International Social Sciences and Humanities
UMJember Proceeding Series (2023) Vol. 2 No 3: 728-739

Proceedings of the ICON 2023
International Conference

Stkeholder Perception Analysis of The Plan to Establish a Higher Education Digital Business Study Program Facing The 4.0 Era (a Study with Swot Approach)

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Accepted : Juli 2023
Published: September 2023

Abstract: The purpose of this research is to determine how to strategize in identifying market opportunities for establishing a digital business program for higher education institutions in facing the era of Industry 4.0. This type of research is descriptive research. The sample in this study consists of doctoral students, industry practitioners, and lecturers in Lombok. The analysis technique used in this research is SWOT analysis. The SWOT analysis results from this research show that higher education institutions planning to open a digital business programme are in quadrant I, which means that the institutions are in a growth strategy. This research is expected to contribute, especially in the field of financial management, specifically to provide an overview if a study program in a higher education intends to open a digital business program, then SWOT analysis is highly necessary. It is recommended for further research to expand the scope of the sample and use additional analysis statistic tools in a higher education that plans to open a program.

Keywords: Establishment Plan of Digital Business Study Program; Industrial Age 4.0; Swot Approach

INTRODUCTION

The Term Industry 4.0 was coined in 2011 in Germany in a context in which ways were sought to maintain the competitiveness of Germany's manufacturing industry and its leadership in technology innovation. [1] Industry 4.0, also known as the fourth industrial revolution, include nine technology based pillars high volume of data for analysis; autonomous robots; simulation; horizontal and vertical system integration; internet of things; cyber security; cloud computing; additive manufacturing, and; augmented reality. [2]

It cannot be denied that technology has developed rapidly nowadays, so that almost all aspects of our lives are integrated with technology itself, both in the government sector, higher education, private sector or business and industrial world as well as SMEs. Based on data from the Ministry of Cooperatives and SMEs, the number of SMEs in Indonesia in 2021 is 64.2 million and contributes to the gross domestic product (GDP) by 61.1%. This statistic is certainly proud and at the same time opens to great opportunities for the millennial generation in Indonesia to provide real support for the development of SMEs, because SMEs that have joined the digital ecosystem in 2022 amounted to 20.76 million compared to 16.4 million SMEs in 2021, resulting in an increase of 26.6%. The Ministry of Cooperatives and SMEs targets that in 2023 and 2024, the number of

SMEs entering the digital ecosystem will be 24 million and 30 million units, respectively. The absorption of SME labours is 117 million workers or 97% of the absorption of labours in the business world (http://djkn.kemenkeu.go.id). According to Maisiri [1], industry 4.0 success not only depends on technology but also on people. Talent and skills are identified as the drivers of successful adoption of Industry 4.0. This indicates that the job market will automatically increase if individual have experience and are familiar with various concepts of Industry 4.0. The small number of SMEs in Indonesia that are part of the digital ecosystem is an opportunity for future generations to work in the digital business field.

The development of technology brings many changes. It is no wonder that online businesses are also growing rapidly. Digital business can be said to be a transformation of business towards greater efficiency. Therefore, many business activists, both large and small, prioritize the presence of business digitization in their ongoing efforts. With digital transformation, businesses will be seen as entities that are in line with the times. This digital transformation will also align with the changes that are happening in society and affecting consumer behaviour. The future prospect for digital business looks promising. This is certainly an opportunity for higher education. The higher education system needs to be aligned with the concept of industry 4.0 to achieve smart manufacturing and others. The education system needs to be reformed in order to provide appropriate education and training opportunities to the current generation [3]. According to Nuaimi [4], higher education institutions, such as universities, should be able to produce a workforce that satisfies the demand for competent stakeholders. One of the programs that can meet the market needs and the development of the 4.0 era is digital business studies. Therefore, there are universities already have opened and offer of courses in digital business.

Moreover, the ease of government regulations issued by the Minister of Education and Culture regarding the policy of establishing new study programs allows universities to add relevant new programs that meet market needs, unlike the previous policy of Ministerial Regulation (Permenristedikti) Number 32 of 2016 [5] where new study programs were only given minimum accreditation requirements. The new regulation set by Ministerial Regulation Number 5 of 2020 [6] provides accreditation status for new study programs with good accreditation (Article 25), although it may seem to facilitate the process, establishing new study programs still requires several requirements both during the application and its consequences afterwards. In addition, the licensing process no longer takes a long time. On the other hand, the challenge faced by these new study programs is the assurance of quality that must be constantly ensured, improved, and enhanced if they do not want to be threatened with dissolution.

A faculty of economics and business at a university could establish a digital business study program. The digital business program is a promising program for the future where it aims to provide learning in order to understand the dynamics of the industry that is shifting towards the second age industry era (digitalization). In order to build businesses with relationships or various parties and to delve into the digital world, this study program is the right choice. What exactly is meant by digital business? digital business is broader in its scope than e-commerce. It is like the term e-business (which was first coined by IBM) who described it in 1997 as e-business – the transformation of key business processes using internet technologies. Chaffey [7]. Whereas, according to Musnaini, et al [8], digital business or online business is a real business that uses internet media. Meanwhile, the digital business major or study program educates students to have knowledge about business and information technology developments. The focus of the digital business major is on the use of digital technology for business learning. The specializations offered in this major include Startup, Fintech, E-Commerce, Big Data, and Artificial Intelligence. Digital business is an applied science about how to design and

manage a business, especially in the digital world. The digital business major studies cyber security, programming, algorithms, user experience, web development, graphic design, consumer behaviour and management, and marketing products through social media or other digital systems [26].

The industry 4.0 revolution cannot be avoided anymore, which has significantly changed the way business processes are run, marked by the increasing integration of technology that blurs the boundaries between physical, digital, and biological fields, collectively known as cyber-physical systems. The uncertainty of the environment is not only faced by the business world but also in higher education. According to Ahmad [10] the future is uncertain and difficult to envisage. The world of work and education is changing at a rapid pace, driven by continued technological disruption and automation. Based on that, higher education must be more dynamic towards change, so it's needed to synergize with various parties. According to Rinaldi et al [11], universities must create cooperation with various parties to encourage long term cooperation. As the producer and transmitter of knowledge, modern universities have substantial impact on regional economic development by collaborating with other innovation actors, including government departments and enterprises. During this process, universities can gain additional funding sources to improve their performance. Li and Fang [12]

In Indonesia, the establish of digital business study programs in faculties of economics and business at both public and private universities has been emerging in the last 6 years and has become a favourite of the community. Several universities already have digital business study programs such as Universitas Negeri Jakarta (UNJ), Universitas Padjadjaran (UNPAD), Universitas Brawijaya (UB), Institut Teknologi Sepuluh November (ITS), Universitas Pendidikan Indonesia (UPI), Universitas Negeri Surabaya (Unesa), Universitas Prasetya Mulya, and Binus University. One of the universities like Universitas Prasetya Mulya cooperates with industries, such as AWS Academy, Startup Incubator, Alibaba Cloud Partner, Oracle, and Microsoft to build modern software, in developing curriculum. (http://stem.prasetiyamulya.ac.id). According to Stachova et al [13], collaboration and knowledge sharing between educational institutions and business organizations are important. Partnership between companies and universities provides greater competitiveness, flexibility, and interoperability in the era of industry 4.0. Author have not founded any study related the plan to establish of digital business study program in higher education. That makes this study build on a clear about this theme.

Based on the explanation above, the reason for conducting this research is to observe the phenomenon of digital technology development in the era of 4.0; the ease of government regulations, which creates an opportunity for the Faculty of Economics and Business in a Higher Education Institution to open a digital business study program; the market demand for digital workforce; and the lack of research on this topic, as SWOT analysis is generally conducted internally by faculties when preparing for a new program or in strategic planning (Renstra). This study uses SWOT analysis to examine internal factors (strengths and weaknesses) and external factors (opportunities and threats) if a digital business study program is established. According to Keban et al.[14], SWOT analysis is a commonly used tool in strategic planning [15], [16] and management in organizations. SWOT was first developed for businesses but is now being used for all types of organizations as well as universities [17]. This paper aims to provide an overview of stakeholder responses if a higher education Institution, particularly the faculty of economics and business, plans to establish a new study program, namely the digital business study program, and examine it with a SWOT approach.

METHOD

The type of research used in this study is descriptive research. According to Narbuko and Ahmadi [18] descriptive research is research that seeks to answer existing problems based on data. The analysis process in

descriptive research is presenting, analysing and interpreting. This study uses a quantitative descriptive research method. Quantitative descriptive method is quantitative research whose descriptive form is numeric or numerical (statistics). The point is that the research is related to the translation with statistical figures. This study used a convenience sampling technique. Convenience sampling (also known as Haphazard Sapling or Accidental Sampling) is a type of nonprobability or non-random sampling where members of the target population that meet certain practical criteria, such as easy accessibility, geographical proximity, availability at a given time, or the willingness to participate are included for the purpose of the study. It is also referred to the searching subjects of the population that are easily accessible to the researcher Etikan et al [19]. Respondents in this study were lecturers, practitioners, policy makers, publics. From the 30 people who will be sampled, 16 people are willing to fill out and return the questionnaire, consisting of 2 policy makers, 5 practitioners, 7 lecturers, and 2 public. The instruments in this study were based on previous research and regulations related to the opening of new study programs at higher education. The instruments in this study consist of indicators for strengths, weaknesses, opportunities and threats. Primary data was collected by questionary survey. The conducted survey spent a long time, between 10 minutes – 20 minutes. SWOT analysis is used in this research. SWOT analysis, which was first described in detail by learned et. al (1969), is commonly used to analyse environments to support strategic decision making. Ali [20]. SWOT analysis was proposed as a strategic analysis method in the mid-20th century and was innovated by Professor Weihrich from the University of San Francisco in the early 1980s and is a tool used to assess strengths, weaknesses, opportunities and threats in a project or decision-making with a strategic approach [16]. Methods of data processing and analysis were carried out using matrix analysis of EFAS and IFAS (External Factors Analysis Summary / matrix of external strategic factors). SWOT analysis in this study is used to look at the strengths, weaknesses, opportunities and threats if an economics and business faculty at a higher education plan to establish a digital business study program.

RESULTS AND DISCUSSION

EFAS and IFAS Matrix

Data processing based on respondents' answers is done by calculating the weights, ratings and scores. The questionnaire asked to respondents used a 4-point Likert scale both for measuring weight and rating. Based on the respondents' answers, the authors then mapped the EFAS and IFAS analysis. The results of SWOT analysis, both in terms of strengths, weaknesses, opportunities and threats can be seen in the table 1, 2, 3, 4.

Table 1. Strength

No	Question	Weight	Ratings	Score
1	The vision, mission and objectives of the digital business study Program are in line with the University's vision, mission and goals	0.106383	3	0.332447
2	The curriculum has considered input from stakeholders	0.102128	3	0.306383
3	The curriculum must be able to apply theory into practice	0.110638	3	0.359574
4	Must have lecturers & practicing lecturers in the field of digital business	0.087234	2.5	0.223537
5	Must have adequate learning facilities & infrastructure	0.097872	3	0.281383
6	Able to integrate the world of business and information technology	0.1	3	0.29375
7	Must be able to develop a unique business	0.1	3	0.29375
8	Creating a new startup in the field of digital business	0.097872	3	0.281383
9	Must have programming skills	0.093617	3	0.257447
10	Must have good governance	0.104255	3	0.319282
	Amount	**1**		**2.948936**

Based on the table 1, the results of the score for strength show a value of 2.948936. This show that respondent considered that the strength of a higher education if they plan to open the digital business study program is in high category. The highest score is indicated in the question about (3) the curriculum must be able to apply theory into practice; (1) the vision, mission and objective of the digital business study program are in line with university's vision, mission and goals; (10) must have good governance; (2) the curriculum has considered input from stakeholders. Based on research of Rinaldi et al [11] stated that universities have to engage with multistakeholder partnership to address and solve real and complex world issues. Binns and Ferris [21], pointed out there are three things that must be considered in putting theory to practice in curriculum design, namely autonomy, competence and relatedness. We have interpreted these broadly to mean we should design curriculum to allow the students to make choices (enhancing autonomy), to make valuable and valued contribution based on instinct and prior knowledge to explore novel concept and ideas (enhancing competence) within a supportive group (enhancing relatedness).

While the scores for weaknesses, opportunities and threats are 2.556818; 3.35944; and 3.328932. The detailed description of the results of each question's score for weaknesses, opportunities and threats is in table 1,2 and 3.

Table 2. Weakness

No	Question	Weight	Ratings	Score
1	There hasn't been much cooperation with the government, digital companies, the business world of the industrial world	0.143357	2.5	0.367351
2	The amount of research and dedication is still lacking	0.143357	2.5	0.367351
3	Unqualified lecturer qualifications	0.146853	2.6	0.38549
4	Lack of student achievement	0.132867	2.3	0.315559
5	There is still a lack of certified lecturers	0.143357	2.5	0.367351
6	Study Programs that have not been accredited	0.13986	2.5	0.34965
7	Facilities and infrastructure that do not meet the standard requirements of the study program	0.15035	2.6	0.404065
	Amount	1		2.556818

Table 2 show that respondent considered that the weakness of a higher education if they plan to open the digital business study program is in range of low and high category. The highest score of weakness is indicated in the question about (7) facilities and infrastructure that don't meet the standard requirements of the study program; (3) unqualified lecturer qualifications; (5) there is still a lack of certified lecturers; (1) There hasn't been much cooperation with the government, digital companies, the business world of the industrial world; (2) The amount of research and dedication is still lacking. It indicated that infrastructure, the competent lecturers, is needed when the higher education plan to open the new study program, but generally in the early stage, it is still lacking. According to Miranda [22]) learning environments in education 4.0 should be supported by suitable infrastructure for learning

and teaching practices that accommodate students' learning needs and support current educational challenges related to teaching and management activities. Consequently, innovative virtual and physical infrastructure are emerging in response to current needs and challenges. Sartima [23] pointed out that the competence requirement for lecturer in the future is increasingly heavy and much more difficult. This is motivated by the specialized competence required in the fourth industrial revolution, which not only influences global markets and technology but also on the world of education. Competence describes the characteristics of knowledge, skills, behaviour and experience in doing a particular assignment or paying a particular one.

Table 3. Opportunities

No	Question	Weight	Ratings	Score
1	There is government support for accelerating higher education in adapting to industry 4.0	0.103734	3	0.32417
2	Public expectations are high for business digitization, which increases the hegemony of digital transactions	0.107884	3	0.350622
3	There is an industry need for Digital Business	0.120332	3.6	0.436203
4	There is a market need for digital business education	0.118257	3.5	0.421291
5	There is a very high demand for information technology personnel	0.118257	3.5	0.421291
6	There are opportunities for cooperation between domestic and foreign universities	0.112033	3.3	0.378112
7	There are opportunities of collaboration between Universities and the Business World and the Industry World	0.114108	3.4	0.392246
8	There are opportunities for research and community service in the field of digital business	0.103734	3	0.32417
9	Access to information regarding the quality assurance system is wide open with the existence of information technology	0.10166	3	0.311333
	Amount	1		3.35944

Based on the table 3, respondent considered that the opportunities of a higher education if they plan to open the digital business study program is in high category. The highest score of opportunities is indicated in the question about (3) industry need for digital business, (4) market need for digital business education, (5) there is a very high demand for information technology personally. It indicated that digital business is needed and become a great opportunity for higher education, industries in this current and in the future. According to Rof et al [24], there are numerous examples of how digitalization is changing the rules of entire industries, and how the business model is being innovated in the process. Digitalization has potential impact on products, services, innovation processes and business models. Higher education institution will likely face challenges similar those encountered by the more regular business sectors.

Table 4. Threat

No	Question	Weight	Ratings	Score
1	High competition between universities in recruiting new students	0.25352113	3.3	0.855634
2	The rapid and dynamic development of digital technology demands adjustments and adaptations	0.24882629	3.3	0.824237
3	High competition between higher education related to human resources	0.24413146	3.2	0.793427
4	The large number of graduates from other universities compete in the labour market share	0.25352113	3.3	0.855634
	Amount	1		3.328932

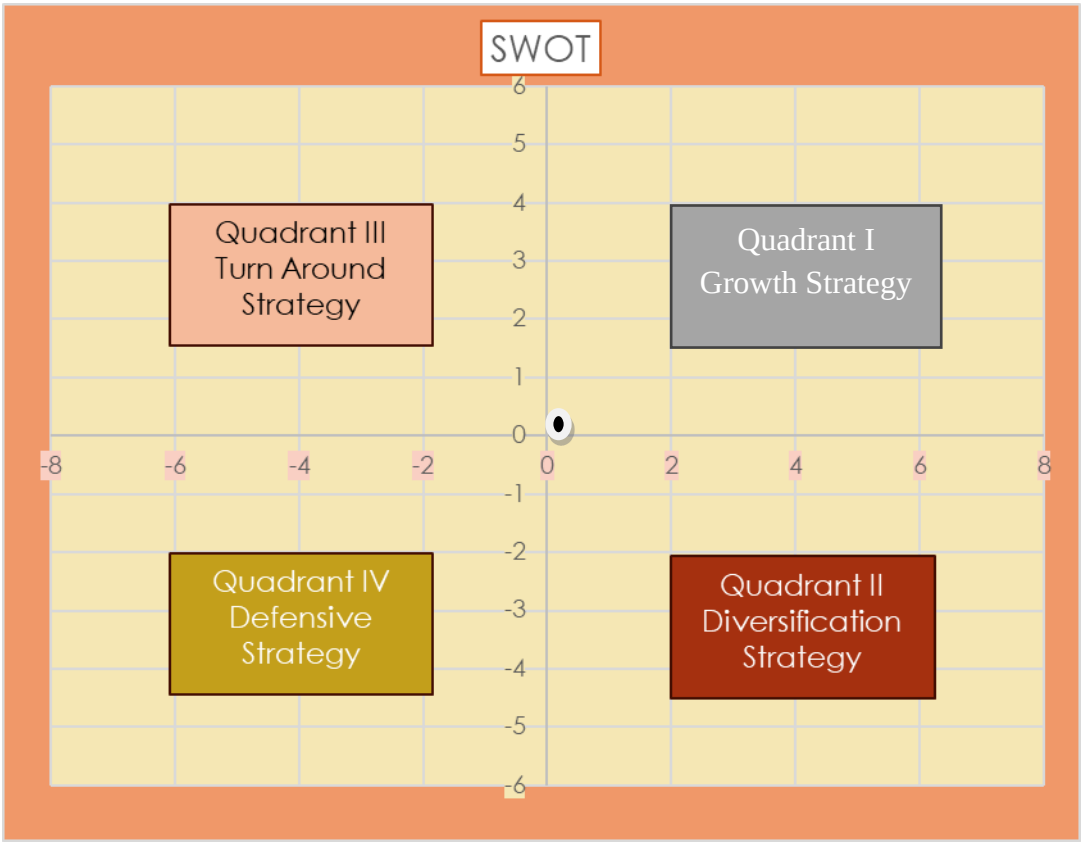
Based on the table 4, respondent considered that the opportunities of a higher education if they plan to open the digital business study program is in high category. The highest score of opportunities is indicated in the question about (1) high competition between universities in recruiting new students; (4) the large number of graduates from other universities compete in the labour market share; (2) the rapid and dynamic development of digital technology demands adjustments and adaptations. According to Gu [25], strategies are needed by colleges and universities to overcome the decline in the number of enrolment student by promoting competitive advantages. Such competition is growing more intense as the advent of regionally and nationally integrated higher education market in which universities compete for both resource and students and spatial competition becomes the most salient feature of higher education market. Pech [26] point out that there are several ways to make it easier for graduates of university to get a job, namely by doing internships, participating in job fairs, and universities cooperating with various companies. This is a strategy in order to compete with graduates from other universities in labour market.

Based on the results of the score data on strengths, weaknesses, opportunities and threats, the next step is to create a swot matrix, that will give overview where the strategy position of higher education is, if they plan to open the new study program namely digital business.

SWOT Matrix

The results of the Swot matrix show that there is an x-axis and a y-axis. The x axis shows strengths plus weaknesses. While the y axis shows opportunities and threats. The values for weaknesses and threats are negative. The x-axis results show a strength value of 2.948936 and a weakness value of -2.55682. the result of strength plus weakness is 0.392118. While the results of the y axis show a y value of 3.35944 and a threat value of -3.32893. Opportunity results plus a threat of 0.030508. Based on the results of these calculations, the position of the swot matrix is obtained in quadrant 1, namely the growth strategy. This shows that universities that want or plan to establish new study programs such as digital business study programs, their quadrant position is in a growth strategy position. this position shows that there is strength by taking advantage of existing opportunities, especially in the 4.0 era, where the need for education in the digital business sector is promising and much needed by the community for future job opportunities.

Picture 1. SWOT Matrix



Based on the picture 1, the strategy that can be carried out is the SO strategy which is a match between strengths and taking advantage of existing opportunities. The following is a description of matching the strategy with the SO, WO, SA and WA as follow.

Strategy Strengths – Opportunities (SO)

The SO strategies that can be carried out are as follows:

1. Conduct socialization on the establishment of new study programs.
2. Utilizing partnerships with stakeholders in order to increase hard skills and soft skills for lecturers and students.
3. Prepare learning infrastructure according to Higher Education standards.
4. Prepare professional staff who are reliable and have a national reputation as startup entrepreneurs and business analysts who can build and develop integrated digital businesses (lecturer competence, curriculum development, strengthening hard skills and soft skills, graduates working according to their fields, accreditation status)
5. Prepare good governance for study program management.
6. Prepare curriculum according to market needs.
7. Intensifying cooperation both with the Higher Education and outside the Higher Education in increasing sources of funds.

Weaknesses – Opportunities (WO)

The WO strategies that can be carried out are as follows:

1. Setting up cooperation with various stakeholders to improve the quality of graduates in the future.
2. Prepare and utilize various events for all lecturers to participate in various activities related to academic and professional development.
3. Provide opportunities for all students to participate in various activities related to academic development.
4. Prepare the infrastructure for the development of digital business models.
5. Increasing the utilization of various educational support facilities more adequately for lecturers and students.

Strategy Strengths – Threats (SA)

1. Preparing quality graduates.
2. Preparing graduates' competitiveness.
3. Adjust student extracurricular activities to the needs of the job market.
4. Preparing the qualifications and quality of lecturers.
5. Development and periodic evaluation of curriculum according to MBKM
6. Prepare an academic atmosphere.
7. Prepare the ability to procure, supervise and maintain learning facilities and infrastructure to be more up to date.

Strategy Weaknesses – Threats (WA)

1. Provide convenience in further studies and career paths.
2. Program education and training on the combination of business knowledge and digital technology for the development of digital business models.
3. Collaborating with the University Business INCUBATOR to develop the potential of lecturers and students in developing entrepreneur startups.
4. Organize startup business events and exhibitions.
5. Streamline the quality cluster of digital business study programs for the implementation of PPEPP study programs that are aligned with the Faculty of Economics and Business.

CONCLUSION

Based on the results of the SWOT analysis for both internal factors and external factors for the plan to establish a digital business study program, it can be concluded that the SWOT matrix results are in quadrant I, which means that determining the strategy is a growth strategy. The determination of this strategy is based on the results of a swot analysis, meaning that universities wishing to open new study programs, namely digital business, can use their strengths by capturing the opportunities that are currently developing. Growth strategies in the framework of opening new study programs that must be planned are preparing establishment permits, fulfilling infrastructure according to Higher Education standards, conducting collaboration, conducting outreach and promotion through various events as the first step to introducing new study programs, preparing competent and standardized

lecturers in the field digital business, preparing governance and curriculum that is adequate and in accordance with the standard needs of the business world and the industrial world. This research is expected to contribute, especially in the field of financial management, specifically to provide an overview if a study program in a higher education intends to open a digital business program, then SWOT analysis is highly necessary. It is recommended for further research to expand the scope of the sample and use additional analysis statistic tools in a higher education that plans to open a program.

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