

# Technology based Business Incubator As An Effort to Increase Entrepreneurship in Higher Education

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**Abstract---** *Many new entrepreneurs have a crisis in managing their business, especially in the technology sector. More than 90% of startups are failing. More entrepreneurs are owned by a country will improve the economy and welfare. Higher education as a research institute can commercialize the results of research and help new technology entrepreneurs grow their business through university business incubator. University business incubator can help them through several services, such as skill development service, seed capital, co-working space and network. University business incubator is expected to find and nurture new technology entrepreneurs within the university.*

**Keywords---** *University Business Incubator, Technology Entrepreneurship, Start Up.*

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## I. INTRODUCTION

The industrial revolution 4.0 demands mastery of science and technology to support the creation of innovation. Developed countries that lack natural resources on the other hand are able to optimize their human resources effectively and efficiently to carry out technological innovations. This technological innovation on a macro scale will have a positive impact, namely increased economic growth.

The economic growth of a country is supported by the role of entrepreneurs, especially in today's digital era. Therefore, efforts to print entrepreneurs in the field of technology require special attention. The Government of Indonesia fully supports this effort by developing the concept of Making Indonesia for 4.0. The effort to start a business (start up) requires hard work from various parties and with an integrated approach. The intended hope was not easy to realize. Hubeis in Lupiyoadi (2004) explains that 80% of startups in Indonesia fail in the first year. The high failure rate indicates the need for a solution to the problem.

The government hopes that the world of education can overcome this. Higher education can be relied upon as human capital that is ready to provide solutions. The strategic step to create new technology entrepreneurs in a university environment is through the development of a technology business incubator. The university as a research institution, has the results of technology research that can be commercialized and will produce new technology entrepreneurs from the university environment.

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## II. LITERATURE REVIEW

### *Understanding Business Incubators*

A business incubator is basically an organization that provides infrastructure and services to increase the value of a business. (Bank Indonesia, 2006). According to Franz Dietrich (2010) Business incubator is an organization that systematizes a process to help the growth and success of new entrepreneurs by providing comprehensive and integrated services, namely:

- a. Incubation rooms, facilities in the form of offices, manufacturing, and laboratories are available flexibly, easily, flexibly and temporarily.
- b. Common Space, public space facilities for tenants such as canteens, lobbies, and meeting rooms
- c. Common services, facilities in the form of general service support such as office equipment.
- d. Hands-on Counseling, intensive and special counseling assistance.
- e. Assistance in finding financing for tenants

The pattern of creating new entrepreneurs and fostering entrepreneurs through business incubation is done by coaching under one roof (in-wall) and by coaching outside the roof (out-wall). Furthermore, the two patterns are referred to as a model of creating and fostering business incubation. The first model is classical, namely training activities, product manufacturing, and collaboration between tenants carried out in one building unit.

Meanwhile, in the second incubation model, activities are not carried out under one roof, but outside the incubator management center. This model is implemented for businesses that are already running. This can be done because the business incubator runs as a consultant and a tenant's assistant. Activities undertaken include providing mentor access from outside parties and funding to tenants.

Types of incubators can be found with various names, such as: business incubator, business park, business hub, technology center, etc. However, in principle the activities carried out are the same. Namely the business incubation process. According to the business incubator can be divided into several types:

- a. Public sponsored: is an incubator supported by the government to increase employment.
- b. University-related: is an incubator that commercializes decent research results and enhances new entrepreneurs from the university environment.
- c. Non-profit sponsored: is an incubator supported by one or several non-profit communities with non-profit goals.
- d. Privately sponsored: an incubator supported by a private company for profit. This incubator is considered the most successful among the other types.

Technology entrepreneurship if interpreted in Indonesian into technology entrepreneurship that can be concluded to be the formation of a business by applying technology as a basic instrument and supporting the business itself. Technology entrepreneurship is an investment in a project that links and involves heterogeneous individuals and assets that are closely related to the development of science and technology aimed at creating and gaining value to an organization (Franz Dietrich, 2010).

Startup is an organization that is dedicated to creating something new under conditions of uncertainty (Ries, 2011). Startup is a temporary organization formed to look for business models over and over again and can be enlarged. (Steve Blank, 2014). There are 3 stages at startup: 1) problem-solution fit, 2) product-market fit, and 3) scale (Maurya, 2012). The first step is to determine the problem that deserves to be resolved before investing more time in building solutions to the problem. Next is to achieve product-market fit, in this phase startups need to ensure their products are more accepted by the wider market. At the scale stage, startups will focus more on ensuring the right business model with the international market. Other thoughts about the startup stage are growth oriented which emphasize the initial stage, the growth stage, and the advanced stage. To better understand this in terms of the process at each stage of growth, there are several dimensions: organizational, product, market, and funding dimensions. (Tech, 2014).

- a. Dimensions of the organization. Existence, survival, success, different business models in the early stages of the organization. Followed by strategic planning and the process of forming the company at the stage of organizational growth. Mergers, acquisitions and initial public offerings at an advanced stage.
- b. Product dimensions. In the initial stages, the concept of the product is being made, prototyping, pivoting, testing the main features and achieving the minimum viable product. At the growth stage, development of production capabilities and improvements. At a later stage, product diversification occurs.
- c. Market dimensions. In the initial stage, there is a market search, market calibration, the development of the initial user market, and the formation of needs. At the growth stage there is mass market penetration and marketing. The next stage is marked market diversification and internationalization.
- d. Funding dimensions. In the initial stage, it is known as the seedling stage. At the stage of growth is known as a series and at an advanced stage is known as an initial public offering and exit (can be an acquisition)

Ciputra (2008) states that the campus is an important part in the formation of new entrepreneurs for the following reasons:

- a. Campus is the main terminal for educated young people to enter the workforce. The campus becomes a gateway before entering into the workforce. Higher Education is the last place to develop entrepreneurship, to ensure that graduates become citizens who are ready and able to develop themselves independently and ultimately prosper economically.
- b. Campus is the best place to carry out human resource development. Every person who comes to campus and becomes a campus citizen has a mindset to learn and concentrate part of his life to learn and improve his quality.
- c. The campus has a group of human resources educators, expert researchers, who have the expertise and commitment to develop the potential of the younger generation. As a researcher, it means that a student can do his job **as well as stated in the tri dharma of higher education.**

### III. RESEARCH METHODS

The research process in this paper is related to the development of learning models with IT-based business incubators, therefore to get in-depth answers about existing problems, the research design used in this study is a

qualitative research design. In-depth interviews were conducted with 5 experts who understood information technology-based business incubators.

#### **IV. RESEARCH RESULTS AND DISCUSSION**

Some considerations for the establishment of a business incubator are related to the following:

- a. The objectives of establishing a Business Incubator must be clearly defined. The objectives can be formulated based on the needs and results to be achieved so that the incubator can draw up a work plan and targets to be achieved.
- b. There is operational funding support to carry out adequate incubation activities. Operational funds are obtained according to the type of incubator. For profit-oriented incubators, operational funds are obtained from the incubator's profits. While non-profit oriented incubators obtain operational funding sources through their parent institutions.
- c. The manager's human resources must be in accordance with the competence and expertise. The development of technology business incubators not only has a broad understanding of management aspects as well as supporting aspects such as taxation, financial accounting, human resources, and legislation. But the use and utilization of information technology. Human resource managers are not only theoretically good but must be practical.
- d. Having the ability to build a network of cooperation with various parties who can support services as a business incubator. Mainly with regard to: business mentors, technology mentors, capital, product marketing, legal consulting services, financial consulting services and others;
- e. Sources of product innovation, in this case the technology business incubator in higher education must have proximity to sources of innovation. Higher education as a research institution has many research results that can be commercialized.
- f. There is a need for prospective technology entrepreneurs and technology entrepreneurs to join the technology business incubator.

##### ***Stage of Business Incubator Formation***

In preparing for the formation of a business incubator, it can be described through several stages such as the following:

- a. Form a work team for establishing a business incubator

The team was formed as the responsibility responsible for establishing a business incubator

- b. Establishing Business Incubator goals

Set business incubator goals to set clear directions. Business incubators can be profit-oriented or non-profit. If profit-oriented, business incubators aim to increase the profits of their parent institutions.

- c. Determination of funding sources

Sources of business incubator funding will follow from this type of incubator.

Sources of funding from profit-oriented business incubators come from the parent institution while non-profit-oriented business incubators come from non-profit institutions / communities. Regardless of source, funders must have the same goals as the establishment of business incubators.

d. Determination of services that can be provided

In determining the services that can be provided to tenants. Business incubators must have a comprehensive curriculum. The forms of business incubator services are determined based on the needs needed, such as: business development planning, financial planning, taxation and others. These services must be introduced to incubator tenants so they can understand, especially for new tenants;

e. Determination of business incubation cooperation time criteria

The incubation time period depends on the curriculum that has been prepared or the funding period. Cooperation times can vary. From the author's experience the collaboration time is 6 months - 1 year.

f. Establishment of Business Incubator management

Incubator management must have the ability to evaluate the feasibility and develop a business to be more effective and efficient in terms of technology, management and marketing management.

g. Publication of the incubator

Publication is carried out to enhance collaboration between related institutions.

h. Tenant Selection

Tenant selection can be done in several ways such as: pre-incubation selection, business plan selection, pitching contest selection, etc. Selection must be done strictly in order to get prospective tenants.

i. Cooperation network

The incubator must have a wide network of cooperation to support the growth of its tenants. The network includes various institutions such as; practitioners, investors, universities, government, and others.

j. Evaluate and redefine the business incubator

An evaluation is needed to assess the performance of the business incubator in accordance with the objectives made.

***Pre-Incubation Curriculum***

- a. Why does Indonesia need more Technopreneur - An event in the form of seminars in the pre-incubation program. This event aims to introduce the startup ecosystem to students, increase student insight and enthusiasm.
- b. Entrepreneur Mindset - Students are equipped with entrepreneurial mindsets from business practitioners. This event is in seminar format. How to find a good founder
- c. Workshop Session - Students are equipped with the ability to find ideas, business models, markets and can build products and pitch in front of investors

### ***Incubation Curriculum***

- a. Strategic Growth Planning - Tenants are given training in making strategic growth plans in order to be able to determine a clear direction for their business.
- b. Business Operations - Tenants are given financial accounting training and recruiting employees.
- c. Business Development & Marketing Strategy - Tenants are given knowledge and practice in marketing strategies and business development.
- d. Financial - Tenant was given knowledge about corporate financial planning.
- e. Legal - Tenants are given legal knowledge and are given access to register intellectual property rights and submit legality for companies.

### **V. CONCLUSION**

- a. Business incubator is one of the strategic alternatives in creating new entrepreneurs within the university.
- b. Prospective entrepreneurs need awareness of the importance of entrepreneurship
- c. New technology entrepreneurs in general have problems with the lack of business experience, have not been able to access technology, markets and minimal capital
- d. Higher education technology business incubator has great potential to produce research products that can be commercialized and produce new technology entrepreneurs (technopreneurship) from students.
- e. Higher education technology business incubators must have a commitment from each stakeholder. There are tenants ready to be incubated, professional incubator management, availability of access to capital, the ability of business incubators to provide decent facilities and clear administration.

### **VI. SUGGESTION**

- a. There needs to be comprehensive coordination between stakeholders. This is so that the program planned by the business incubator can run well.
- b. There is a clear legal umbrella from the business incubator, the professionalism of the business incubator management, and adequate facilities so that the incubator services can be delivered properly.
- c. Promoting business incubator programs to all parties in higher education so that technology entrepreneurship can develop in the campus environment.

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