



# Industrial Revolution 4.0's Information Technology's Impact on the Growth of MSMEs in the Manufacturing Industries Sector

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## Abstract

*The expansion of Micro, Small, and Medium Businesses (MSMEs) can have an impact on Indonesia's economic growth (MSMEs). Because MSME players lack the capacity to adapt new technology, new technology in the industrial era 4.0 is one of the barriers to the development of MSMEs in Indonesia. Due to the inability of MSME players to adapt new technologies, Indonesia. Sales information systems, social networking, and Google My Business are a few examples of technologies that MSME & SMEs may use to their advantage. These technologies can aid in sales, marketing, and customer communication. The aim of this study was to ascertain the extent to which MSMEs in Banyumas Regency employ information technology, including information systems, social media, and Google My Business. information technology's impact on Banyumas Regency MSMEs' success. The research approach employed is The findings demonstrated the significant growth of MSMEs using technologies like Tokopedia, Instagram, and Google Maps. Use of technologies like Tokopedia, Instagram, and Google Maps is expanding quickly. A combination of increased asset turnover and customer communication is made simpler. According to these findings, there is a high correlation between the two factors, suggesting that the usage of industrial information technology (IIT) 4.0 might influence MSMEs' development. in order to say that there is a substantial correlation between the two variables.*

**Keywords:** Digital technology, circular economy, and information technology

## 1. Introduction

The economic sector of society is being affected by recent technological breakthroughs. The usage of the internet has taken over all social activities in their everyday lives in conjunction with the advancement of technology. The internet will primarily serve as a platform for promoting businesses' goods to the broader public. Every business actor will be greatly affected by this business. A tight degree of competition that motivates businesses to be able to react to changes as they happen has an influence on the competition component.

This will enable the firm to compete with its rivals. In addition to being the foundation of the populist economic system, which aims to reduce issues between income groups and business actors as well as poverty alleviation and labor absorption, Micro, Small and Medium



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Enterprises (MSMEs) are one of the top priorities in Indonesia for national economic development. issues with corporate players and income groups, as well as issues with employment and reducing poverty [1]. Expanding the economic base and greatly accelerating structural change are two benefits of MSMEs. acceleration of the structural kind, i.e. strengthening the local and overall economic health.

The processing industry is one of the nine sectors that make up Indonesia's MSMEs. MSMEs that create or generate a product are those in the processing industry sector. There are nine sectors for MSMEs in Indonesia, one of which is the processing industrial sector. MSMEs that manufacture or generate a product fall within the processing industry category. The manufactured goods come in a variety of sorts and serve a variety of purposes. There are hundreds of MSMEs located throughout the 27 sub districts of Banyumas Regency.

Data taken from the Department of Labor, Cooperatives, and SMEs Office shows that the number of MSMEs in Kabupaten Banyumas reached 84,350 MSMEs. MSMEs in Kabupaten Banyumas are grouped into nine industries, including agriculture, mining, quarrying, processing, electricity, gas, and clean water, building, trade, hotel, and forestry. Clean water, construction, trade, lodging, and dining, transportation, and communication, as well as financial, rental, and corporate services, are among the services that are provided. Processing industry MSMEs accounted for 12,715 MSMEs, or 15% of all MSMEs in Kabupaten Banyumas, according to the Manufacturing Industry Sector Processing sector.

In Kabupaten Banyumas, not all MSMEs employ technology in their operational procedures. MSMEs that employ technology make up just around 20% of all current MSMEs, according to an interview with the Kabupaten Banyumas Office of Manpower, Cooperatives and MSMEs in Banyumas Regency. According to Mr. Indra, who oversees the MSME program at the Banyumas Regency, training is frequently provided to MSME actors and participants in order to help them grow their enterprises. Training for using technology is one of them. Nonetheless, for a variety of reasons, a sizable proportion of MSMEs continue to forgo the use of technology in the growth of their enterprises[2].

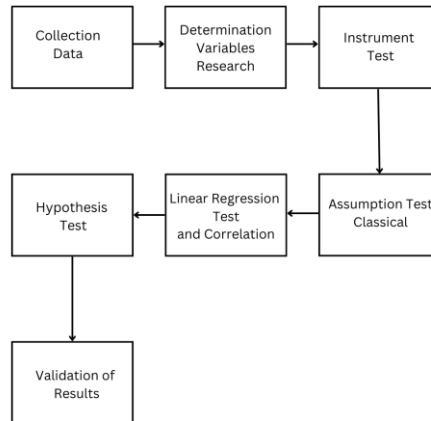
This is brought on by a number of circumstances. These include a lack of understanding of how to use technology and a lack of faith in its ability to support their company operations. As a result, the majority of MSMEs continue to do business using traditional methods. Using technology effectively is vital to the long-term viability of MSMEs. Sales possibilities can be improved by utilizing technological platforms like marketplaces. In addition, using technology (social media) can provide MSMEs a competitive edge over other traditional enterprises [3] and increase sales by up to 105% [4]. Social media is a useful alternative for businesses that are experiencing a decline in sales in traditional markets [5] and can help MSMEs by assisting them in the exploration of new potential markets. Social media can also be used to increase customer engagement through likes, shares, and interactions with the brand [6].

On the subject of technology and the growth of MSMEs, several researches have been done. With capital acting as a moderating variable in MSMEs, researcher [7] has undertaken a study that tries to evaluate the amount of effect that education and technology levels have on revenue. Measurement of MSMEs' capacity for technological and cultural adaptation is the goal of research carried out by [8]. Given the importance of MSMEs to the stability of the Indonesian economy, research by [9] is being done to look at how information technology is being applied in an effort to increase the market for local products.

To further explore the impact of information technology on SME earnings, [10] is conducting research. The application of information technology to the efficient administration of certain SMEs in Lagos was the subject of research by [11]. The findings of several of these studies indicate that technology benefits MSMEs. The objectives of this study differ from those of other studies in that they want to understand how technology might help MSMEs grow in terms of revenue growth, asset growth, and expansion in the marketing sector. The simple linear regression approach is the analytical technique employed. Study [12] demonstrates that when

using basic linear regression modeling, the procedures must be followed. The following procedures are included in this process: (a) Instrument and validity testing; (b) Classical assumption test; (c) spatial t test; (d) significance test; and (e) moderate regression analysis.

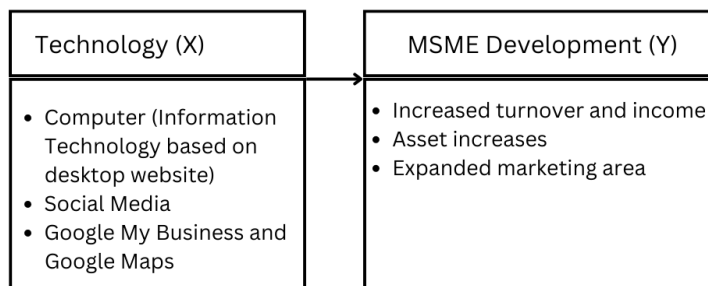
## 2. Research Method



Picture 1. Research Method

The research flow for this study is depicted in Figure 1. MSMEs in the Regency of Banyumas are the subject of this study's investigation. A closed questionnaire that was distributed directly to the respondents served as the data collecting tool for the survey approach. Data utilized in this study of this type The information used in this study is primary data, that is, it is information gathered directly from original sources. Data is directly obtained from sources that are directly connected to the issue being studied and from which particular data has been acquired. directly and especially connected to the issue being studied. In order to collect this information, MSME actors who were chosen as research participants took out a questionnaire.

The researcher utilized a Likert scale for creating this questionnaire. A person's or a group's attitudes, views, and perceptions toward a certain phenomenon are measured using the Likert scale. The measurement variables are converted into variable indicators using a Likert scale. converted into movable indicators. Specifically, independent variables and dependent variables are the two categories into which the study's variables are split. Information technology components make up variable X. On the basis of turnover, assets, and the expansion of marketing areas, information technology components based on websites/desktops, social media, and Google Bisnisku will be evaluated for their impact on the growth of MSMEs (Y).



Picture 1. Relationship between variables.

The indication is also used as a starting point for creating instrument items, which can be questions or assertions. The SPSS application, which is used to enter research data, analyze it, and evaluate the outcomes of the study to be conducted, was utilized for the data analysis procedure for the questionnaire. Three phases of data analysis are utilized, starting with an instrument test that compares the  $R_{table}$  value and the  $R_{count}$  value for each of the questionnaire's items [13] to determine the validity of the instrument. The second step is referred to as the "traditional assumption test," and the tests that are conducted at this point include a normality test utilizing the Kolmogorov-Smirnov test on the research regression's residual data. In order to determine whether or not the data are normally distributed, the normality test evaluates the distribution of data over a collection of data or variables. Data that is greater than 30 numbers ( $n > 30$ ) can be presumed to be regularly distributed or not, according to the empirical experience of numerous experienced experts, it can be considered to be a regular distribution that is typical [14].

Normality testing in this study using the Kolmogorov Smirnov formula by utilizing SPSS software. utilizing SPSS software. A data distribution is said to be normal if the sig value (significance)  $> \beta$ . Vice versa, a data distribution is said to be abnormal if the sig value (significance)  $< \beta$ . If in normality testing the data distribution is not normal, then data transformation can be done first, the data transformation in question by paying attention to the curve of the data distribution that was previously tested [15].

The third stage is data analysis with linear regression analysis of the effect of technology on development of MSMEs, correlation analysis between independent variables and the variables they affect, correlation coefficient, and coefficient of determination. Next is the analysis with the hypothesis test which uses a simultaneous test (F test). The last stage is the result validation test, which is testing the results of the hypothesis results obtained whether they are in accordance with the situation of MSMEs that have used industry 4.0 technology [16]. such as smartphones/computers, social media, and Google My Business. My Business. Based on the background and theoretical studies above, there are hypotheses made in this study.  $H_0$  = The null hypothesis is a hypothesis that states that the two variables tested do not have a significant relationship, while  $H_1$  = alternative hypothesis is a hypothesis that states that the two tested have a significant relationship. illustrates that by using social media social media, the promotion process is easier. P4X is a variable that social media helps the sales process sales process. P5X is a variable that represents a statement with social media the area reached becomes wider. P6X is a variable that describes Google My Business and Google Map helps people to find stores more easily.

### 3. RESULTS AND DISCUSSION

There are several variables that are used to test the validity of the X or independent variable. P1X is a sales information system that speeds up the transaction process. P2X is a variable that describes that with the sales system, it helps the service process to customers. P3X is a variable that obtained the result that the item statement P1X has a calculated R value of 0.701 and greater than the R table value of 0.148. Thus, the validity test on the P1X statement item can be declared valid. The calculated R value on the statement item P2X statement item is 0.818 and greater than the R table, namely 0.148. which is 0.148. Thus, the validity test on the P2X statement item can be declared valid. statement item P2X can be declared valid. Statement P3X has a calculated R value of 0.857 and greater than the R table value of 0.148. greater than the R table value of 0.148. Thus, the validity test on the P3X statement item is declared valid. The P4X statement item has a calculated R value of 0.802 and greater than the R table value, namely 0,148. Thus, the validity test on the P4X statement item can be declared valid. The calculated R value on the P5X statement item is 0.765 and greater than the R table, namely 0.148. greater than the R table, which is 0.148. Thus, the validity test on the P5X statement item can be declared valid. While the P6X statement item has a calculated R value of 0.666 and greater than the R table value of 0.148. than the R table value of 0.148. Thus, the validity test on the P6X statement item is declared valid. Based on the results of the validity test on the variable technology (X) which consists of six statements, namely P1X, P2X, P3X, P4X,

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P5X, and P6X, the results obtained are as follows: all statements on the technology variable declared valid.

There are several variables that are used to test the validity of variable Y or dependent variable. PIY is a variable that describes information technology that makes income turnover increase. P2y is a variable which describes that information technology makes assets (production machinery, operational vehicles, building) owned increases. P3Y is a variable that describes that information technology information technology is very helpful in product promotion statement item P1Y has a calculated R value of 0.775 and is greater than the R table value of 0.148. Thus, the validity test on statement item P1Y can be declared valid. The calculated R value on the P2Y statement item is amounting to 0.772 and greater than the R table, which is 0.148. Thus, the validity test on the statement item P2Y statement items can be declared valid. Meanwhile, for the statement item P3Y statement item has a calculated R value of 0.836 and greater than the R table value of 0.148. With Thus, the validity test on the P3Y statement item statement item is declared valid. Based on the results of the validity test on the development variable (Y) which consists of six statements, namely P1Y, P2Y, and P3Y. statements, namely P1Y, P2Y, and P3Y, obtained the results that all statements on the development variable declared valid

### **3.1 Literature Review**

Based on the results obtained, it is known that the data distribution is not normal. Therefore, data transformation is required. After the data transformation, a normality test was conducted again on the transformed data. The result of the second normality test shows the data distribution data distribution which is characterized by Sig. of 0.093 and greater than 0.05. After doing the normality test test, the Sig. value is 0.093 where the value is greater than 0.05. value is greater than 0.05. Thus, the results of retesting the normality of the effect of technology on the development of MSMEs can be declared normal or normally distributed data.

### **3. Findings**

This analysis is used to determine the direction of relationship between the independent variable and the dependent variable, whether positive or negative. In addition, it is also to predict the value of the dependent variable if the value of the independent variable increases or decrease in value. In this study, the independent variable used is technology. While the dependent variable contained in this study is development. Based on simple linear regression test, obtained the t value of the technology variable of 9.247 with a Sig. value of 0.000. These results shows that variable X, namely technology has a positive effect on variable Y, namely development of MSMEs.

The results of testing the correlation between technology and development of MSMEs is presented in this section. Based on the correlation test results, an r value of 0.562 or 56.2%. The correlation of variable X to Y is positive and strong, where variable X is technology and variable Y is MSME development. and variable Y is the development of MSMEs. Determinant test results determinant test results: R Square (0.316) or 31.6% of variable Y variable is influenced by variable X[17].

Hypothesis testing in this study uses a simultaneous test test (F test). Simultaneous test is used to answer the hypothesis that has been made in research methodology[18]. Simultaneous tests were carried out on independent variables simultaneously on the dependent variable dependent variable. This study tested the technology variable to the development variable. The simultaneous test is carried out by comparing Sig. value with the probability value, namely 0.05 and comparing the calculated F value with the F table. If Sig. <0.05 then it can be stated that H0 is rejected and H1 is accepted, and vice versa if the Sig Value. > 0.05 then it can be stated that H0 is accepted and H1 is rejected. Another way to do the F test is by comparing the calculated F value with the F table. If value > F table then H0 is rejected and H1 is accepted, and if F count < F table then H0 is accepted. accepted, and if F count < F table then H0 is accepted and H1 is rejected.

Based on the results that have been obtained, The novelty of this research is the existence of additional variables used in measuring the variables used in measuring the effect

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of the use of technology on the development of MSMEs[19]. In this study, there is one new variable added, namely assets (production machinery, operational vehicles, operational vehicles, buildings) for the dependent variable, while the variables of product marketing expansion and profits have been used in research [20] and [21] profit [22].

Based on the results that show that the use of technology has an effect on development of MSMEs, this section will be carried out to validate the use of information technology as in Figure 1 on the development of MSMEs. TaseNyong is one of the MSMEs in the processing industry sector. processing industry which is engaged in bag processing. In carrying out its business processes, TaseNyong uses several information technologies which can be referred to as Multitenancy. Multi-tenancy means sharing resources and services to run instances of software instances that serve multiple consumers and clients (tenants). This means that physical resources (such as computing, network, storage) and services are shared equally to all tenants, as well as administrative and support functions. even the support functions can also be shared[23].

In addition, buyers can also provide ratings for the store and can see ratings from other people. Before using technology[24], DiseNyong only sold ordinary bags and had only 1 store. After that, it expanded by creating its own brand under the name TaseNyong and started using and maximizing information technology. information technology. By using technology, the business process carried out by TaseNyong becomes easier. In one month DiseNyong is able to get a turnover of 60 million Rupiah[25].

#### **4. Conclusion**

This research has been successfully conducted by collecting questionnaire data given to MSMEs related to the use of information technology associated with the development of MSMEs. The data obtained was analyzed using the method that has been proposed. The results of the analysis show that the use of information technology in the industrial era 4.0 such as sales information systems, social media, and Google My Business can increase turnover, assets, and marketing area by up to 30% of MSMEs. and marketing area up to 30% of MSMEs. Therefore, researchers provide advice to MSMEs who have not used the suggested technology to use it immediately. This is aimed so that the development of MSMEs in Banyumas Regency becomes more rapid.

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