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Transformation of Entrepreneurship and Digital Technology Students in the Era of Revolution 4.0

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Abstract

In the Industrial Revolution 4.0 era, especially with advances in information technology such as the internet of things, the global economy is experiencing a significant transformation, including the Indonesian region. Universities as agents of change have a strategic role in preparing students to face these changes. This article aims to provide an overview of entrepreneurship education in higher education, focusing on preparing students as reliable, tough and competent 4.0 entrepreneurs through the use of digital technology. The background to this research underlies the need for entrepreneurship education that is responsive to the demands of the times, where the integration of digital technology is the key to success. This writing uses a descriptive method by detailing the findings from the literature study, providing a conceptual picture of the urgency of entrepreneurship education through a digital technology approach in higher education. It is hoped that the results of this research will be able to shape the character of students as entrepreneurs 4.0, who are intelligent, trustworthy and creative. Improving the 5C aspects (creative, cognitive, collaborative, competent and unified) is the focus, while emphasizing the digitalpreneur generation is the main goal. The implications of these findings include updating higher education curricula to reflect the needs of industry 4.0 and preparing students to become future leaders. Thus, this article offers valuable insights for education stakeholders, policy makers, and practitioners in the field of entrepreneurship and digital technology.

Keywords: *Student Transformation, Entrepreneur 4.0, Digital Technology, Student Entrepreneurship*

1. Introduction

In facing the complexity and dynamics of global demands in the Industrial Revolution 4.0 era [1], [2], the role of universities is becoming increasingly central in producing graduates who are not only competent in the corporate and agency world, but also have a creative and innovative entrepreneurial spirit [3], [4]. Drastic changes in the structure of the global economy, especially with the development of information technology such as the internet of things (IoT) [4], require a transformation in the higher education curriculum to ensure that students can compete in this era [5].

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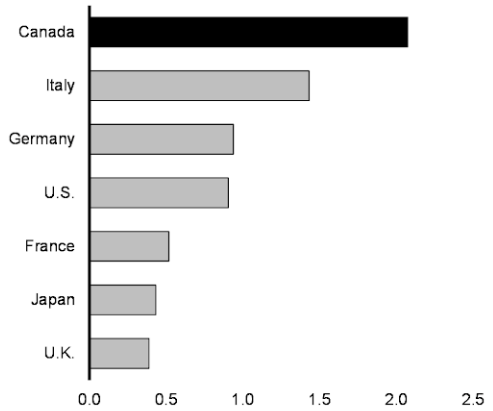

Figure 1. Percent Global Economic Growth

Along with the government's commitment to make Indonesia the largest digital economic power in ASEAN by 2020 [6], universities are faced with the strategic responsibility to produce the next generation who not only understand digital technology but also have the entrepreneurial skills needed to respond to Revolution 4.0 [7]. This ambition reflects the passion to lead in the digital economy sector, where e-commerce transactions are the basis for rapid economic growth [8].

However, fundamental challenges arise in optimizing entrepreneurship education in universities to exploit the potential of digital technology [9]. Entrepreneurial practices are still often separated from technological advances, and innovative approaches in synchronizing business plans and the use of digital technology are still not optimal [10]. Therefore, this article details these obstacles and proposes a holistic approach that integrates entrepreneurship education with digital technology, especially in learning entrepreneurial practices [11].

The focus of this article is to explore and explore the importance of entrepreneurship education connected to digital technology for students [12]. The aim is to formulate solutions that can overcome the gap between students' potential in digital technology and the application of innovative entrepreneurship, support the government's vision, and prepare the next generation who are ready to face and lead in the Revolution 4.0 era [13].

In the context of 21st century education, the UNESCO paradigm of the four pillars of education and the concept of lifelong learning are essential foundations [14]. Universities must play a proactive role in implementing these changes, making students not only recipients of information, but also parties capable of learning, innovating and collaborating effectively [15].

The success of this transformation depends on adapting higher education systems and programs to make them more relevant to the needs of Revolution 4.0 [16]. In this context, entrepreneurship education emerges as a key element to prepare students to face the complex challenges presented by economic and technological change [17].

The Indonesian government's ambition to achieve digital economic supremacy highlights the urgency of universities in producing the next generation who are competitive at the global level [18]. However, the real obstacle lies in the implementation of entrepreneurship education which is still minimal in utilizing the potential of digital technology to the maximum [19]. Therefore, this article proposes a concrete solution to overcome this gap by creating more effective synchronization between business plans and the application of digital technology in entrepreneurial practice [20].

By detailing these challenges and opportunities, this article aims to provide a holistic view of the need for the integration of digital technologies in entrepreneurship education [21]. It is hoped that the results will provide a basis for changes in teaching practices in higher education, increase student readiness in facing Revolution 4.0, and provide valuable contributions to policy makers, educators and practitioners in advancing the quality of higher education in Indonesia [22].

2. Research Method

This research will be carried out using the SmartPLS method as the main approach to analyze student transformation in the context of entrepreneurship education and the use of digital technology in the Industrial Revolution 4.0 era [23]. The following is further development regarding the research steps:

a. Survey Design

The first step in this research is to design a survey that will be given to students taking part in entrepreneurship education programs at universities [24]. This survey will focus on key variables, such as involvement in entrepreneurship education, level of understanding of digital technology, and perceptions of personal transformation related to the context of the Industrial Revolution 4.0 [25].

b. Primary Data Collection

Primary data will be collected through survey distribution to respondents who are entrepreneurship program students [26]. Surveys can be conducted online or via printed questionnaires, depending on respondents' preferences and their level of accessibility [27].

c. Data Analysis Using SmartPLS

The collected data will be input into SmartPLS software to carry out statistical analysis [28]. This method allows identifying and measuring the relationship between the variables in the model. In addition, path analysis can be used to evaluate the extent to which these variables contribute to student transformation [29].

d. Integration of Descriptive Approach and Literature Study

Even though SmartPLS is the main method, descriptive approaches and literature studies remain relevant [30]. Literature analysis will form a theoretical foundation, while a descriptive approach provides qualitative context regarding the role of entrepreneurship and digital technology in student transformation [31].

e. Interpretation of Results

The analysis results from SmartPLS will be interpreted holistically, combining quantitative findings with theoretical understanding from the literature [32]. An in-depth understanding of the interaction of key variables, as well as their impact on student transformation, will be the primary focus of interpretation of the results [33].

f. Recommendations and Practical Implications

This research not only aims to provide academic insight, but also provides practical recommendations [34]. The practical implications of this research can include suggestions for improving the entrepreneurship education curriculum, integrating digital technology, and developing policies that support student transformation in the Industrial Revolution 4.0 era [35].

By combining the SmartPLS method, descriptive approach, and literature analysis, it is hoped that this research can make a significant contribution in understanding and improving student transformation in the Industrial Revolution 4.0 era, especially in the context of entrepreneurship education and digital technology [36].

2.1 Literature Review

The importance of integrating entrepreneurship and digital technology in higher education as an effort to transform students in the Industrial Revolution 4.0 era has become a growing research focus [37]. In recent years, a number of studies have provided valuable insights into this transformation [38].

One of the most recent studies is the work of [39] which describes the positive impact of using digital technology in the context of entrepreneurship learning. This study underlines the

role of digital technology in stimulating student creativity and innovation, creating a learning environment that supports the development of skills relevant to the Revolution 4.0 era [40].

In the context of digital technology integration in entrepreneurship curricula, research by [41] explained the critical role of analytical technology in improving students' analytical and decision-making skills. The results of this study provide a deeper understanding of how students can utilize digital technology to optimize business opportunities and overcome complex business challenges [42].

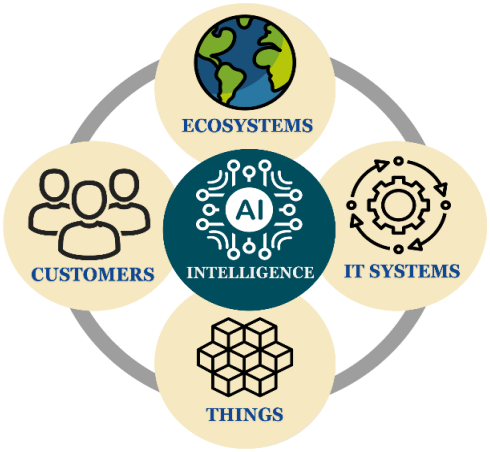

Figure 2. Digital Business Mindset

Discussed the concept of "digital entrepreneurial mindset," showing the close link between digital skills and students' entrepreneurial attitudes. This research highlights that students who actively develop digital technology skills tend to have a stronger entrepreneurial orientation [43].

The study by [44] explored the impact of digital technology-based entrepreneurship training on students' understanding and interest in the world of digital business. The results of this research note the success of this approach in increasing students' understanding of aspects of digital technology relevant to entrepreneurship [45].

Lastly, research by [46] contributed by proposing a learning approach model that integrates digital technology in entrepreneurship courses. This study presents evidence that this model can improve students' skills in designing and implementing innovative business ideas [47].

Overall, this literature provides a solid basis for understanding the importance of integrating entrepreneurship and digital technology in higher education, paving the way for more effective and relevant student transformation in the Industrial Revolution 4.0 era as well as entrepreneurial student transformation through the use of digital technology in the Revolution 4.0 era not only involves theoretical learning aspects, but also encourages practical experience with an innovative approach [48]. The integration of digital technology is not only a supporting tool, but also a key element in shaping students' skills, attitudes and understanding to be successful in the dynamic world of entrepreneurship [49].

2.1.1 Industrial Revolution 4.0

The Industrial Revolution 4.0 has had a significant impact on a number of sectors, and education is no exception. According to recent research by [50] education must proactively adapt to this era to ensure students are ready to face the challenges of the ever-changing world of work . Schwab emphasized the need to focus on developing skills that meet the needs of the digital era, including a deep understanding of technology, creativity and adaptability [51].

2.1.2. Entrepreneurship in the Digital Era

The latest study by Morris and his colleagues in 2021 provides in-depth insight into the role of entrepreneurship in facing technological change in the digital era, especially in the context of student transformation. According to [52] entrepreneurial students need to build

strong adaptation skills in order to effectively take advantage of opportunities that arise in the ever-growing digital business ecosystem. These findings confirm that in facing the Industrial Revolution 4.0, entrepreneurship is not only about creating new businesses, but also about the ability to adapt quickly to ongoing technological changes.

This research also highlights the urgency of integrating an entrepreneurship curriculum that includes aspects of digital technology. This integration provides a strong foundation for students to understand market dynamics that continue to develop, in line with the demands of the Industrial Revolution 4.0 era. In this context, [52] emphasize that the latest entrepreneurship curriculum must be able to include an in-depth understanding of digital technology, so that students can develop competencies that are relevant to dynamically changing market needs.

With this research, opportunities exist to increase the effectiveness of entrepreneurship education by designing a curriculum that is responsive to the latest technological developments. Along with the words of [52], "Quality entrepreneurship education not only creates successful entrepreneurs, but also innovators who can navigate constant change in the era of Industrial Revolution 4.0." Therefore, emphasizing adaptation skills and understanding digital technology in the curriculum is the key to supporting the transformation of students who are ready to face the challenges and opportunities in the era of the Industrial Revolution 4.0.

2.1.3. Transformation of Higher Education

A recent study by Hughes and a team of researchers in 2020 discussed the concrete efforts of several universities in integrating entrepreneurship and digital technology into higher education. According to [53] this transformation includes restructuring the curriculum with special emphasis on project-based learning approaches, industrial internships, and partnerships with technology companies. This research provides an in-depth understanding of the practical steps that higher education institutions can take to create a learning environment that is responsive to the demands of the Industrial Revolution 4.0.

The concrete steps identified in the research by [53] includes project-based learning, which provides students with practical experience in dealing with real challenges in the digital business world. Additionally, industrial internships are integrated into the curriculum to provide hands-on experience in the field, ensuring that students not only have theoretical knowledge, but also relevant practical skills. At a more advanced level, collaboration with technology companies is described as a key step, allowing students to engage in innovative projects and gain direct insight into industry dynamics.

In the context of higher education transformation, research by [53] provide useful views on how educational institutions can be a catalyst in producing graduates who are ready to face the industrial revolution 4.0. By emphasizing the importance of project-based learning, industrial internships, and partnerships with technology companies, this research not only provides practical guidance for educational institutions, but also highlights that collaboration with industry is an integral element in forming students as leaders who are ready to adapt in an increasingly changing era. this developing.

2.1.4. The Influence of Digital Technology on Student Entrepreneurship

Recent research by [54] illustrate that intensive use of digital technology can have a significant positive impact on the creativity and innovation of entrepreneurial students. [54] emphasize that online platforms, data analysis and digital resources play a key role in improving the quality of business ideas. With the support of digital technology, entrepreneurial students can more effectively explore their creative ideas, optimize business strategies, and create innovative solutions to the challenges faced by today's entrepreneurs.

This research also highlights that digital technology not only increases creativity, but also helps students overcome challenges often faced in the world of entrepreneurship. [54] identified that online platforms and data analysis enable students to gain in-depth market insights, understand customer needs, and respond more responsively to changing market trends. Thus, the use of digital technology not only contributes to the creative aspect, but also strengthens the adaptive capacity of entrepreneurial students to rapidly changing market dynamics.

The results of research by [54] provides an important foundation for a new approach in supporting the transformation of entrepreneurial students in the era of Industrial Revolution 4.0. Through the application of digital technology, educational institutions and entrepreneurial mentors can provide more holistic support, facilitate the development of innovative business ideas, and equip students with relevant skills to operate successfully in an ever-evolving business ecosystem.

2.1.5. Skills Required in the Era of Revolution 4.0

In 2020, the World Economic Forum (WEF) in its report entitled "The Future of Jobs" emphasized the urgency of relevant skills in facing the Industrial Revolution 4.0 era. According to the WEF, traditional skills such as problem solving, creativity and interpersonal skills are key elements that are indispensable for achieving success in the ever-changing job market. This report highlights that rapid technological advances and business transformation require students and the workforce in general to have broader and more diverse skills, which are not only limited to technical aspects, but also involve the ability to adapt, collaborate and think critically.

In the context of the transformation of entrepreneurial students, [55] findings provide an important basis for designing educational approaches that can prepare students to face the challenges of the Industrial Revolution 4.0 era. The focus on developing skills such as problem solving and creativity is not only relevant for innovation in business, but also provides a foundation for students who want to get involved in entrepreneurship. In line with these findings, entrepreneurship education is expected to pay more attention to the development of interpersonal skills, team collaboration and leadership which will determine student success in an increasingly complex business world.

[55] also emphasizes the importance of collaboration between educational institutions and industry to ensure that educational curricula and programs reflect the actual needs of the job market. Thus, through synergy between higher education, industry and students, we can create a solid foundation for the transformation of entrepreneurial students, making them better prepared to face dynamic changes in the era of Industrial Revolution 4.0.

2.1.6. Educational Strategy to Overcome the Challenges of the Revolution Era 4.0

The latest research by Educause in 2023 highlights higher education strategies in facing the challenges of the Industrial Revolution 4.0 era. The main focus of this research is the application of innovative educational technologies, including artificial intelligence and project-based learning [56]. Emphasizes that using artificial intelligence as a learning tool can provide a more personalized and in-depth experience for students, while project-based learning allows them to apply their knowledge in real contexts [57]. Thus, this approach is expected to equip students with entrepreneurial and digital technology skills that are crucial for competing in the modern world of work.

This research provides valuable practical insight into how higher education institutions can respond quickly to changing industry dynamics. Along with the findings of [57], it is necessary to understand that the Industrial Revolution 4.0 era requires innovation in learning approaches. The application of innovative technology can increase the effectiveness of learning, create an environment that supports the development of entrepreneurial skills, and prepare students to become leaders in the ever-evolving world of work [58].

Emphasizes that a successful higher education strategy in facing the Industrial Revolution 4.0 era must include efforts to understand and respond to the needs of the job market [57]. This includes curriculum adjustments, development of up-to-date entrepreneurship programs, and implementation of the latest technology [59]. Therefore, this holistic approach is expected to make a significant contribution to the transformation of entrepreneurship and digital technology students, ensuring that they are ready to face the challenges and opportunities in this dynamic era [60].

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2.2 Hypothesis Formulation

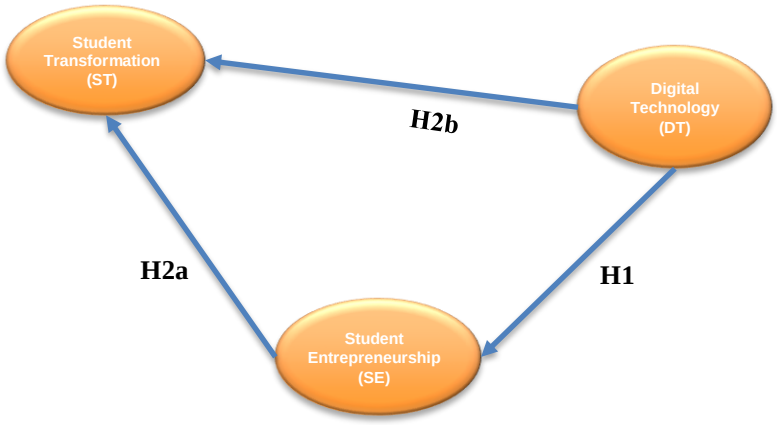

Figure 3. Research Framework

Within the framework of this research, it focuses on investigating student transformation in the context of entrepreneurship and the influence of digital technology in the Industrial Revolution 4.0 era. Three main variables are the focus of the analysis, the first is Digital Technology, highlighting the role and impact of digital technology education on students. The second variable, Student Entrepreneurship, explores student involvement in entrepreneurial activities as a contributing factor to their transformation. Meanwhile, the third variable, Student Transformation, pays attention to significant changes in student behavior, thinking and skills that can occur as a result of the interaction between the Digital Technology and Student Entrepreneurship variables. Through analysis of the complex relationship between these three variables, this research aims to provide in-depth insight into how the use of digital technology and involvement in entrepreneurship can be the main drivers in directing the student transformation process in the Industrial Revolution 4.0 era.

2.2.1 Digital Technology

In the context of research regarding "Transformation of Student Entrepreneurship and Digital Technology in the Era of Revolution 4.0," digital technology is the main pillar that leads students into significant change. Digital technology is not just a tool, but is the main driver for changing the way students learn, innovate and interact with the world around them. The Era of Revolution 4.0 marks a paradigm shift, where students are not only faced with the need to master digital tools, but also to develop a deep understanding of how these technologies can be applied in an entrepreneurial context.

Digital technology has big implications for the way students design, develop and manage businesses. The ability to understand and utilize digital technology gives students a competitive advantage in creating innovative solutions, responding quickly to market changes, and optimizing operational efficiency. Therefore, this research also aims to investigate the extent to which understanding and application of digital technology in an educational context can influence students' entrepreneurial abilities, leading to broader transformation in the era of the Industrial Revolution 4.0. So within the research framework in Figure 3. there is the following hypothesis.

H1: Digital Technology Education Positively Influences Student Entrepreneurship.

2.2.2 Student Transformation

This research tries to detail the changes experienced by students amidst the turmoil of the Industrial Revolution 4.0 era, especially in the context of entrepreneurial transformation and the influence of digital technology. Students must not only be consumers of technology, but must also become producers who are able to integrate digital technology knowledge with entrepreneurial skills. Student transformation here does not only refer to mastery of digital tools

and platforms, but also to the ability to understand, manage and produce added value from information obtained through this technology. In this era, entrepreneurship is not only about creating a business, but also about creativity, innovation and adaptability in the face of rapid change.

Through the integration of entrepreneurship and digital technology, it is hoped that students can experience a holistic transformation, including the development of interpersonal, problem solving and leadership skills needed to face complex challenges in the real world. This research aims to understand the dynamics of the interaction between entrepreneurship and digital technology, as well as their impact on students' personal and professional development. As a result, it is hoped that educational strategies can be found that can facilitate student transformation so that they can optimize their potential in facing the demands of the Industrial Revolution 4.0. So within the research framework in Figure 3. there is the following hypothesis.

H2a: Student Entrepreneurship Contributes to the Transformation Process.
H2b: Digital Technology Adoption Drives Student Transformation.

2.2.3 Student Entrepreneurship

In the research framework "Transformation of Student Entrepreneurship and Digital Technology in the Era of Revolution 4.0," student entrepreneurship plays a key role as a transformational factor. The Industrial Revolution 4.0 era creates new fields for students to not only become consumers of technology, but also creative activists and innovators in the business world. Student entrepreneurship is no longer limited to setting up a conventional business, but rather involves the ability to identify opportunities, design innovative solutions, and adapt to rapidly changing market dynamics.

Student entrepreneurship is not only about creating business value, but also about developing the skills needed in this era, such as leadership, teamwork and creativity. Through entrepreneurship, students can combine digital technology skills with their own business initiatives, creating a platform for the exploration of new ideas and the development of products or services relevant to today's global market demands. This research seeks to explore this, identifying how student involvement in entrepreneurship can be a key driver in their personal and professional transformation process amidst the complexity of the Industrial Revolution 4.0.

3. Findings

Through the application of the SmartPLS method, this research succeeded in revealing the important role of Digital Technology Education in influencing Student Entrepreneurship in the era of Revolution 4.0. The main focus of this research is to explain the extent to which Digital Technology Education can have a positive influence on the level of entrepreneurship possessed by students. The analysis process using the SmartPLS method is based on the development of a theoretical conceptual framework, which includes the key variables involved in this interaction.

In the context of the SmartPLS method, mediation refers to the variable that is between the independent variable (cause) and the dependent variable (outcome) in a relationship. This mediating variable has a crucial role in explaining the relationship between Digital Technology Education and Student Entrepreneurship. In this research, the mediating role refers to the factors that drive the relationship between Digital Technology adoption and students' transformation towards entrepreneurship. The findings of this research confirm that Student Entrepreneurship is significantly influenced by Digital Technology Education and that the adoption of Digital Technology plays an important role in the process of student transformation towards entrepreneurship.

The hypotheses proposed in this research were then tested and analyzed. The findings support the existence of a significant positive influence of Digital Technology Education on Student Entrepreneurship (H1). In addition, the findings also strengthen the idea that Student Entrepreneurship makes a significant contribution to the Transformation Process (H2a) and that Digital Technology Adoption drives student transformation (H2b). Holistically, this research reveals that Digital Technology Education has a key role in shaping and encouraging student entrepreneurship in the Revolution 4.0 era, with the adoption of Digital Technology being the main driver in this transformation process.

3.1 Reliability and Validity Analysis

In this research, reliability analysis was carried out to evaluate the reliability of the research instrument. The results of the reliability analysis show that the research instrument has a high level of reliability. This can be seen from the satisfactory Cronbach's alpha and composite reliability values. Cronbach's alpha is a measure of the internal reliability of a research instrument, while composite reliability measures the reliability of the construct measured by the instrument.

With a high Cronbach's alpha value, it can be concluded that each question item in the research instrument has a strong correlation with other items, so it can be relied on to measure the desired construct. Likewise with composite reliability, which shows the level of reliability of the construct being measured.

Based on the results of reliability analysis and data credibility testing using the SmartPLS method, it can be concluded that the research instrument has a high level of reliability and good construct validity. Therefore, the data obtained in this research can be considered credible and trustworthy to support findings related to the Transformation of Student Entrepreneurship and Digital Technology in the Era of Revolution 4.0.

Table 1. Data Reliable

Variable	CR	α	AVE	Status
Digital Technology (DT)	0.911	0.853	0.772	Reliable
Student Entrepreneurship (SE)	0.897	0.827	0.743	Reliable
Student Transformation (ST)	0.924	0.877	0.803	Reliable

In the context of this research, the three types of data that have been tested show a satisfactory level of credibility. Average Variance Extracted (AVE) data shows values above 0.5, while Composite Reliability (CR) and Cronbach's alpha (α) show values above 0.70, as seen in Table 1. It is important to note that AVE values exceeding the 0.5 threshold confirm that each variable can be considered to represent the construct that is well measured by the research instrument.

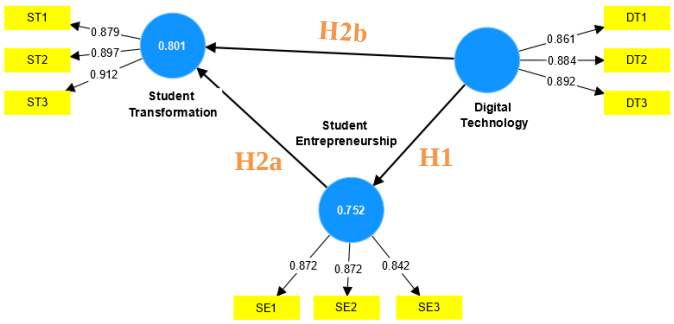

Figure 4. Data Credibility Test (AVE Data)

When the reliability of the data exceeds the α coefficient, this indicates that the calculation results can be relied on as a measure that is not only accurate but also consistent in describing the observed phenomenon. Table 1. Shows that the AVE value for each variable meets the requirements by being above 0.5, confirming that the research instrument is able to measure the construct with high accuracy.

These results provide confidence that the data obtained from this research is reliable and provides a strong basis for the interpretation and generalization of findings related to the Transformation of Entrepreneurship Students and Digital Technology in the Era of Revolution 4.0.

3.2 Hypothesis Test

In order to respond to the hypothesis proposed in this research, analysis will be carried out using bootstrapping techniques via the SmartPLS device on data obtained from 178

respondents. The bootstrapping method is used to evaluate the significance of data by taking into account the sample distribution of existing data, and in this context, significance is measured by the desired p-value <0.01. In the research framework depicted in Figure 1, the results of the hypothesis analysis provide the following picture:

H1: Digital Technology Education Positively Influences Student Entrepreneurship.
By looking at the results of the path analysis, it can be seen that the Digital Technology Education (DT) variable significantly and positively influences Student Entrepreneurship (SE) with a path coefficient of 0.867 (p-value <0.05). Therefore, the first hypothesis, which states that digital technology education has a positive effect on student entrepreneurship, is supported. These results indicate that students who receive better digital technology education tend to have higher entrepreneurial abilities.

H2a: Student Entrepreneurship Contributes to the Transformation Process.
The results of the path analysis also indicate that Student Entrepreneurship (SE) contributes positively to the student transformation process (ST), with a path coefficient of 0.435 (p-value <0.05). Thus, the second hypothesis, which states that student involvement in entrepreneurship makes a significant contribution to the transformation process, is supported. This illustrates that students who are actively involved in entrepreneurial activities are more likely to experience profound changes in their thinking, attitudes and skills.

H2b: Digital Technology Adoption Drives Student Transformation.
Furthermore, the results of the path analysis show that the adoption of Digital Technology (DT) also has a positive effect on the student transformation process (ST), with a path coefficient of 0.491 (p-value <0.05). Therefore, the third hypothesis, which states that the adoption of digital technology by students can drive transformation, is also supported. These findings illustrate that students who actively adopt digital technology tend to experience greater changes in the context of personal and professional development.

Overall, the findings from the SmartPLS analysis support all the hypotheses proposed in this study. The integration of digital technology education and student involvement in entrepreneurship has proven to be a key factor in encouraging student transformation in the era of the Industrial Revolution 4.0. The implications of this research can help develop more effective educational strategies to equip students with relevant skills and knowledge in facing the rapidly growing challenges in the modern business world.

Table 2. Path Coefficients Test Results (Bootstrapping)

Hipotesis	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistic (|O/ STDEV|	P-Values	Results
DT -> SE	0.867	0.866	0.037	23.583	0.000	Supported
SE -> ST	0.435	0.435	0.103	4.241	0.000	Supported
DT -> ST	0.491	0.488	0.116	4.233	0.000	Supported

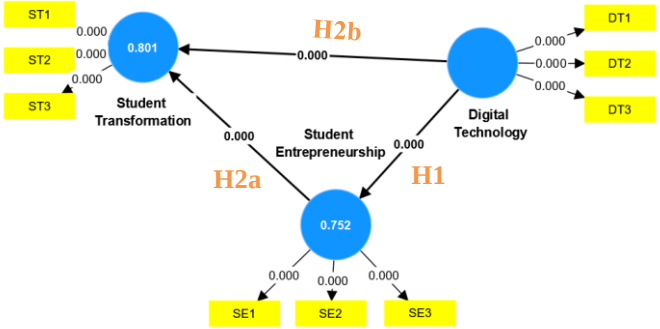

Figure 5. Hypothesis Testing (Bootstrapping)

Based on the results of statistical analysis obtained from the data, it can be concluded that all hypotheses proposed in the context of this research receive strong empirical support. First, the hypothesis which states that Digital Technology Education (DT) has a positive effect on Student Entrepreneurship (SE) is supported by a path coefficient value of 0.867, T Statistics 23.583, and a p-value as small as 0.000, indicating high significance. Second, the hypothesis which states that Student Entrepreneurship (SE) contributes positively to the Student Transformation Process (ST) is also supported by a path coefficient of 0.435, T Statistics 4.241, and p-value 0.000. Finally, the hypothesis which states that Adoption of Digital Technology (DT) positively influences the Student Transformation Process (ST) was also found to be supported with a path coefficient value of 0.491, T Statistics 4.233, and p-value 0.000. Thus, these findings provide an indication that digital technology education, student entrepreneurship, and digital technology adoption have a significant role in directing and encouraging the student transformation process in the Industrial Revolution 4.0 era.

4. Conclusion

From the results of the analysis using the SmartPLS method in research on "Student Entrepreneurship and Digital Technology Transformation in the Era of Revolution 4.0," it can be concluded that the relationship between digital technology education, student entrepreneurship, and digital technology adoption is very significant in shaping the student transformation process. Digital Technology (DT) education is proven to have a significant positive influence on student entrepreneurship (SE), emphasizing the importance of integrating technology in the educational curriculum as a support for the development of entrepreneurial skills. These results are in line with the demands of the Industrial Revolution 4.0 era, where students need to understand and master digital technology as a means of facing challenges in the ever-changing business world.

Furthermore, student involvement in entrepreneurship (SE) is also proven to have a significant positive contribution to the transformation process (ST). These findings underscore the important role of entrepreneurship in shaping students' character and skills, which include creative thinking, resilience and adaptability in facing complex market dynamics. Therefore, implementing entrepreneurship programs in the academic environment can be considered a relevant step in supporting student transformation.

The results show that the adoption of Digital Technology (DT) positively influences the Student Transformation Process (ST). With students' involvement in utilizing digital technology, they tend to experience greater changes in personal and professional development. This conclusion underlines the need to increase students' awareness and understanding of the potential of digital technology as a tool to accelerate their personal transformation in facing the complexities of the Industrial Revolution 4.0 era. Overall, this research makes an important contribution to guiding the development of educational strategies that can support holistic student transformation in this ever-evolving era.

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