

IMPLEMENTATION OF TECHNOLOGY IN DEVELOPING ENTREPRENEURSHIP AND INNOVATION

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Abstract

The purpose of this study is to find out how technology implementation can develop entrepreneurship and innovation. The research method used was quantitative associative research, involving 97 people who own home industries and retail businesses. A regression analysis of the research data revealed a clear and substantial increase in entrepreneurship and creativity through the use of technology. Technology streamlines company processes, reduces costs, and expands markets, thereby facilitating entrepreneurial ventures. Technology enhances critical thinking and ideation by offering a wealth of knowledge. This study highlights the importance of incorporating technology into education and industry to produce skilled individuals and drive economic expansion through innovative solutions. The findings suggest that contemporary firms should allocate resources towards technology to maintain a competitive advantage.



INTRODUCTION

Technology has become a very fundamental part of everyday life. Many of human activities have used technology to operate, other than productive activity, many of other activities also implement the use of technology. As one of the innovations, people start using new technology every time a new technology emerges. School and industry start using technology, even small home businesses also operate using technology, the form of technology mostly used in home industries were marketing technologies such as smartphones, laptops and with the help of internet connection. This can help anyone to start a business, especially people with little to no free time such as housewives. Implementation of technology in economic activity is often named digital economics. Digital economics represents information in the form of bits, which digital economics reduces the cost of storage, computation, and data transmission. The change in traditional economics into technological based economics has been able to affect significantly costs which results in lower (1) search costs; (2) replication costs; (3) transportation costs; (4) tracking costs; and (5) verification costs (Goldfarb & Tucker, 2019).

Schools nowadays have integrated technology in their teaching and learning process, this implementation is expected to develop student-centered learning methods, which also allow the students to discover and create innovation using technology devices and programs (Machado & Chung, 2015). As Schumpeter stated that technological innovation is one of the main drivers of economic growth. Technology indeed accounts for significant medium-run effect on economic growth fluctuation (Kogan et al., 2017). Technology supports the invention of innovation therefore with the help of technology many newfound innovations can be tested before being implemented in real. The real implementation of technology can also be seen in big industries and SMEs which implement the use of technology in their production process while SMEs also use technology in promoting their products.

The implementation of technology was developed over the year, the more advanced the technology, the more people need to learn and adapt to it, many have conducted research regarding how technology might have influenced the entrepreneurship and develop innovation. The explanation for innovation is rather simple, since the technology is considered to be the path to creating innovation. Many creative and more advanced methods were developed using technology, which means that in every innovation the role of technology is fundamental, especially in these modern days.

The modern technology creates many conveniences which allow fast learning process in adapting technology. Technology is also commonly used in establishing business, apart from the most learning process using technology to create innovation, technology has also sparked the initiative of people to develop entrepreneurship. Due to its convenience, many people have implemented the use of technology in their business and even many have learned how to start a business using technology and information availability today. Past research has experienced the rise of technology in home business and home industry. The use of technology can affect three main outputs of a business,



which are (1) product innovation including design and product components; (2) production process including change in production method and customer payment variation; and (3) organizational innovation including more accurate job performance measurement. With these three main aspects it is proven to have increased the competitiveness of the business (Sylvana & Awaluddin, 2017).

To reflect another form of technology convenience and technology readiness, past research takes on technology adoption toward building social entrepreneurship. By using the social media, the research focuses on how far it could manifest the entrepreneurial mindset toward university students. This research has taken aspects such as utility and advantage, self-control ability, compatibility, simple user interface, and complexity in using social media to develop business. The results indicated that students were able to identify business opportunities but needed further practice and appropriate education to fully develop entrepreneurial skills (Chaniago & Sayuti, 2019). Recent studies also have research on how the technology's ability to enhance the performance of online business. The paper explains that in terms of performance, technology has contributed a lot toward it. Few of the technology contributions were the easy access to study and learn which can develop entrepreneurship, secondly focus on invention, innovation and creation on various products which are hard to replicate, and finally toward customer satisfaction in terms of service and responsive action toward complain and easy interface to access product catalogue (Siregar & Nasution, 2020).

Reflecting on these past studies and research. Its fair to say that technology has become an important and fundamental part of life, nowadays, technology can be seen in almost every activity both productive and unproductive activity. Which showed how much humans have also relied on technology. According to past studies, the role of technology in helping promoting productivity performance can be seen in the process whether it has been implemented or being built. The implementation can be seen in modern business which not only relies on the design of its physical store but also the quality of its social media promotion, other than that big companies and industry not only utilize the use of technology to reduce costs, but also to create and invent new products which are hard to replicate. Apart from its implementation technology readiness is built throughout education and many kinds of learning processes. This form of method in education is expected to improve the skills of the future human resources, these are considered an investment toward high quality human resources which can help in achieving more rapid economic development with all of its new innovation received through education (Sergio & Shenshinov, 2021). Technology also helped in the creation of innovation and entrepreneurship. By implementing technology-based education, it can help in increasing and developing high quality and skilled human resources. With their skillset high quality human resources will not only be able to invent and create numerous newfound innovations but also can help in expanding job opportunities through entrepreneurship (Krammer, 2017).

Technology is very fundamental, especially in this modern era, which technology



can create many of new things. The implementation of technology is not only able to create but also promote the existing company, industry and many products that are considered obsolete. Therefore, this paper will explore the implementation of technology in promoting innovation and entrepreneurship and how it impacts the pattern of life in terms of economic activities.

RESEARCH METHODS

This paper employs quantitative method, with the type of associative research. The purpose of this paper is to explore and to measure how far technology affects entrepreneurship and innovation development, the location of this research was the district of Sidenreng Rappang. Due to the large number of population this paper has limited the number of samples to only 97 people working in the area of home industry and self-owned stores. The sample that has been selected for this paper is those who have already incorporated technology into their economic activities, such as selling and purchasing goods from suppliers, in order to achieve a competitive advantage. The data in this research are gathered using questionnaires, which the data then process and summarize before continuing the next step of analyzing each data on independent variables and its influence toward dependent variables. The tools used in order to analyze the influence between variables in this research is SPSS version 26 by using simple regression analysis two times, first to discover the influence of technology toward entrepreneurship, and second to discover the influence of technology toward innovation.

Each questionnaire in this paper contains 5 statements, the definition of technology is focused on tools such as software and hardware which help in assisting one task to be done with more amount yet less time. The measurement indicators for technology contained in the questionnaire are (1) technology is easy to understand; (2) technology makes jobs done faster; (3) technology makes times more efficient; (4) technology has helped promote my sales; (5) technology has helped me to generate more ideas. The indicators for entrepreneurship are (1) my motivation comes from internet references; (2) technology makes it easier to sell items on the internet; (3) technology has saved me more variable costs; (4) technology has helped me reach out to customers in rural areas; (5) technology has made business easier to operate. And finally the indicators for innovation were (1) internet reference makes it easier for me to learn many things; (2) technology has made me discover many new methods; (3) technology makes the education quality more excellent; (4) technology has developed more critical thinking; (5) technology has given me many concepts toward new ideas.

RESULTS AND DISCUSSION

A. Results

1. Regression Analysis

Regression analysis is conducted to predict the influence between independent

variable and dependent variable, the independent variable in this research is technology while the dependent is entrepreneurship and innovation. The simple regression analysis will be conducted twice, first the regression analysis of technology toward entrepreneurship and the second will be the analysis of technology toward innovation. The influence between independent variables toward dependent variable will illustrate the contribution of each variable.

Table 1. Simple Regression Results (Entrepreneurship)

Model	B
Constant	13,870
Technology	,312

Source: SPSS Output (2023)

According to the regression result on table 1, the equation that can be formulated is:

$$Y1 = 13.870 + 0.312X1 + e$$

The value of constant shows the nominal value of 13,870 which is positive, the interpretation of this value means that if the technology were at value of 0 then the value of entrepreneurship would be 13,870. Meanwhile the regression coefficient value of technology in this regression model is 0.312 which is also positive, this will translate as positive influence which means when the technology was increased by one it will also increase the entrepreneurship by 0.312.

Table 2. Simple Regression Results (Innovation)

Model	B
Constant	14,907
Technology	,292

Source: SPSS Output (2023)

According to the regression result on table 2, the equation that can be formulated is:

$$Y2 = 14.907 + 0.292X1 + e$$

The value of constant is 14,907 which means that if the technology were at the value of 0 the value of innovation would be 14,907. Meanwhile the value of regression coefficient on technology for this regression model is 0.292 which means that if the technology were increased by 1 then it would also increase the innovation by 0.292.

2. Determinant Coefficient

The determinant coefficient shows how much the independent variable influences the dependent variable partially, while the correlation coefficient shows how much the independent variable influences the dependent variable as a whole.

Table 3. Correlation Test (Entrepreneurship)

Model	R	R Square	Adjusted R Square	Std. Error of the estimate
1	0.279	0.078	0.068	2.25865

Source: SPSS Output (2023)

According to table 3 the value of R Square is 0.078 which means that the ability of technology to influence entrepreneurship was only 7.8% while the 92.2% is influenced by other variables that are not included in this research. Despite of that value the correlation coefficients are 0.279 which means that technology influences entrepreneurship at 27.9 which the power of this influence is considered low.

Table 4. Correlation Test (Innovation)

Model	R	R Square	Adjusted R Square	Std. Error of the estimate
1	0.273	0.074	0.065	2.17128

Source: SPSS Output (2023)

Table 4 indicates that the R Square value of 0.074 indicates that innovation is influenced by technology only by 7.4%, while the remainder 92.6% is influenced by other variables that weren't investigated in this study. Despite of the value, the correlation coefficient is 0.273, which indicates that technology influences innovation at 27.3%, which is considered to be a low level of influence.

3. Partial Test (t)

Partial test were conducted to discover the influence of independent variable which is technology toward the dependent variable which in this paper is entrepreneurship and innovation. This test will illustrate and prove the contribution and the effect of technology toward entrepreneurship and innovation. The result of partial test can be seen on the table below:

Table 5. Partial Test (Entrepreneurship)

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	13,870	2,322		5,974	,000
	Technology	,312	,110	,279	2,836	,006

a. Dependent Variable: Entrepreneurship

Source: SPSS Output (2023)

According to table 5. The significance values are 0.006 which this value is lower than 0.05 therefore the influence of technology toward entrepreneurship is significant. The value of regression coefficient is showing positive value, this result illustrates that technology influences entrepreneurship in a positive and significant way, which if the technology is going up the entrepreneurship will also go up. This influence shows that technology has contributed a lot toward the development of entrepreneurship. Which with

the presence of technology its simplify the business process, this convenience will encourage people to start a business, or simply to upgrade the business operation by implementing technologies. This condition of course occurs due to the simple interface and convenience of technology allowing people to understand faster, other than that technology has helped in saving more costs and yet promoting more sales.

Table 6. Partial Test (Innovation)

Coefficients ^a						
Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	14,907	2,232		6,678	,000
	Technology	,292	.106	,273	2,762	,007

a. Dependent Variable: Innovation

Source: SPSS Output (2023)

According to table 6. The significance value is 0.007 which is lower than 0.05, this means that technology influences innovation significantly. Following the positive value of regression coefficient stated that technology influences innovation positively and significantly. This influence illustrates that technology contributes toward development of innovation. The presence of technology has influenced the innovation, with technology people will be able to learn faster and easily receive information. This will then help them to think critically and help in generating ideas toward new things, methods, and many others. Therefore with new technology innovation is possible, not only that, reinvention and recreation of obsolete methods will also improve the economic activities and daily activities.

B. Discussion on Variable Contribution

1. The Contribution of Technology Toward Entrepreneurship

According to partial test, the results indicate that technology influences entrepreneurship in a positive and significant way, which illustrates that with the improvement of technology, entrepreneurship will also increase. This indicates that in real world scenario technology will help in developing entrepreneurship. By combining the indicators on research questionnaire, this paper has reflected that technology helps in developing entrepreneurship throughout its simplicity and the convenience technology creates to connect customers and buyers around places. Online transactions are made possible by technology, the lack of technology readiness of course was no longer a problem since technology has become more and easier to adapt with.

Other than that nowadays schools and universities have implemented the use of technology in their curriculum, which allows students to learn and discover more. By implementing technology, students will have more independent methods of studying, recent study shows that students are taking interest and challenges when it comes to



practice form of study, such as study that involves e-commerce, this form of study has developed the interest of student to establish as business (Yadewanil & Wijaya, 2017). Integrating technology based knowledge in learning process especially on business is fundamental, since in this modern era, traditional business has fallen behind, the rise of online business will require the future generation to adapt more to technology and implement technology in business process in order to stay relevant (Hamdan, 2018).

Development of technology based entrepreneurship is expected to be carried out by the youth, which many schools have built and integrated many kinds of curriculum of entrepreneurship. But this is not possible and rarely effective without the role of technology. Information technology helps a lot in the learning process toward the practice of entrepreneurship such as (1) identify and connect; (2) forming a financial based strategy on business; (3) generate innovation to solve business problems; and (4) finalize planning to be then applied to real life scenarios (Suprpto, 2018). The media of technology to make entrepreneurship development possible are mostly social media, which allow them to replicate and create similar ideas of business but in different forms commonly known as resellers (Rahayu & Laela, 2018). Another method is in line with recent study above is e-commerce (Trihudyatmanto, 2019).

Not only developing entrepreneurship, past studies have also shown that technology has reinvented methods in order to make traditional businesses to survive, such as "jamu", generally herbal medicine sellers are usually going around using bicycles or walking to sell their products. But with modern technology, the recipe of composition of jamu is packaged into more appealing design and promoted using the web, which reduces costs and energy yet is potentially able to draw more profit (Sari et al., 2021). Technology also contributes in promoting the performance of SMEs which with the help of the government, many forms of training are conducted and targeted on SMEs. This is expected to build an entrepreneurial mindset that is kind and willing to help others grow by distributing their ideas and knowledge (Aswandy & Mariyanti, 2022). With the reflection of past studies and the results of statistical analysis, the contribution of technology toward entrepreneurship is not only seen in media and tools, but also in their mindset, throughout many training programs are invested to build future entrepreneurs that would be able to contribute toward job opportunity expansion.

2. The Contribution of Technology Toward Innovation

The results of partial tests on technology toward innovation showed positive and significant results. This value gives a mean that illustrates positive and significant influence of technology toward innovation, the illustration shows contribution of technology in which when technology improves then innovation will follow with its improvement as well. Combining the results of the questionnaire, it interprets that technology will help in improving innovation by providing access to infinite information, this information will generate new ideas, methods, inventions and innovations which are improvements from old obsolete things or simply something that has never been



discovered before. The application and realization of innovation cannot also be done without technology. Technology can be seen in labs, in experiments and numerous activities that lead to final products that are well tested and safe for public use even worldwide.

Due to intense competition on local and even national or international markets, numerous products are never stopping, each year new models of smartphones are on the market, numerous diversity of daily products filled the supermarket. In order to keep up with this many companies have to discover innovation, innovation on product, or production method is relying on technology as its main factor of production especially in its development process (State & Kristinae, 2019). Innovation defines as the process of transforming input into output which this process requires many assistance from other factors, the presence of technology especially information technology will boost the innovation of many things in a company. Therefore it is very crucial for a company or business to invest toward their technology in order to achieve more productivity (Fahmi Ali & Mudiantono, 2019).

Recent studies found that innovation was able to boost the development of new products with the help of technology, which also boosted the competitiveness of one company (Widiarta et al., 2020). The development of innovation is not necessarily constant, sometimes innovation was forced by conditions, the recent covid-19 pandemic has pushed the income of many people down. This condition is inevitable which at this moment human instinct of survival will force them to discover new ways. Fortunately, the use of technology has helped in generating innovation during this hard time, many businessmen use technology to create innovation and thus help them to rebuild their business (Fatimah & Azlina, 2021). Therefore the fact that innovation cannot be separate from technology is true, this is one of many forms of digital transformation, and in order to keep on generating innovation the assistance of technology is fundamental (Wijaya & Simamora, 2022).

CONCLUSION

After performing this research this paper concludes several findings of this paper. This paper found two major findings which is the influence of technology toward entrepreneurship is positive and significant, the results are also the same for innovation which technology influences innovation in a positive and significant way. These findings illustrate the contribution of technology toward the development of entrepreneurship and innovation. According to this research the main factor for this finding is the technology adaptability becoming more and more simple over the year allowing people to easily adapt to discover numerous sources of information which in its process will help in developing entrepreneurship and innovation.

The suggestion goes to the next researcher, where this paper is expected to be a source of reference. In terms of continuing to research on the same subject, it is important for the research to note that there are many more factors that could influence entrepreneurship and innovation which are important to include in the next research.

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