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MANAGEMENT MODEL DEVELOPMENT FOR THE TECHNO-ENTREPRENEURSHIP LEARNING SUSTAINABILITY IN HIGHER EDUCATION

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Abstract: Techno-entrepreneurship learning becomes an important field taught in universities. The sustainability of this learning was agreed upon on the management strategies applied and the approved content. This research aimed to examine management strategies applied in the continuous learning of techno-entrepreneurship in higher education. This research used qualitative methods to formulate management strategies to ensure the sustainability of learning techno-entrepreneurship in higher education. The results of this study indicate that appropriate management strategies significantly influence the sustainability of learning techno-entrepreneurship in higher education. This study concluded that with the right and ensuring management strategies, techno-entrepreneurial learning is an attractive choice to be studied in higher education.

Keywords: higher education, innovation, learning sustainability, management model, techno-entrepreneurship

Abstrak: *Pembelajaran techno-entrepreneurship menjadi bidang penting yang diajarkan di perguruan tinggi. Keberlanjutan pembelajaran ini disepakati pada strategi pengelolaan yang diterapkan dan konten yang disetujui. Penelitian ini bertujuan mengkaji strategi manajemen yang diterapkan dalam pembelajaran tekno-wirausaha berkelanjutan di perguruan tinggi. Penelitian ini menggunakan metode kualitatif untuk merumuskan strategi manajemen guna menjamin keberlangsungan pembelajaran tekno-wirausaha di perguruan tinggi. Hasil penelitian ini menunjukkan bahwa strategi manajemen yang tepat berpengaruh signifikan terhadap keberlangsungan pembelajaran tekno-kewirausahaan di perguruan tinggi. Penelitian ini menyimpulkan bahwa dengan strategi manajemen yang tepat dan memastikan pembelajaran tekno-wirausaha menjadi pilihan yang menarik untuk dipelajari di perguruan tinggi.*

Kata kunci: *pendidikan tinggi, inovasi, keberlanjutan pembelajaran, model manajemen, techno-entrepreneurship*

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INTRODUCTION

Universities become institutions that play an important role in producing entrepreneurs who have successful businesses. The success of entrepreneurs must now utilize information technology in running their business. This model is called techno-entrepreneurship. Techno-entrepreneurship learning becomes an important field taught in universities. Universities have an important role in ensuring the continuity of the process of learning techno-entrepreneurship on an ongoing basis. Universities should conduct management that ensures quality learning processes continue. The sustainability of this learning was agreed upon on the management applied and the approved content. Universities in developing countries so far have many limitations to regulate an ongoing process. This resulted in the learning process of techno-entrepreneurship stalled and only running in a limited way. The lack of good management at the university results in many entrepreneurs failing and having low competence so that it becomes less competitive. Universities should utilize innovation and intellectual property generated at universities to ensure the promotion of techno-entrepreneurial competence (Markatou, 2015).

The management model of techno-entrepreneurship learning at universities should be carried out by taking into account the characteristics of the university. Such as management that is carried out towards learning techno-entrepreneurship in the engineering faculty, must pay attention to the characteristics of the engineering faculty who have engineering mastery advantages (sánchez, 2018). This is to ensure quality processes occur in learning and good management (Welsh, 2016). This will have an impact on quality and sustainable management. Problems with the lack of management ability, resulting in low quality of the learning process and low competency of entrepreneurs produced by the university. The impact is that there is no ongoing process in developing techno-entrepreneurship topics. This failure also resulted in universities failing to optimize available opportunities and failing to open new opportunities resulting in a decline in the competitiveness of entrepreneurs generated. For techno-entrepreneurial competencies to be competitive, a curriculum is needed that describes the learning process that is integrated with industries, communities, and stakeholders clearly and measurably (Sufian, 2016). The provision of information and the integration of the techno-entrepreneurship ecosystem with various stakeholders can use information technology infrastructure, including utilizing social media (Elia, 2020). This can attract universities to pay attention to the ecosystem in a healthy manner so students and lecturers can carry out quality learning (Küttim, 2014). A well-built ecosystem will open opportunities for university graduates to work and build businesses openly and successfully (Salwa, 2015). These opportunities become more open because of wider networking with various parties with the support of information technology that provides various digital products that can be utilized appropriately (Dy, 2019).

Techno-entrepreneurship management models at universities require designs that are easily implemented quickly and precisely (Goldstein, 2016). Supporting factors need to be identified and utilized as open opportunities. This management model still focuses on the applied curriculum, the lecture that acts as a learning mentor, and students who are connected with all the facilities available at the university so they can achieve the desired competencies (Gervase, 2019). This model was previously sufficient to produce sustainable techno-entrepreneurship management. Innovations are needed that connect all existing ecosystems ranging from stakeholders such as alumni, community entrepreneurs, and markets that have broad social impact. This is very important to ensure the role of universities in creating techno-entrepreneurs who can have a broad impact on society. This model must also pay attention to existing policies, and future students who will choose to study at the university so that there is a continuity of processes that are not mutually exclusive, but produce a new management model innovation and ensure the sustainability of learning techno-entrepreneurship. This is very necessary for universities to be able to measure the achievement of the techno-entrepreneurship learning process it runs (Ghina, 2014). This will illustrate the different results between countries in Europe (Ndou, 2018) that have been developed and developing countries in the world. This difference is due to the different management models between developed and developing countries. Therefore, the same role is needed to measure the success of the techno-entrepreneurship process at universities (Almeida, 2019). The competency framework model in developed countries should be adopted and adapted to the conditions of developing countries and the management model applied at universities (Lans, 2014) so that the results of the comparison produce a new management model that can be implemented in various

universities in developing countries (Warhuus, 2014). This requires a more comprehensive methodological concept that takes into account culture within certain ethnic groups so that it is easy to evaluate and develop widely (Robinson, 2014). Of course, this requires a comprehensive social approach to ensure the built ecosystem produces a new management model that is more sustainable (Sciences, 2019). This ecosystem will confirm the occurrence of regulation in universities by taking into account all resources possessed, especially conditions that occur in developing countries (Brandão, 2019). This research seeks to build an innovative management model that can guarantee the sustainability of techno-entrepreneurship learning, especially in developing countries by adopting and integrating all of the resources of the university. This research is designed to examine management strategies applied in the continuous learning of techno-entrepreneurship in tertiary institutions. Research is still limited to developing management models in learning techno-entrepreneurship and has not yet touched the whole system at the university.

METHODS

This research used qualitative methods to formulate management strategies to ensure the sustainability of learning techno-entrepreneurship in higher education. Qualitative methods are used using data obtained through observations of management models applied at universities. The data were complemented by interviews with university leaders and analyses of policies related to techno-entrepreneurship at the university. Researchers also collected data from observations on learning techno-entrepreneurship topics involving lecturers and students. The data is then used to build a techno-entrepreneurship management innovation model that can guarantee continuous learning.

This research was carried out at Manado State University with 150 respondents who were university leaders, faculty leaders, department heads, study program leaders, and development departments. The time to collect research data was carried out from February to June 2020 through video conferences and observations in the learning process of entrepreneurship courses. Data were collected through interviews and observations in the learning process. The type of data collected is qualitative data which was collected through interviews and observations. The data source came from respondents who were taken as the sample. The data analysis technique used was a qualitative analysis to formulate a learning model.

RESULTS

The results of this study successfully formulated a management model that could be easily implemented in universities. The results of this study indicate that appropriate management strategies significantly influence the sustainability of learning techno-entrepreneurship in higher education. The resulting innovation model is seen in figure 1. In this model, management is divided into five parts, each of which supports a comprehensive process of academic management. This innovation model can be explained as follows:

Trigger, this part is a part that can trigger universities to make arrangements for management so that they can move universities to achieve the goal of learning techno-entrepreneurship. This section is the part that motivates the university. In this section, there is a component that triggers the economic values that underlie a techno-entrepreneurship product. Also, some triggers are triggered by social impact. The greater the social impact that arises, the university will be more motivated to develop techno-entrepreneurship products found at the university. Another triggering factor is a market that triggers a continuous supply and demand so that the higher the demand available, the higher the supply of the product. This has triggered universities to innovate based on information technology to cope with the surge in high demand.

Stakeholders, this section is an external part that is very important to be managed properly. These stakeholders can consist of alumni, faculties, policymakers, future students and entrepreneurs. They play a role in determining the direction of management externally

Supporting Components, this section supports the academic management model. This section is useful to sustain the main activities of academic and techno-entrepreneurship learning. This section consists of community entrepreneurs, institution training, alumni start-up, innovation & regional development.

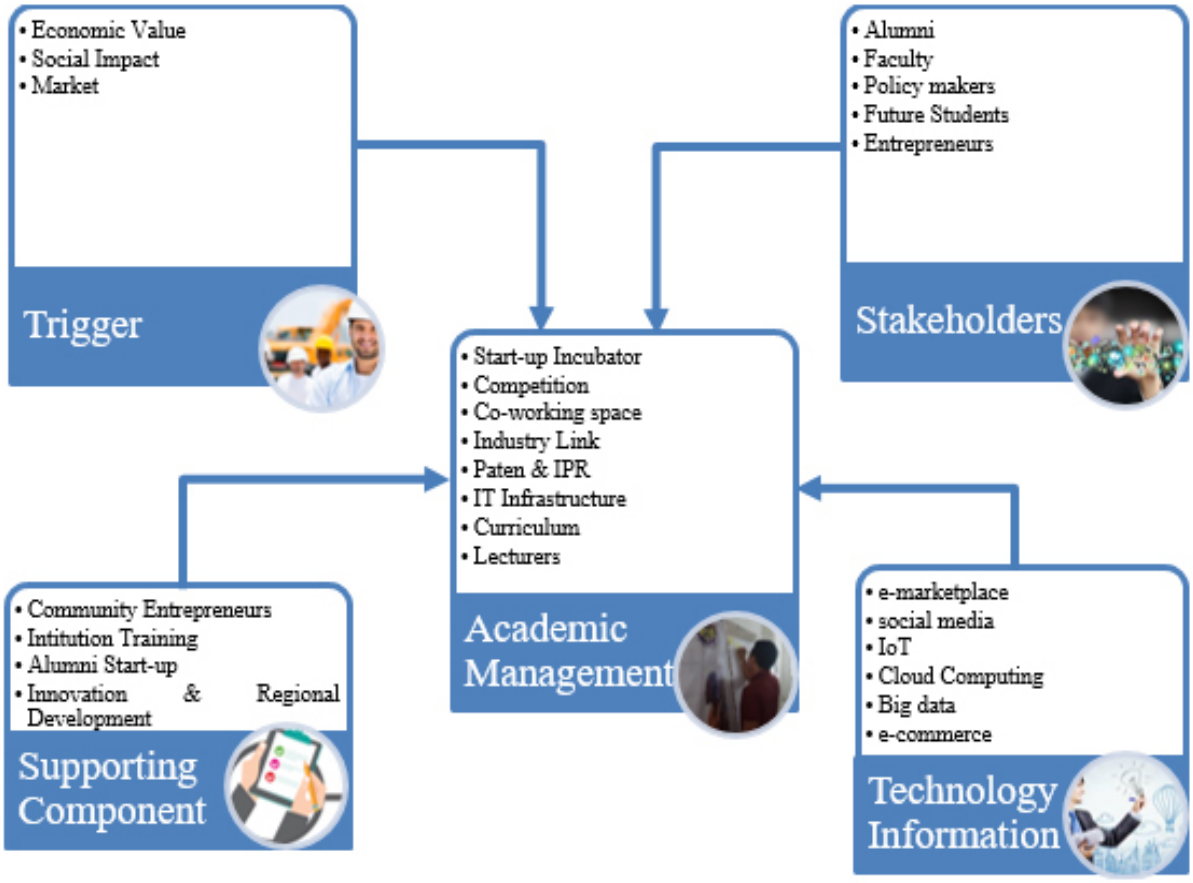

Figure 1. Model management for sustainable techno-entrepreneurship

Information Technology, this section is a part that provides both information technology infrastructure and also various applications used to build a sustainable management system. This section consists of e-marketplaces, social media, IoT, Cloud Computing, Big Data, and e-commerce.

Academic Management, this section is an internal part of building a sustainable techno-entrepreneurship management system. This section consists of the Start-up Incubator, Competition, Co-working Space, Industry Link, Patents & IPR, IT Infrastructure, Curriculum, and Lecturers.

Of the five existing sections, the academic management section holds the main role and is supported by the Trigger, Stakeholder, Supporting Component and Technology Information section. These five components form a management model that can guarantee the sustainability of techno-entrepreneurship learning at universities.

This entrepreneurship learning management model is perfect for learning entrepreneurship in the industrial era 4.0 (Kainde, 2019). The implication of this model can be a managerial model that must be applied to universities, especially in departments, study programs, and faculties in learning management. These units can become an incubator center for preparing quality products and entrepreneurs. These units can also act as a bridge between investors who have capital and start-up companies that have just been established on campus. Apart from this, these units can also function to get input from stakeholders.

Managerial Implications

The results of this study have implications for managerial academic management to manage all the resources used to produce entrepreneurs at the university

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

This study concludes that the resulting innovation model can guarantee sustainability in learning techno-entrepreneurship at universities. The five components in the management strategies model that have been produced can form a management model that guarantees the quality of comprehensive management of entrepreneurship. The results of this study conclude that with the right and ensuring management strategies, techno-entrepreneurial learning is an attractive choice to be studied in higher education.

Recommendations

This study recommends the use of special management patterns to manage entrepreneurship at universities. This model is very suitable for use.

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