

# Optimizing the Role of Business Incubators in Higher Education: A Review of Supporting Factors and Barriers

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## ABSTRACT

This research paper explores the role of business incubators in higher education at a university in West Java, focusing on the review of supporting and barrier factors. The study adopts a mixed-methods approach, combining quantitative surveys and qualitative interviews to gather comprehensive data. The findings highlight the importance of supporting factors such as access to resources, mentoring and expertise, networking opportunities, and funding support. Conversely, barrier factors include lack of funding and resources, limited access to mentoring and expertise, ineffective networking opportunities, institutional and policy constraints, and cultural and societal factors. The study provides valuable insights into optimizing the role of business incubators in higher education, emphasizing the need for adequate resources, effective mentoring, networking opportunities, supportive policies, and a favorable entrepreneurial culture.

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## 1. INTRODUCTION

Business incubators have drawn a lot of attention because they are powerful tools for promoting innovation, entrepreneurship, and economic growth. In higher education, there are programs called "business incubators" that offer tools and assistance to help students and teachers convert their creative ideas into profitable enterprises. Business incubators in higher education foster the development of creative ideas and assist students and professors in turning those ideas into profitable enterprises [1]–[3]. Higher

education business incubators may be implemented through a range of techniques, such as mentoring, business planning, marketing techniques, and assisting businesses to find finance or investors. [1]. Business incubators in higher education can provide various benefits, including adequate facilities and services, development of utility models and patents for innovation, assistance for technopreneurs, start-ups, and businesses, and product development for different industries [3]. Some of the challenges associated with business incubators in

universities include the lack of awareness among the academic community to make efforts to commercialize their innovative products or conduct research for product commercialization, and the need for various reinforcements to assist tenants and carry out pre-incubation and incubation [1]. The current state of university-based business incubators (UBIs) in Canada has been assessed through desk-based secondary research and semi-structured interviews with UBI managers, academics and support staff. The main themes derived from these findings are communication skills development, curriculum development, extra-curricular activities, industry engagement, innovation, research skills and strategic thinking [4].

A business incubator in higher education is a program that provides resources and support to help students and faculty turn their innovative ideas into successful businesses. The program can be implemented through various procedures, and it provides various benefits. However, there are also some challenges associated with it, and its effectiveness can be assessed through research and interviews.

Several instances of prosperous companies that began in university-based incubators. When Larry Page and Sergey Brin were Stanford University Ph.D. candidates, they founded Google. They created the algorithm for searching that served as the foundation for the Google search engine [4]. When they were Stanford University students, Evan Spiegel, Bobby Murphy, and Reggie Brown invented Snapchat. As a class project, they created the app, and then they launched it as a business [1]. While attending the University of Southern California, Brandon Beck and Marc Merrill launched the video game company Riot Games. They created the video game League of Legends, which was a major hit and gave rise to Riot Games [5]. Dell was founded by Michael Dell while he was a student at the University of Texas at Austin. He started the company in his dorm room and later dropped out of college to focus on business [6]. Reddit was founded by Steve Huffman and Alexis Ohanian when

they were students at the University of Virginia. They developed the website as a way for people to share links and discuss topics online [7]. These are just a few examples of successful businesses that started from university-based incubators. There are many more out there, and these success stories show the potential for innovation and entrepreneurship in higher education.

There are few studies available on business incubators in higher education in Indonesia. One study [2] provides guidelines for the establishment of business incubators in higher education institutions. The aim is to support entrepreneurial students and encourage their business development within the university. Another study [6] identified critical success factors for e-business incubators in public universities in Indonesia. The study found that incubators can help reduce the unemployment rate and increase the number of field jobs. The study also identified several success factors for the incubation model. A study [1] analyzed the problems and constraints of the implementation of the Unesa business incubator (PIBT) in mentoring college startups and formulated strategies for strengthening the Unesa business incubator in mentoring college startups. The study found that the implementation of college startup mentoring is not optimal because there are still few academicians who have the awareness to make efforts to commercialize their innovation products or conduct research towards product commercialization.

Another study [7] investigated the relationship between incubator performance and success factors of business incubators in Indonesia. The study found that information technology, entry criteria, mentoring networks, funding, university regulations, and government support and protection improved business incubator performance. A study determined the significant contribution of university business incubators (UBIs) in selected universities in Region II to graduate business and technopreneurship employability. The study found that UBIs have adequate facilities and services, develop

utility models and seek patents for innovations, assist technopreneurs, startups, and businesses, and develop products for various industries. A 6th study discussed and analyzed the successful adoption of incubators around the world and lessons learned from successful incubators into the 21st century. The study found that incubators contribute to the international economy and play an important role not only in economic recovery but also in smart growth and economic development.

In conclusion, the study demonstrates that business incubators in higher education may significantly aid in the creation of novel ideas and support students and professors in turning those ideas into profitable firms. They still present certain difficulties, though, and research and interview data may be used to gauge how effective they are.

Business incubators have gained significant attention as an effective mechanism to support entrepreneurial activities, foster innovation, and promote economic growth. Incubators serve as catalysts for startups and early-stage companies by providing essential resources, infrastructure, mentoring, and networking opportunities. In the context of higher education, business incubators have emerged as an integral part of universities' efforts to bridge the gap between academia and industry, nurture entrepreneurial talent, and facilitate the commercialization of research and innovation. West Java, located in Indonesia, is known for its vibrant entrepreneurial ecosystem and the presence of several universities that have established business incubators to promote entrepreneurship among their students and faculty.

This study's major goal is to maximize the function of business incubators in higher education at one of the institutions in West Java. This research attempts to pinpoint critical areas for development and offer useful ideas to increase the efficacy and efficiency of business incubators in certain contexts by performing a thorough evaluation of the enabling and limiting variables. This research

will contribute to the existing literature on business incubation, particularly in higher education settings, and provide valuable insights for universities, policy makers and stakeholders involved in entrepreneurship development.

## 2. LITERATURE REVIEW

### 2.1 *Definition and Concept of Business Incubator*

A business incubator is an organization or program designed to support the growth and development of startup companies and early-stage ventures. Business incubators provide a nurturing environment that offers a variety of resources, services, and support to entrepreneurs, helping them overcome challenges and increase the chances of success. The concept of business incubators dates back to the 1950s, and since then, business incubators have evolved into a variety of models, including university-affiliated, government-sponsored, and privately-run incubators. Business incubators aim to foster innovation, accelerate the commercialization of ideas, facilitate access to funding and mentorship, and create networking opportunities for entrepreneurs.

### 2.2 *The Role of Business Incubators in Higher Education*

Business incubators have gained traction in the higher education landscape due to their potential to bridge the gap between academia and industry. Universities recognize the importance of nurturing entrepreneurial talent and promoting innovation among their students and faculty. By setting up business incubators, universities create an ecosystem that supports entrepreneurial education, facilitates technology transfer, and encourages collaboration between academic researchers and entrepreneurs [8]-[10]. In order to boost the success rate of businesses and foster economic growth, business incubators in higher education institutions give access to specialized facilities, mentorship, networking

opportunities, business support services, and finance sources.

### 3. METHODS

This study adopted a mixed-methods research design to comprehensively explore the supporting and inhibiting factors affecting the role of business incubators in higher education in West Java. A mixed methods approach allows for a more holistic understanding of the research topic by combining quantitative and qualitative data collection and analysis techniques. This design allows for triangulation of findings, thus increasing the validity and reliability of the research results.

The research will follow a sequential explanatory design, where quantitative data collection and analysis will be conducted first, followed by qualitative data collection and analysis. This approach allows exploration of the research questions using a large sample size in the quantitative phase, followed by a deeper understanding of the factors through qualitative data collection and analysis in the subsequent phase.

### 4. RESULTS AND DISCUSSION

This study adopted a mixed-methods research design to comprehensively explore the supporting and inhibiting factors affecting the role of business incubators in higher education in West Java. A mixed methods approach allows for a more holistic understanding of the research topic by combining quantitative and qualitative data collection and analysis techniques. This design allows for triangulation of findings, thus increasing the validity and reliability of the research results. The research will follow a sequential explanatory design, where quantitative data collection and analysis will be conducted first, followed by qualitative data collection and analysis. This approach allows exploration of the research questions using a large sample size in the quantitative phase, followed by a deeper understanding of the factors through qualitative data collection

and analysis in the subsequent phase.

#### Quantitative Results

The survey questionnaire was distributed to entrepreneurs, startups, university faculty, and university-affiliated business incubator staff in West Java. A total of 150 responses were received and included in the analysis. The quantitative analysis aimed to examine the enabling factors and barriers that influence the role of business incubators in higher education.

#### *Enabling Factors*

Respondents were asked to rate the importance of various enabling factors on a Likert scale ranging from 1 (Not Important) to 5 (Very Important). The mean scores of the enabling factors were calculated, and the top-ranked factors were identified. The analysis revealed the following key enabling factors:

- **Access to Resources:** Availability of physical space, technology, and comprehensive administrative support received the highest average score, indicating their significance in supporting startups in business incubators.
- **Mentoring and Expertise:** Access to experienced mentors and experts in the field scored the highest, highlighting the importance of mentorship and knowledge transfer for startup success.
- **Networking Opportunities:** Building a strong network through networking events, workshops, and collaborations is considered essential for startups to connect with potential partners, customers, and investors.
- **Funding and Financial Support:** The availability of early-stage funding, access to venture capital networks, and support in securing grants and loans are considered important factors in facilitating the growth and sustainability of startups.

#### *Inhibiting Factors*

Respondents were also asked to rate the extent to which various barrier factors hinder the optimal functioning of business incubators. The average scores of the barrier

factors were calculated, and the most significant barriers were identified. The analysis revealed the following key barrier factors:

- **Lack of Funding and Resources:** Insufficient financial resources and limited availability of infrastructure, equipment, and support services were identified as significant barriers that impact the effectiveness of business incubators.
- **Limited Access to Mentoring and Expertise:** The absence of experienced mentors and limited access to external mentor networks were considered key barriers, indicating the need for increased mentoring support.
- **Ineffective Networking Opportunities:** The lack of networking opportunities within business incubators hinders the ability of startups to connect with relevant stakeholders, thus limiting their access to resources and growth opportunities.
- **Institutional and Policy Constraints:** Bureaucratic obstacles within universities, including a lack of administrative flexibility and restrictive intellectual property policies, were identified as barriers that hinder the functioning of business incubators.

### *Qualitative Results*

Semi-structured interviews were conducted with key stakeholders, including business incubator managers, university administrators, industry experts, and successful entrepreneurs affiliated with universities. Thematic analysis was conducted to identify common themes and patterns related to enabling and constraining factors affecting business incubators.

### *Enabling Factors*

The qualitative analysis revealed additional insights into the enabling factors of business incubators:

- **Access to Industry Networks:** Many participants emphasized the importance

of business incubator relationships with industry partners, which facilitate access to market insights, potential customers, and industry-specific expertise.

- **Entrepreneurship Education and Training:** The provision of entrepreneurship education and training programs within incubators was highlighted as an important factor in fostering entrepreneurial skills and knowledge among startups.
- **Flexibility and Adaptability:** The ability of business incubators to adapt to the evolving needs of startups and provide flexible support tailored to their unique needs was considered important.

### *Inhibiting Factors*

The qualitative analysis provided additional insights into the barrier factors affecting business incubators:

- **Lack of Awareness and Engagement:** Several participants mentioned that a lack of awareness among potential entrepreneurs and limited engagement from university faculty members hinder the full utilization of business incubator resources and services.
- **Cultural and Societal Factors:** Participants highlighted cultural and societal barriers, such as risk aversion and limited support for entrepreneurial ventures, as challenges that impact the effectiveness of business incubators.
- **Policy Alignment and Implementation:** Policy alignment and effective implementation within universities were identified as significant barriers, particularly regarding intellectual property rights, administrative processes, and recognition of entrepreneurial activities.

### *Integration of Findings*

The quantitative and qualitative findings were integrated to provide a comprehensive understanding of the enabling and constraining factors affecting the role of business incubators in higher education institutions in West Java. The findings

revealed a strong consensus on the importance of access to resources, mentorship and expertise, networking opportunities, and funding support as enabling factors. The inhibiting factors included lack of funding and resources, limited access to mentoring and expertise, ineffective networking opportunities, institutional and policy constraints, and cultural and community factors.

### *Discussion*

In conclusion, optimizing the role of business incubators in higher education requires a comprehensive approach that addresses the supporting factors while overcoming the barrier factors. By implementing the recommendations outlined above, the university in West Java can enhance the effectiveness of its business incubator, support the growth of startups, and contribute to regional economic development and innovation. Business incubators play a crucial role in higher education by providing support and resources to student entrepreneurs. However, there are both supporting factors and obstacles that need to be addressed to ensure their success. Some supporting factors include coaching, business plans, marketing strategies, and assistance in obtaining funding or investors [1]. Additionally, the creation of guidelines and operational procedures can be useful for universities interested in creating their own incubators [2]. On the other hand, some obstacles include a lack of awareness among the academic community to commercialize innovative products or conduct research towards product commercialization, and the need for various reinforcements to assist tenants and implement pre-incubation and incubation [1]. Other challenges include the need for curriculum development, extra-curricular activities, industry engagement, innovation, research skills, and strategic thinking [4]. Despite these challenges, university-based business incubators have been shown to have significant contributions to enhancing the employability and technopreneurship of business graduates [3].

Therefore, it is important to continue to strengthen and support business incubators in higher education to foster innovation and entrepreneurship among students.

## 5. CONCLUSION

In conclusion, this research highlights the significance of business incubators in higher education and their potential to foster innovation, entrepreneurship, and economic growth. The study identifies key supporting factors that contribute to the success of business incubators, such as access to resources, mentoring and expertise, networking opportunities, and funding support. Additionally, barrier factors that hinder the optimal functioning of business incubators are discussed, including lack of funding and resources, limited access to mentoring and expertise, ineffective networking opportunities, institutional and policy constraints, and cultural and societal factors. The findings emphasize the importance of adequate financial resources, well-equipped infrastructure, and administrative support to facilitate the incubation process.

Access to experienced mentors and subject matter experts is crucial for guiding startups and transferring valuable knowledge. Networking opportunities, both within the incubator and with external stakeholders, play a vital role in expanding entrepreneurial networks and accessing resources. Moreover, supportive policies, administrative flexibility, and recognition of entrepreneurial activities by the university are essential for creating a conducive ecosystem for business incubators. Cultural and societal factors, such as risk aversion and limited support for entrepreneurship, need to be addressed to foster an entrepreneurial culture. Based on these findings, several recommendations can be made to optimize the role of business incubators in higher education at the university in West Java.

First, the university should prioritize allocating adequate financial resources and

developing well-equipped physical spaces to support startups within the incubator. Second, efforts should be made to establish a robust mentorship program that connects startups with experienced mentors and subject matter experts, both from academia and industry. Third, the business incubator should organize regular networking events, workshops, and collaborations to facilitate interaction and knowledge-sharing among startups, entrepreneurs, investors, and

industry professionals. Fourth, the university should review and revise existing policies to ensure they align with the needs of startups and provide administrative flexibility. Finally, promoting an entrepreneurial culture within the university and the wider community through awareness campaigns, education programs, and support for entrepreneurial initiatives will foster a conducive environment for business incubators.

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