing country. The result of this research includes a framework of successful business incubators in Indonesian public universities. This framework is developed on the basis of previous studies and the preliminary study conducted with ten business incubator experts.

Keywords: Business incubator; Framework; Public university; Successful factors; Indonesia

1. INTRODUCTION

Although the government has introduced programs to promote the welfare of all the citizens in the future, unemployment remains one of the main issues in Indonesia. According to data obtained from Indonesia's Central Bureau of Statistics, in 2014, the country's unemployment rate was 4% of the total work force. In Indonesia, incubators have been developed since 1992 and initiated by the Ministry of Cooperatives, small and medium enterprises, and universities.

Universities play an important role in motivating young graduates to become technology entrepreneurs. The increasing number of university-graduate entrepreneurs will reduce the unemployment rate, as well as create the work field. Several developing countries have experimented with a variety of programs and schemes supporting small and medium enterprises, often with assistance from multilateral and bilateral organizations. Business incubation programs or initiatives have been introduced particularly over the past decade, with varying degrees of success (Manan & Yunos, 2011).

A business incubator is an organization that systemizes the process of creating successful new

*Corresponding author's email: ligoz@ymail.com, Tel. +62-85781219980, Fax. +62-21-5638358
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enterprises by providing them with a comprehensive and integrated range of services. Both in the developed and in the developing countries, governments have been playing a key role in defining policies, programs, and instruments that support the development of micro-, small, and medium enterprises.

This effort continued in 1997 when there existed a program termed the Entrepreneurship Culture Development program in universities, and one of its activities was the New Entrepreneur Incubator. This research has been designed to employ quantitative and qualitative analyses based on data collected from incubator managers, business incubator associations, and business founders in Indonesia.

To lay the groundwork for a successful incubation program, incubator developers must first invest time and money in a feasibility study. An effective feasibility study will help determine whether the proposed project has a solid market, a sound financial base, and strong community support, all of which are critical factors associated with an incubator's success. Once established, model business incubation programs commit to the industry's best practices such as structuring for financial sustainability, recruiting and appropriately compensating the management with company-growing skills, building an effective board of directors, and placing the greatest emphasis on client assistance (O'Neal, 2005).

The shortcomings of the previous studies indicated that research on the business incubators, successful factors, and framework in the Indonesian public universities has not yet been conducted. Therefore, this study will focus on the successful factor of business incubator framework in Indonesian public universities.

The objectives of this research are twofold: (1) to investigate the critical factors for successful business incubators in Indonesian universities and (2) to determine the dimension, factors, and framework of business incubators for Indonesian public universities. This study differs from Gozali et al. (2015c) in that this study focuses on the development of a framework of successful business incubators for Indonesian public universities.

2. LITERATURE REVIEW

This section explores the existing theories and models that are relevant to the research subject, as well as those theories and models that form the body of knowledge of the research. In its most literal sense, a business incubator is a building that houses tenant companies that are in their initial phases of establishment.

Figure 1 shows the a priori framework of incubator success factors developed by Verman (2004). This model represents the theoretical framework of incubator success factors. The dependent variable, which is the variable of primary interest, indicates the degree of success of incubators. This framework explains the variance in this dependent variable through a number of independent success factors categorized as (1) shared services, (2) facilities and location, (3) funding and support, (4) incubator governance, (5) tenant entry and exit criteria, and (6) mentoring and networking.

In Figure 2, this model was presented in a 2002 European Union (EU) incubator benchmarking study as a general 'model of incubation' based on EU-wide survey data. However, it was developed by very knowledgeable authors Costa-David, Malan, Lalkaka for NBIA. Later the Centre for Strategy & Evaluation Services (EU) copied this model and used proposed benchmarks that depict incubator efficiency and performance in terms of using inputs, developing and orchestrating processes and ensuring a steady supply of quality outputs. On the one hand, it's white-box model which gives understanding of what practices are used to transform initial inputs into outputs. This incubation model consists of pre-incubation,

incubation and after care stages. Incubation itself provides following practices for tenants: (a) training, (b) business advice, (c) financial support, (d) technology support, (e) physical space, (f) networking.

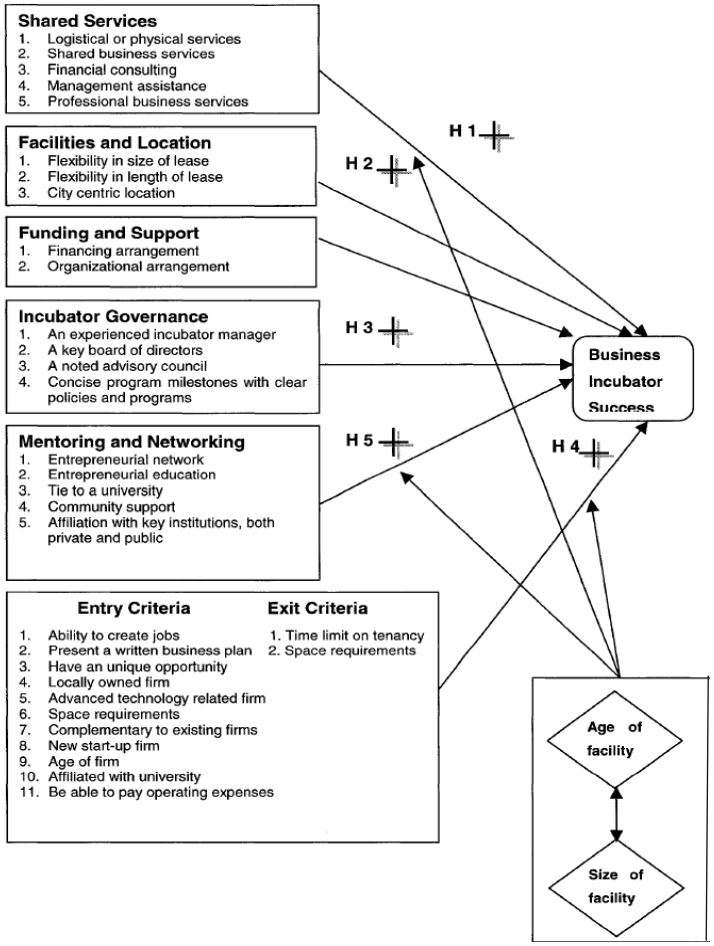

Figure 1 A Priori Framework of Incubator Success Factors (Verman, 2004)

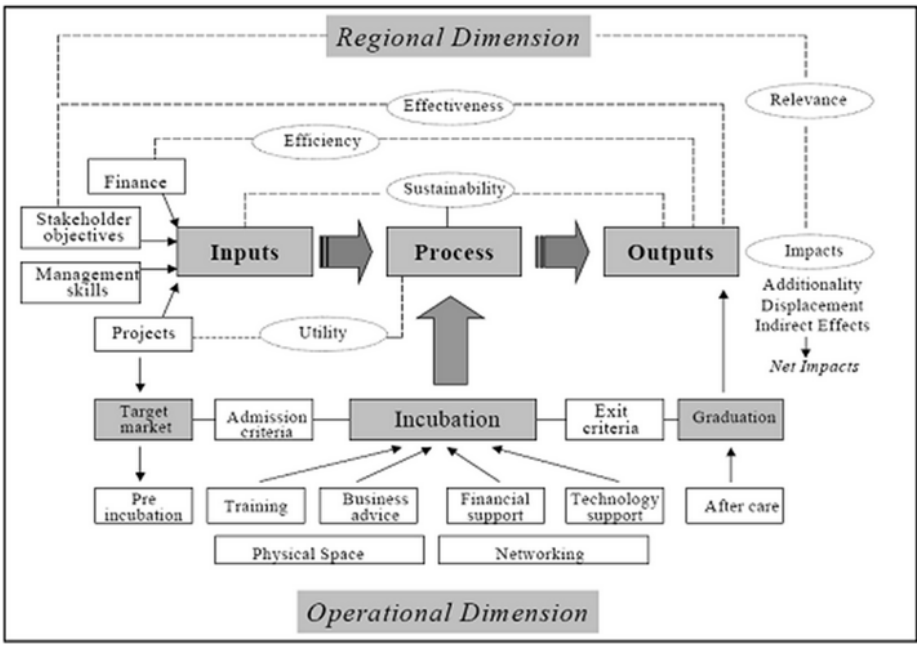

Figure 2 Costa-David, Malan, Lalkaka Model NBIA (2002)

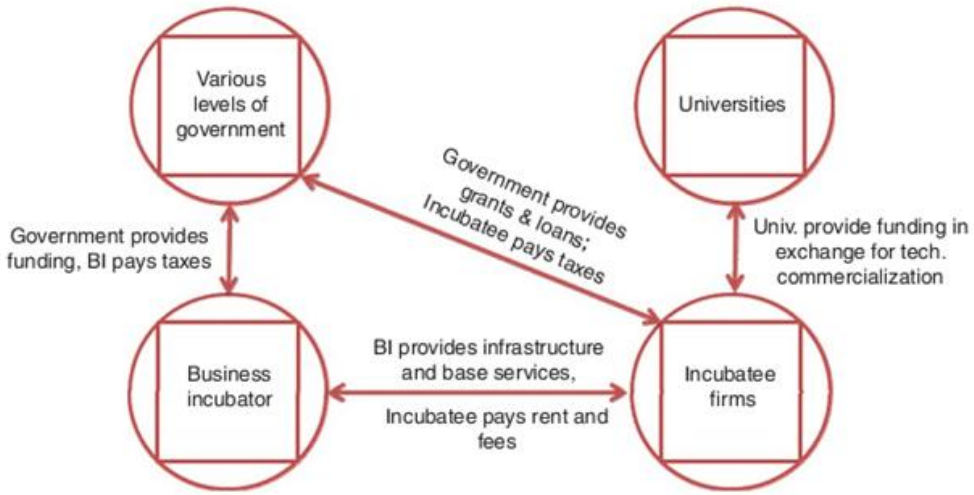

Figure 3 Chandra & Chao's Incubation External Environment Model (2011)

As shown in Figure 3, Chandra & Chao's model (2011) conceptualizes the flow of resources between key stakeholders in the innovation ecosystem that are related to business incubators. Authors distinguished 4 key players, namely, public and government, business incubators, entrepreneurs, and universities. Public, government, and university support for incubation is generally provided with the expectation of economic growth and job creation or technology transfer and commercialization, as illustrated in Figure 2. The government provides grants and loans and expects that incubates will pay taxes after reaching their mature phase; incubators pay taxes from their income. University sponsors harvest their return on investment "by way of technology transfer/commercialization and its attendant benefits to faculty and students." (Chandra & Chao's model, 2011) Incubators around the world are either affiliated to a university/government or to a local economic development agency that invests public/private resources into incubation to support a new venture at the earliest and most vulnerable stage of its life cycle. An important feature of this model is the conceptualization of resources' (money, knowledge) flow (or cycle) between stakeholders. Business incubators are viewed as moderators of these resources. Thus, the efficiency and effectiveness of any business incubator are directly related to the taxes that the government use to support entrepreneurs.

3. METHODOLOGY

This research attempts to develop a framework that can elucidate the factors that are important for a successful incubator in Indonesia. General knowledge has certainly been taken into consideration in this study; however, some special determinants were added in order to reflect a particular situation in Indonesia. Further, this study reviewed related works on the incubators as an SME support tool and its relevance for Indonesia with special focus on the assessment of the performance of the incubators worldwide and in Indonesia.

Within the context of this study, the literature on the performance of incubators in developed and developing countries was reviewed, and the fact that the measures for assessing business incubator effectiveness as a business development mechanism should be adapted to a country's needs was illustrated.

Researches on business incubation effectiveness have been mainly conducted in countries that are in the innovation-driven stage. This research sought to find out and presented some more significant measures with respect to the unique features of the university business incubator in order to better understand the manner in which incubator programs can be assessed in a

developing country. In this research, the assessment framework offers an alternative perspective for the analysis of technology incubators and may be applied to other developing countries. This study will also be beneficial to review the extent to which literature examines the critical role that university business incubators can play and identify some implications for policy makers (Özdemir & Şehitoğlu, 2013).

The research process is illustrated in Figure 4.

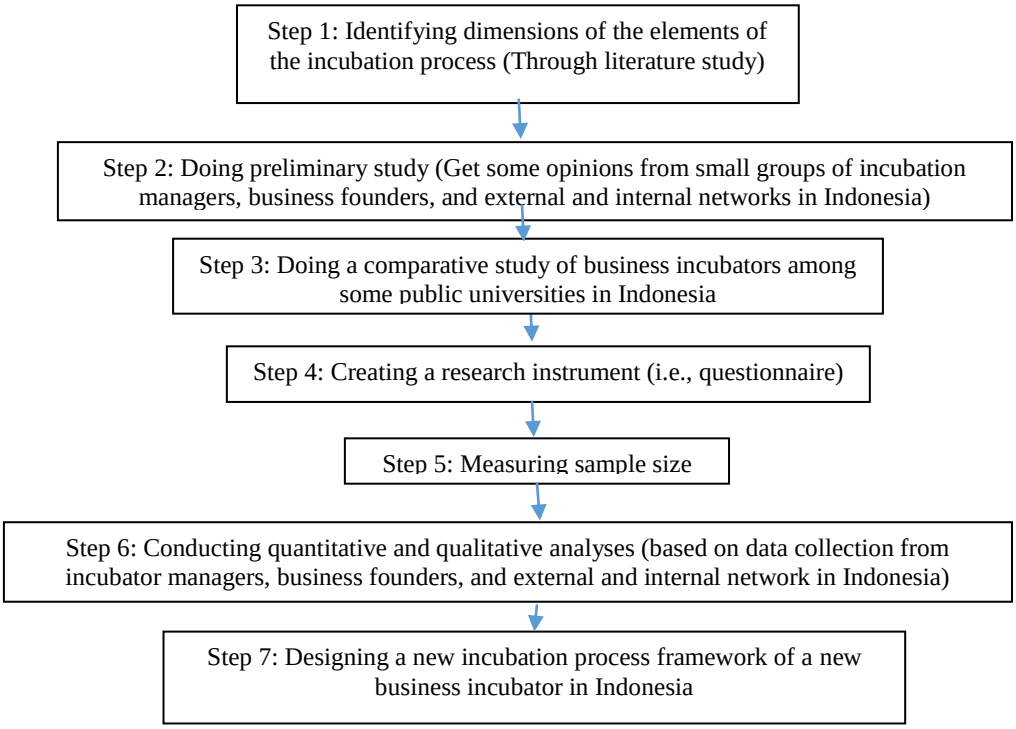

Figure 4 Research process of the study (Gozali et al., 2015a)

4. PROPOSED FRAMEWORK

The literature describes various indicators that measure product innovation; however, the number of patents, new product announcements, and degree of innovation has received maximum attention (Garcia & Calantone, 2002; Romijn & Albaladejo, 2002; Vermeulen et al., 2003; Wetering & Koster, 2007). Nevertheless, in the case of business services such as in the software industry, the number of patents and new product announcements is an unsatisfactory indicator for the Journal of Applied Business Research–January/February 2014 Volume 30, Number 1 Copyright by author(s); CC-BY 202 The Clute Institute measuring firms' innovation (Wetering & Koster, 2007).

The extent and likely success of business incubators are frequently related to some factors, variables, and dimensions. On the basis of these factors, it can be said that the variables and dimensions in business incubators are expected to bring about success by some incubator managers to help start-ups perform their operation. Business incubators embody a systematic approach to start-up development, which can be described to include some factors, variables, and dimensions.

4.1. Factors and Dimensions

On the basis of previous studies (Gozali et al., 2015c), Verman's Framework (2004), Costa-David (2004), Hackett and Dilts (2004), Chandra and Chao (2011), AACIP (2012), Smilor (1987), OECD (2010a), OECD (2010b), and preliminary study with ten professors affiliated with

world-famous universities, these factors, dimensions, and the independent variable are categorized in a few previous journals. The professors were selected on the basis of their expertise in entrepreneurship, business management, mixed model analysis, and industrial service. After continuing the discussion with them, we changed the factors and dimension as follows.

Further, the relationship between nine independent variables and the one dependent variable is influenced by three moderating variables (i.e., age of facilities, credibility of facilities, credits and rewards). Additionally, as the age of facilities increases, the business incubator size may also increase in terms of acquiring more space and tenants, because the business incubators in this research can then be virtual business incubators. These moderating variables moderate the relationships between shared services and incubator success; between tenant entry and exit criteria, and incubator success; and mentoring and networking and incubator success.

Table 1 Summary of Independent, Moderating, and Dependent Variables

Independent Variables	Moderating Variables	Dependent Variable
Ability of Business Incubators	Age of Facilities	Successful Business Incubators
Incubator Governance	Credibility of Facilities	-
Entry Criteria	Credits and Rewards	-
Exit Criteria	-	-
Mentoring and Networking	-	-
Funding and Support	-	-
Government Support and Protection	-	-
University Regulation	-	-
System Infrastructure	-	-

4.2. Research Hypotheses

Based on the variables identified throughout the literature and preliminary study with experts, the proposed framework is developed by considering the factors affecting the success of the incubators, and the hypotheses of the research are given as follows:

H1: The greater the focus on ability by business incubators, the more likely is the business incubators success for good facilities.

H2: The better the incubator governance, the more likely is the business incubator to succeed.

H3: The stronger the enforcement of tenant entry criteria, the higher is the probability of the business incubator's success.

H4: The stronger the enforcement of the tenant exit criteria, the higher is the probability of the business incubator's success.

H5: The greater the opportunities for mentoring and networking among the tenants, the more likely is the business incubator to succeed.

H6: The better the financial funding and support for the tenants, the more likely is the business incubator to succeed.

H7: The better the funding for innovation and invention, support, and protection from the government, the more likely is the business incubator to succeed.

H8: The better the credits and rewards for faculty and support from university regulation, the better are the initiative programs and projects for business incubator success (university regulation).

H9: The better the support system and infrastructure, the more likely is the business incubator to succeed.

(The hypotheses from H1–H6 were developed on the basis of Sameer Verman (2004) in Canada.)

The incubator industry has developed through a partnership between the incubators and the local, state and Commonwealth governments, namely, the finding of Organization for Economic Co-operation and Development (Chandra & Chao, 2011; OECD, 1999). From this point of view, a new hypothesis on government support and protection has been developed (H7).

In addition, governments can reform the reward systems for university professors and researchers by introducing new incentives to collaborate with the industry. Typically, university researchers are not rewarded in their careers for collaborating with businesses, and in some countries, it is even viewed as unethical to do so. Teaching experience and publications continue to be the dominant criteria in tenure track systems and salary scales, and in most universities, cooperation with the industry is poorly measured and not considered in tenure tracks. To address this issue, a report by the Australian Advisory Council on Intellectual Property (Chandra & Chao, 2011; AACIP, 2012) advocates a rebalancing reconsideration of the key performance measures of public universities and research centers, developing mechanisms to increase the motivation of universities and their researchers to collaborate with the industry. On the basis of this literature, a new hypothesis on the credit and reward system in university regulation has been developed (H8).

New business incubators do seem to help provide an infrastructure that is conducive to the development of start-up and emerging companies (Hackett & Dilts, 2004; Smilor, 1987). Universities either use government schemes, private sector funding, or a combination of both to sustain and expand their "third mission." The long-term objective should be to achieve a high degree of self-sufficiency of the university's internal entrepreneurship support system (OECD, 2010a; OECD, 2010b). On the basis of literature studies, a new hypothesis on infrastructure and support system for successful business incubator factors was developed (H9).

All of the hypotheses have to be measured and analyzed in order for the results to show positive or negative relationships among all the dimensions and factors. The summary of the hypotheses and respective questions will help test the hypotheses.

5. RESULTS AND DISCUSSION

According to the literature review and preliminary study with the experts, data were acquired from both the developed and the developing countries on the facilities, mentoring networking, government support, invention support, funding, and better infrastructure that fully contribute to the success of the business incubator.

The experts are chosen from reputable universities across the world (Time Higher Education, World University Ranking version). Some of the experts have led the best entrepreneurship education and entrepreneurship centers. Some of the experts are also the authors of bestselling books and publications on Entrepreneurship and Start-up as a business founder; further, they are Directors of Entrepreneurship Centre and Business Incubator in their universities; Deans and Vice Rectors, having numerous patents of innovation products; reviewers of many top social science journals, winning teaching awards in their universities; and academy experts in the European Union and Kauffman Foundation.

The new framework compared to Verman's Framework (Verman, 2004) includes Hypothesis 7 (Government Support and Protection), Hypothesis 8 (University Regulation), and Hypothesis 9 (Infrastructure and Support System). In addition to the three new hypotheses, the new

framework includes several new dimensions, namely, (1) Showroom, Web Administrators, Human Resource Training and Presentation Skills, E-commerce Assistance, Legal Assistance, Educational Training (Shared Services and Facilities Factors); (2) Dynamic and Efficient Business Operations, Good System Operation Procedure of Business Incubators, Vision, Missions, Values, Culture of Business Incubators (Incubator Governance Factors); (3) Businesses Must Have an Innovative Products, Businesses Must Demonstrate a High Growth Potential, Social Impacts (Entry Criteria Factors); (4) Achieved Business Targets and Objectives, Failed to Achieve Business Targets and Objectives, Need More Support That Incubator Cannot Offer (Exit Criteria factors); (5) Finding the Strategic and Expertise Partner (Mentoring and Networking Factors); (6) Good Supporting Data, Intellectual Property Protection, Help with Regulatory Compliance (Funding and Support Factors); (7) Grant and Funding, Good Regulation, Tax Holiday and Protection, Special Stock Market for Start-up Companies (Government Support and Protection Factors); (8) Good University Regulation for Entrepreneurship, Good Entrepreneurship Programs, Appointed a Good Business Incubator Manager, Give Credits and Rewards for BI Manager – Mentor – Counselor, Evaluation System for BI Service, Social Impacts (University Regulation Factors); (9) Integrate Clients in the Larger Technology Development System, Good Service Providers, High Speed Broadband Internet, Technology Support (Infrastructure and Support Service Factors).

Discussion with the experts resulted in the fact that most of them agreed with the proposed factors and dimensions; however, they found that the factors were too many, complicated, and redundant. They suggested revising and simplifying the factors with grammatical errors. One of the experts suggested the following two factors related to the business incubators: (1) one factor indicated whether the business incubators provided the services, and (2) and the other factor indicated how important the services are. Meanwhile, two of the experts suggested providing the exact number of tenants who were assisted, who went out of business, and who started business operations as one of the success factors.

On the basis of the results and discussion above, the critical success factor framework of business incubators in Indonesian public universities is developed. The business incubator framework consisting of variables or factors and dimensions is shown in Figure 5.

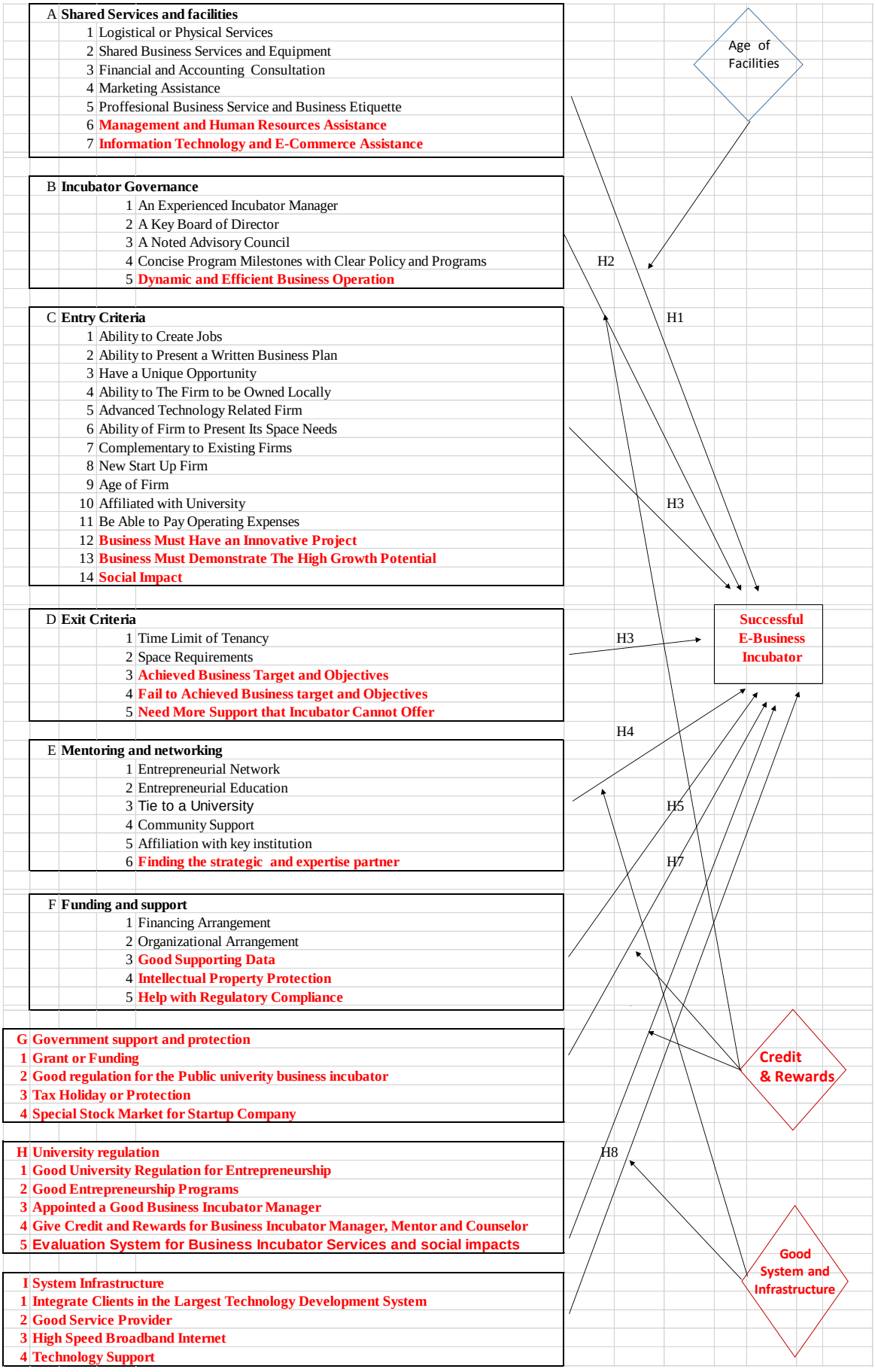

Figure 5 Proposed Business Incubator Framework of Indonesian Public Universities

6. CONCLUSION

From the literature review and preliminary study conducted with the ten experts in business incubators, the results indicate that the framework of successful business incubators in Indonesian public universities can consist of nine independent variables, three moderating variables, and one dependent variable. The nine success factors include ability of the business incubators, incubator governance, entry criteria, exit criteria, mentoring and networking, funding and support, governance support and protection, university regulation, and system infrastructure. The three moderating variables include the age of facilities, credibility of facilities, and credits and rewards. Meanwhile, the dependent variable is the incubator success. In future, the researchers will continue to perform a pilot test and an actual study and then analyze the result of the research hypotheses. The result of this research includes the proposed framework of business incubators for Indonesian public universities encompassing the related factors, variables, and dimensions.

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