



DIGITAL TRANSFORMATION OF MICRO, SMALL AND MEDIUM ENTERPRISES (MSMES) IN REALIZING INDONESIA'S ECONOMIC INDEPENDENCE IN THE ERA OF INDUSTRY 4.0

By

Gita Sari Dewi¹, Zainal Abidin Sahabuddin², Susilo Adi Purwantoro³

^{1,2,3}Defense Economic Study, Defense management Fakultas, Republic Indonesia Defense University

Email: ¹Gita.dewi@idu.ac.id, ²Zainal.sahabuddin@idu.ac.id, ³Susilo.purwantoro@idu.ac.id

Article Info

Article history:

Received Nov 06, 2022

Revised Dec 17, 2022

Accepted Jan 24, 2022

Keywords:

Digital Transformation,
Micro, Small And
Medium Enterprises,
Economic independence
In The Industrial Age
4.0, Agribusiness,
Catfish Fisheries

ABSTRACT

Digital transformation in the industrial era 4.0 has changed the new face of Micro, Small and Medium Enterprises (MSMEs) to achieve sustainable and inclusive economic independence. The potential for natural wealth, human resources and opportunities as an agricultural country are factors that influence success in the global economy. In its implementation, MSMEs have had mental readiness for the application of digital literacy. However, this will not run synergistically without simultaneous and gradual efforts to guard and improve digitalization technology in agricultural businesses. The fishery sub-sectoral agricultural business for catfish species is a supporting sector for Indonesia's food security. With this urgency, the application of digitization of agricultural businesses must be guarded from the production chain to distribution on a national and international scale.

This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.



Corresponding Author:

Gita Sari Dewi

Defense Economic Study, Defense management Fakultas, Republic Indonesia Defense University

Email: Gita.dewi@idu.ac.id

1. INTRODUCTION

Currently the world is experiencing rapid changes with the industrial revolution 4.0. Digital technology is developing rapidly throughout the world, including Indonesia. This change changed many things and caused disruption. Disruption always begins with innovations that break the chain of old approaches, such as fading company boundaries, reducing burdens or simplifying supply chains and forcing economic policy makers to rewrite new laws of the economy. Disruptive innovation develops a product or service by creating different consumer segments in new markets and lowering prices in old markets. As a country that is moving towards digitalization or also called digital transformation in various development sectors, Indonesia is also experiencing this era of disruption.

Indonesia is a very large archipelagic country and has a high population of productive age. Therefore, the influence and impact of this disruption is very diverse. In the western part of Indonesia, the influence and impact of disruption tends to be more significant and positive than in the central and eastern parts of Indonesia. Nevertheless, Indonesia remains open to many options in entering the digital era because it will affect the nation's future. Indonesia can take advantage of this new development for the benefit of society and economic independence starting at home (microeconomics point of view).

Reporting from the World Economic Forum, the industrial revolution era occurred 4 times, the first revolution occurred in 1750-1850 marked by the invention of water and steam powered engines. The second revolution occurred in 1870-1919 marked by electrical innovations. The third industrial revolution occurred in 1969-2011 related to automation innovations. And the fourth industrial revolution occurred in 2012 marked by the existence of a cyber system or digital revolution (cyber physical systems).

The fourth revolution has a broad impact on both the business world and people's lives. The new economic era prioritizes the convenience and comfort of consumers, such as the convenience of online shopping, ease of transportation and logistics, ease of access to education, ease of finance in the form of P2P Lending, crowdfunding,

payments, blockchain, and others. The impact of the fourth industrial revolution on the business sector is efficiency and a new way of supply chain for every product produced, disruption and sharing economy. The impact felt by the community is easy and fast in obtaining information and comparing a product, a new challenge due to shifting in the work field so that people must adapt quickly.

Indonesia's condition in the Digital Evolution Index Graph Plotting the Digital Evolution Index for 2017 is in the Break Out category, namely a country with a relatively low score, but will evolve rapidly and has the potential to become a country with a strong digital economy. This break out quadrant is a potential and opportunity for Indonesia to lead in the digital economy. Thus, the use of digital skills and assets related to information and communication technology will increase the productivity and economy of a country. Every additional US\$ 1 can return up to US\$ 5 in gross domestic product (GDP) from 2016 to 2025 (Global Connectivity Index, 2017). The contribution of information and communication technology is expected to increase the percentage of economic growth by 20-30%.

Micro sectoral empowerment focuses more on Micro, Small and Medium Enterprises (MSMEs) in order to foster micro-level economic independence which will progressively encourage the macro economy. This will run synergistically with efforts to increase digital skills for MSME actors. Based on data obtained from the Ministry of Cooperatives and Small and Medium Enterprises (Kemenkopukm), there were 64,194,057 MSMEs in 2018 with a 99.9% share. Whereas in 2019, MSME data in Indonesia became 65,465,497 with a share of 99.9%. Within 1 year, the number of MSMEs experienced a surge of 1,271,440 or 1.98%. GDP at current prices in the MSME sector Rp. 9,062,581.3 (billion) in 2018, and in 2019 Rp. 9,580,762.7 (billion) or an increase of 5.72% from the previous year. The value of investment has surged so that the rise of MSMEs has become the culmination of MSMEs based on digital transformation.

It is unpredictable in 2020 where the COVID-19 pandemic has an impact on MSMEs in Indonesia. This is proven based on the Official Statistical News No. 39/05/Th. XXIII, May 5 2020, the amount of GDP in the first quarter of 2020 experienced a decline in economic growth from 5.07 percent (in 2019) to 2.97 percent. The Ministry of Finance's Fiscal Policy Agency (BKF) estimates losses of up to IDR 320 trillion in the first quarter of 2020 due to the pandemic. This is because the national economy slumped by around 2.03 percent. Of course, if this is not handled immediately it will have a big impact that threatens the Indonesian economy. Around 1,785 cooperatives and 163,713 MSME actors were affected by the corona virus pandemic (Pikiran Rakyat, May 2020). The MSME sector that was most affected was food and beverage. At least 39.9 percent of MSMEs decided to reduce their stock of goods during large-scale social restrictions (PSBB) due to Covid-19. Meanwhile, 16.1 percent of MSMEs chose to reduce employees due to physical stores being closed.

The MSME sector has experienced a significant impact due to the COVID-19 pandemic. In Indonesia, MSMEs have a significant contribution and role, including expanding employment opportunities. MSMEs are also a safety net, especially for low-income people to carry out productive economic activities. Besides that, small, micro and medium enterprises (MSMEs) are a type of business that has an important role in increasing the GDP (Gross Domestic Income) of a country, especially in Indonesia by facing the Industrial Age 4.0. Apart from the digital transformation factor, the COVID-19 pandemic has at least contributed to the MSME sector so that it can maximize the use of digital media again in an effort to increase income.

MSMEs can take advantage of information and communication technology, considering that electronic trade in 2020 will reach US\$ 130 billion. Electronic commerce transactions have drastically increased during the COVID-19 pandemic. Products whose sales have increased include health products which have increased 90%, hobby support products increased 70%, food increased 350%, and herbal food increased 200% (Tempo, 27 April 2020). With this fact, the Government must continue to encourage the digitization of MSMEs to the local government sector. Only around 13% or only around 8.3 million out of 64.2 million MSMEs nationally utilize digital technology, especially e-commerce platforms (electronic trading). (kominfo.go.id, October 2020). Thus, the readiness of human resources and MSME actors in the use of digital media can be optimized as a step to accelerate economic recovery and efforts to maintain an inclusive, resilient, strong, progressive and sustainable economy.



Source : Kementerian Koperasi dan UMKM, 2014

If viewed from the MSME economic sector, the proportion of business units from the largest to the smallest based on the graph above are: 1. Agriculture, Livestock, Forestry and Fisheries (48.85%); 2. Trade, Hotels and Restaurants (28.83%); 3. Transportation and Communication (6.88%); 4. Processing Industry (6.41%); 5. Services (4.52%); 6. Finance, Rental and Corporate Services (2.37%); 7. Buildings (1.57%); 8. Mining and Quarrying (0.53%); 9. Electricity, Gas and Clean Water (0.03%).



Source: Kementerian Koperasi dan UMKM, 2012 (diolah)

Based on these data, the three sectors that make the largest contribution to Indonesia's GDP are trade, agriculture and industry. Characteristics of agribusiness Agricultural business is broadly divided into two, namely small-scale agricultural businesses or family businesses and large-scale agricultural businesses. This research will focus on the agricultural or agribusiness sector and sub-focus on the fisheries section which refers to the sectoral analysis unit for catfish farmers.

The crisis opened a window of opportunity to revitalize the agricultural sector. The condition of complete closure from international trade (complete autarky), will put Indonesia's agricultural production system to the test, and help us identify weak points to be improved in the long term context. Aside from being an important part of the food supply system, during a crisis it turns out that the agricultural sector can become a natural social safety net. The agricultural sector, even in normal times, is still the sector that absorbs the most workers in Indonesia, especially when there is an economic crisis.

Market operations, through direct buying of agricultural products, do not seem to be something that is forbidden under these circumstances. Of course, limited by budget availability. However, the existence of a fiscal stimulus due to the impact of the Covid pandemic of IDR 405 trillion, which was partly funded by a budget deficit of 5.07% of GDP, is one source of financing. Funds of 150 trillion are budgeted to help the industry. The allocation of part of the funds to farmers is economically and morally justifiable. Concretely, and to make it more explicit, it is suggested that there be a special fiscal stimulus fund for the agricultural sector. Apart from that, extra social assistance provided by the regional government can also be channeled by aligning purchases of basic needs products produced by the surrounding agricultural centers. The value of Indonesia's digital economy has increased by 11% to US\$44 billion in 2020 from US\$40 billion in 2019. It is projected to reach US\$124 billion in 2025.

Potential collaborations with the World Bank include digital literacy programs and training to increase digital expertise, particularly to increase adoption of digital technology for MSMEs, and then share information about best practices in creating digital talent with other World Bank member countries. In the form of technical assistance to build

a sound policy framework in order to strengthen the digital economy ecosystem in Indonesia, as well as capacity building programs to support digital talent programs that already exist in Indonesia.

Public campaigns must be more massive and structured, using the most effective methods and channels for the target group, especially for the empowerment required by one of the Lecturers at the University of Muhammadiyah Tangerang (UMT Indonesia). Where elements of society, both formal (village officials) and informal (leaders, influential people, and informal influencers in the countryside) as well as community organizations are involved in efforts to improve the economy due to the pandemic and efforts to accelerate the digitalization of the industrial era 4.0.

Mr. Trison, UMT Indonesia Lecturer, has been determined to develop the potential of the Cisoka Village community in managing the JJ Cisoka Catfish Village concept. His YouTube channel went viral when he shared his knowledge and success in creating Kampung Lele JJ Cisoka. Kampung Lele JJ Cisoka first became widely known through a YouTuber, namely Rudianto. This video was watched by 4,700 people throughout Indonesia. Through several YouTube channel broadcasts such as JB Farm Catfish, Pandumu Banten, and the Rudianto Channel, Mr. Trison as the pioneer of Kampung Lele JJ Cisoka shares his knowledge and experience in changing the paradigm and stigma of the community about farmers being poor and farmers finding it difficult to get market opportunities because prices are being beaten. by middlemen. With research that has been carried out for 6 months, Kampung Lele JJ Cisoka has succeeded in perfecting the knowledge and methods of successful catfish farming. Without hesitation, the pioneer of Kampung Lele JJ Cisoka escorted the novice farmers to be successful together, from nursery to post-harvest.

With the massive campaign efforts in cyberspace networks, especially YouTube. Kampung Lele JJ Cisoka is the focus of attention for investors and all farmers who want to change their concept of success in the world of fisheries. Kampung Lele JJ Cisoka started from 10 ponds until now it has become 250 ponds with a turnover of 750 million. As of December 2020, 5 million seeds have been distributed with a turnover of 1 billion 250 million. In its distribution, 250 million is for investors, 250 million is for the Cisoka people, the rest is for seeds and other needs. Kampung Lele JJ Cisoka provides training for residents and parties who wish to join from wherever they come from. In addition, under the auspices of the Tangerang Catfish Association (ALETA), Kampung Lele JJ Cisoka is developing a business concept with novelty or renewal ideas.

Through the YouTube channel, Kampung Lele JJ Cisoka is able to create empowerment, business and training. In 2020, several people who have attended the training came from several regions, namely 1 person from Bandung, 1 person from Cimahi, 2 people from Tasikmalaya, 1 person from Tangerang, 1 person from Rangkas Bitung, 1 person from East Java, 1 person from Java Central, 1 person from Palembang, 1 person from Central Kalimantan, 1 person from Nusa Kambangan, 1 person from West Java, 1 person from East Kalimantan, 1 person from Kalimantan, 1 person from Makassar and as many as 330 new people registered for training in December 2020. In addition, Kampung Lele JJ Cisoka revived dead ponds in Cisoka, Tiga Raksa and Solear. Until now there are 12 farmer groups that have been revived and are producing again. It is undeniable that campaigns and promotions through YouTube media can increase and slowly encourage the transformation of GO DIGITAL farmers. The simplest learning media that can be accessed anywhere, by anyone and anytime. Until technology is able to provide massive concepts of learning, doing business, empowering and training.

2. LITERATURE REVIEW

The study concept used in this study is digital-based economic theory in digital transformation entering the industrial revolution era. The research focus refers to long-term digital transformation that starts with the fourth industrial revolution in order to achieve sustainable economic independence. The research sub-focus is more towards a strategic management perspective on information and communication technology and MSME actors.

2.1. Grand Theory

The existence of Grand Theory is a theory that is at the macro level and is applied in framing a study. In planning the title of this study using several grand theories related to the theory of economic independence and the industrial era 4.0. Grand theory is a theory that tries to explain the whole of social life, history, or human experience. Basically contrary to empiricism, positivism or the view that understanding is only possible by studying facts, society and phenomena (Quentin Skinner, ed., *The Return of Grand Theory in the Human Sciences* (Cambridge, 1985). Grand theory is a term that created by C. Wright Mills in 'The sociological imagination (1959)' which relates to the highest abstract form of a theory that is composed of prioritized concepts to enhance a comprehensive understanding of research.

2.1.1. Independence

The term "independence" comes from the root word "self" which gets the prefix "to" and the ending "an", then forms a state word or a noun. Because independence comes from the word "self", the discussion about independence cannot be separated from the discussion about the development of the self itself, which in Carl



Rogers' concept is called the term self, because self is the core of independence.¹ The term independence indicates a belief in one's ability to solve problems without help from others. Individuals who are independent as individuals who can solve the problems they face, are able to make their own decisions, have initiative and are creative, without neglecting the surrounding environment. According to some experts "independence" refers to psychosocial abilities that include freedom to act, not dependent on the abilities of others, not affected by the environment, and free to regulate their own needs.² Aspects of Independence consist of responsibility, autonomy, initiative and self-control.³ The characteristics of an independent community are free from consumptive debt, have confidence in business, have investments, are able to manage cash flow, are mentally prepared for financial disturbances.⁴

2.1.2. Economy

Economics or economics in much of the economic literature is said to come from the Greek word Oikos or Oiku and Nomos which means household rules. In other words, the notion of the economy is everything that concerns matters related to life in the household, of course what is meant and in its development the word household does not only refer to a family consisting of husband, wife and children, but also a home. broader household namely the nation's household, the state and the world.⁵

To understand what the main economic issues are, we stem from two realities, namely to be able to live decently, we need and want various things in the form of food, drink, clothing, housing, medicine, education, and so on. Human needs are many and varied in nature. Moreover, the desire (wants) arguably has no limit. The second factor is the resources, facilities or tools that can be used to meet the many needs, including the time available is limited or scarce, meaning that it is less than what we need or want, both in terms of quantity, form, type, time and place.

To respond to this problem, economic activities such as production, distribution and consumption arise, which are governed by a way of thinking and acting which is called economics or according to economic principles. These economic principles are individual freedom, right to property, inequality in the economy fairly, social equality, social security, wide distribution of wealth, prohibition of accumulating wealth, individual and community welfare.⁶

2.1.3. Industrial Era 4.0

The term Industry 4.0 was born from the idea of the fourth industrial revolution. The European Parliamentary Research Service in Davies (2015) said that the industrial revolution occurred four times. The first industrial revolution occurred in England in 1784 where the invention of the steam engine and mechanization began to replace human work. The second revolution occurred at the end of the 19th century where production machines powered by electricity were used for mass production activities. The use of computer technology for manufacturing automation starting in 1970 marked the third industrial revolution. Currently, the rapid development of sensor technology, interconnection, and data analysis has led to the idea of integrating all of these technologies into various industrial fields. This idea is predicted to be the next industrial revolution. The number four in the term Industry 4.0 refers to the fourth revolution. Industry 4.0 is a unique phenomenon when compared to the three industrial revolutions that preceded it. Industry 4.0 is announced a priori because the real events haven't happened yet and are still in the form of ideas (Drath and Horch, 2014).

The term Industry 4.0 itself was officially born in Germany when the Hannover Fair was held in 2011 (Kagermann et al, 2011). The German state has a great interest in this matter because Industry 4.0 is part of its development plan policy called High-Tech Strategy 2020. This policy aims to maintain Germany to always be at the forefront of the manufacturing world (Heng, 2013). Several other countries are also participating in realizing the concept of Industry 4.0 but using different terms such as Smart Factories, Industrial Internet of Things, Smart Industry, or Advanced Manufacturing. Even though they have different terms, all of them have the same goal, namely to increase the industrial competitiveness of each country in facing a very dynamic global market. This condition is caused by the rapid development of the use of digital technology in various fields.

¹ Desmita, Psikologi Perkembangan Peserta Didik, (Bandung: PT. RemajaRosdakarya, 2014), hal. 185.

² Nurhayati, Eti, Psikologi Pendidikan Inovatif, (Yogyakarta: PustakaPelajar, 2011), hal. 131.

³ Fatimah, Enung, Psikologi Perkembangan (Perkembangan Peserta Didik), (Bandung: CV. Pustaka Setia, 2010), hal. 27

⁴ Susetyo, Benny, Partisipasi Kaum Awam dalam Pembangunan Menuju Kemandirian Ekonomi, (Malang: Averoes Press, 2006), hal. 10

⁵ Iskandar Putong, Economics Pengantar mikro dan Makro, (Jakarta, Mitra Wacana Media, 2010) h. 1

⁶ Akhmad Mujahidin, Ekonomi Islam 2, (Pekanbaru: Al-Mujtahad Press, 2010) h.22

2.2. Meso Theory /Middle Theory

Turner (1986) defines theory as a process of developing ideas that will help explain why and how an event can occur. Doher (1993) says that theory is a systematic process in formulating and organizing ideas into a particular phenomenon that can be understood. Specifically related to theory at the Meso level (Meso-Level), this level connects the micro and macro levels.

At the meso level, the process of determining groups of objects in a level often experiences confusion because some objects can also be classified into the meso and macro levels. Examples of objects belonging to the meso level are: organizational theory, social movements, communities, and so on.

2.2.1. Businessman

Business actors in Article 1 paragraph 3 of Law Number 8 of 1999 concerning Consumer Protection are "Business actors are any individual or business entity, whether in the form of a legal entity or not a legal entity that is established and domiciled or carrying out activities within the jurisdiction of the Republic of Indonesia. Indonesia, both individually and jointly through agreements, carries out business activities in various economic fields". Based on the directive, the meaning of producers or business actors includes, namely, the first party that produces the final product in the form of manufactured goods. Second, they are responsible for all losses arising from the goods they distribute to the public, including if the losses arise due to defects in goods which are components in the production process. Producers of raw materials or components of a product. Third, anyone who by affixing their name, their name or other markings on a product appears to be a producer of an item.⁷

2.2.2. UMKM

In Indonesia, the definition of MSMEs is regulated in the Law of the Republic of Indonesia No.20 of 2008 concerning MSMEs.⁸ Article 1 of the law states that micro-enterprises are productive businesses owned by individuals and/or individual business entities that have the criteria for micro-enterprises as stipulated in the law.⁹ Small business is a productive economic enterprise that stands alone, which is carried out by individuals or business entities that are not subsidiaries or not subsidiaries that are owned, controlled or become part, either directly or indirectly, of medium or large businesses that meet the criteria small business as referred to in the law.¹⁰ Whereas micro business is a productive economic business that stands alone which is carried out by individuals or business entities that are not subsidiaries or not branches of companies that are owned, controlled, or become part, either directly or indirectly, of micro businesses, small businesses or large businesses that fulfill micro business criteria as referred to in the law.¹¹

With the criteria, namely (1) a micro business is a business unit that has assets of a maximum of IDR 50 million excluding land and buildings for business premises with annual sales of a maximum of IDR 300 million. (2) Small businesses with an asset value of more than IDR 50 million up to a maximum of IDR 500 million excluding land and buildings where the business has annual sales of more than IDR 300 million up to a maximum of IDR 2,500,000,000. And. (c) Medium business is a company with a net worth of more than IDR 500 million up to a maximum of IDR 100 billion with annual sales of more than IDR 2.5 billion up to a maximum of IDR 50 billion.¹²

2.3. Applied Theory/Micro Theory

In compiling a research, it is necessary to order the theory that will be used systematically starting from Grand Theory, Middle Theory and Applied Theory. The position of Applied Theory is a theory that is at the micro level and ready to be applied in conceptualization. This study uses several applied theories related to the theory of digital transformation, new media and decision making. Determination of the theory is important in determining the depth and breadth of the analysis concerning the existence of digital transformation potential as a variable that determines the analysis process in the following variables. The novelty or novelty of this research is also strongly influenced by the success of exploring the extent to which digital transformation is relevant in influencing Micro, Small and Medium Enterprises actors associated with Economic Independence in the Industrial Age 4.0.

2.3.1. Transformation

Contemporary transformation theory according to some experts has various meanings, including, according to D'Arcy Thompson, "Transformation is a process and a phenomenon of the change of form under

⁷ Celina Tri Siswi Kristiyanti, 2008, *Hukum Perlindungan Konsumen*, Sinar Grafika, Jakarta, h.41

⁸ Tulus T.H. Tambunan, *UMKM di Indonesia*, (Bogor : Ghalia Indonesia, 2009), hal.16

⁹ *Ibid*, hal. 17

¹⁰ *Ibid*, hal. 18

¹¹ *Ibid* hal. 18

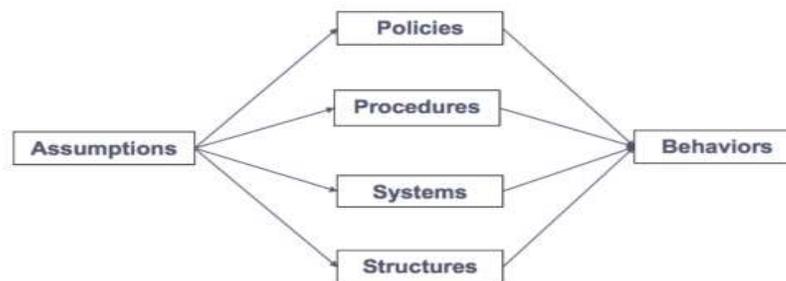
¹² Tiktik Sartika Partomo&Abd. Rachman Soejoedono, "Ekonomi Skala Kecil/Menengah dan Koperasi", (Jakarta: Ghalia Indonesia, 2004), hal. 13.



altering circumstances". Transformation is a process of changing form phenomena under changing conditions, thus transformation can occur in an unlimited way. In another explanation, according to Jorge Silveti (1977) Transformation ".....those operations performed on the elements of a given existing code which depart from the original, normal, or canonical usage of the code, by distorting, regrouping, reassembling , or in general altering it in such a way that it maintains its references to the original while tending to produce a new meaning.

Transformation theory then develops more advanced when its existence is associated with changes in form, function and organizational structure. These three variables are considered relevant when the theory of transformation is associated with other objects, for example the digitalization of MSME actors. Daszko and Sheinberg (2017) state that transformation is the creation and change of form, function or structure. To transform means to create something new that has never existed before and cannot be predicted from the past. Transformation is a "change" in mindset based on the ability of leaders with knowledge and courage.

If the theory above states that Transformation is a form of response to assumptions and paradigms, then this is very relevant because the assumptions and paradigms that will control policies, procedures, systems and structures are important in organizations. The image below illustrates how assumptions can change a habit (Behavior).



Picture 2.2. Assumptions control Policies and Customs
Sumber: Daszko &Sheinberg (2017)

2.3.2. Digital

Lev Monovich is a Professor of Visual Arts, University of California, San Diego, who wrote the book *The Language of New Media*. Lev Manovich (2002) identified five digital characteristics, namely numerical representation; modularity (the principle of assembling larger units from smaller ones); automation; variability; and transcoding (the link between computing and everyday culture). According to him, digital theory is always closely related to the media, because the media continues to develop along with advances in technology, from old media to the newest media, making it easier for humans in all fields related to Digital Theory. We better know what digital means in its true sense, before knowing what Digital Theory is. Digital comes from the Greek word *Digitus* which means fingers. The number of our fingers is 10, and the number 10 consists of the numbers 1 and 0. Therefore Digital is a depiction of a state of numbers consisting of the numbers 0 and 1 or off and on (binary numbers). All computer systems use digital systems as their database. Also known as Bits (Binary Digits). Digital is a complex, flexible method that makes it a staple in human life. While Digital Theory is a concept of understanding from the development of the Age regarding Technology and Science, from everything that is manual to automatic, and from everything that is complicated to be concise.

2.3.3. Digital Technology Convergence

The convergence of communication technology is marked by the color of digitization. The main point of the convergence process at the level of information technology is digitization. Digitization is a process in which all forms of information, whether numbers, words, images, sounds, data, or motion, are encoded into bits (binary digits or commonly symbolized by the representation of 0 and 1) which allows data manipulation and transformation (bitstreaming). Digital technology is able to combine, convert or present information in various forms. Whatever content is displayed, bits can be explored as well as manipulated, including cropping the original information by subtracting or adding. The third consideration is multimedia technology. Multimedia technology has not only changed the traditional way of communicating which is manual but also digital, innovative, fast and interactive. Digitalization has changed and transfigured media and communication technology. Automated telephone networks that were previously operated manually can now be operated by computer-intelligent network devices with software capable of configuring intelligent networks with complex digital features.¹³

¹³ Briggs, Asa. 2002. *A Social History of The Media: From Gutenberg to the Internet*. Cambridge: Polity Press

Digitalization is also driving the convergence of information application products and processes that can perform various audio-visual and computing functions. Convergence of communication products occurs when television and computers become one media production so that access to the internet can be done from a television set (see Indovision service which provides a computer network with a wide bandwidth or what can be called a broadband channel). On the other hand, television broadcasts can be enjoyed via the internet in real time. Other combination products can be seen in the presence of cellular telephone devices accompanied by a variety of services and modern facilities. Modern mobile phones besides having the ability to make conventional phone calls, the communicative media can also send SMS (Short Message Service) or MMS (Multimedia Message Service) with the ability to produce, receive, process or send images, voice, data, and even carry out other activities. "surf" on the internet. Likewise with printing technology that combines printers, scanners, photocopiers, facsimile machines, and telephones into one. Not to mention that cellular phone technology has entered the third generation and beyond, which of course has more and more frequency band width.¹⁴

2.3.4. New Media

New Media Context Today, media channels are characterized by a bewildering array of choices – there are hundreds of cable television channels and on-demand programming to be found every day, not to mention the internet, which has an endless variety of content. Furthermore, and perhaps more importantly, today's new media technologies provide opportunities for tastes and the creation of media content such as blogs, Facebook pages, portals, and Youtube video diaries. (Berger et al, 2015; 381). According to Denis McQuail in his book *Theory of Mass Communication* (2011: 43) the main characteristics of new media are their interconnectedness, their access to individual audiences as recipients and senders of messages, their interactivity, diverse uses as open characters, and their ubiquitous nature. . The difference between the new media and the old media is that the new media ignores the limitations of printing and broadcasting models by allowing conversations to occur between many parties, enabling the simultaneous receipt, change and re-distribution of cultural objects, disrupting communication actions from an important position of regional relations and modernity. , provides instant global contact, and feeds modern/end-modern subjects into networked apparatus machines. Social Media Mandibergh defines social media as "media that facilitates cooperation between users who produce content (user generated content)" (Nasrullah, 2015:11). Social media has the following characteristics: a. The message conveyed is not only for one person but can be sent to many people, for example messages via SMS or the internet. b. Messages are delivered freely, without having to go through a Gatekeeper. c. Messages delivered tend to be faster than other media. d. The recipient of the message determines the interaction time.

2.3.4.1. Youtube

Launched in May 2005, YouTube has made it easy for billions of people to find, watch, and share videos. YouTube provides a forum for people to connect, inform, and inspire others around the world, and acts as a distribution platform for original content creators and advertisers, both big and small. YouTube is a company owned by Google. YouTube was created by 3 former employees of PayPal (online commercial website), Chad Hurley, Steve Chen, and Jawed Karim in February 2005. Since its inception, YouTube immediately received good reception in the community. Youtube is an online video and the main use of this site is as a medium for searching, viewing and sharing original videos to and from all corners of the world via a web (Budiargo, 2015; 47). The presence of YouTube has had a tremendous impact on society, especially people who are passionate about making videos, from short films, documentaries to video blogs, but do not have the land "to publish their work". YouTube is easy to use, doesn't require high fees, and can be accessed anywhere, of course, with a compatible gadget. This allows amateur video makers to freely upload their video content for publication. If their videos get a good reception, the number of viewers will increase. Many viewers will invite advertisers to place advertisements in their next videos. In line with television, television program content that is liked by the public, in this case the rating is high, will automatically attract advertisers.

2.3.5. Decision Making

G.R Terry suggests that decision making is an election based on certain criteria of two or more possible alternatives. Other experts, namely Horold and Cyril O'Donnell said that decision making is the choice between alternatives regarding a way of acting, namely the essence of planning, a plan cannot be said to not exist if there is no decision, a source that can be trusted and a reputation that is made. According to Suharnan, decision making

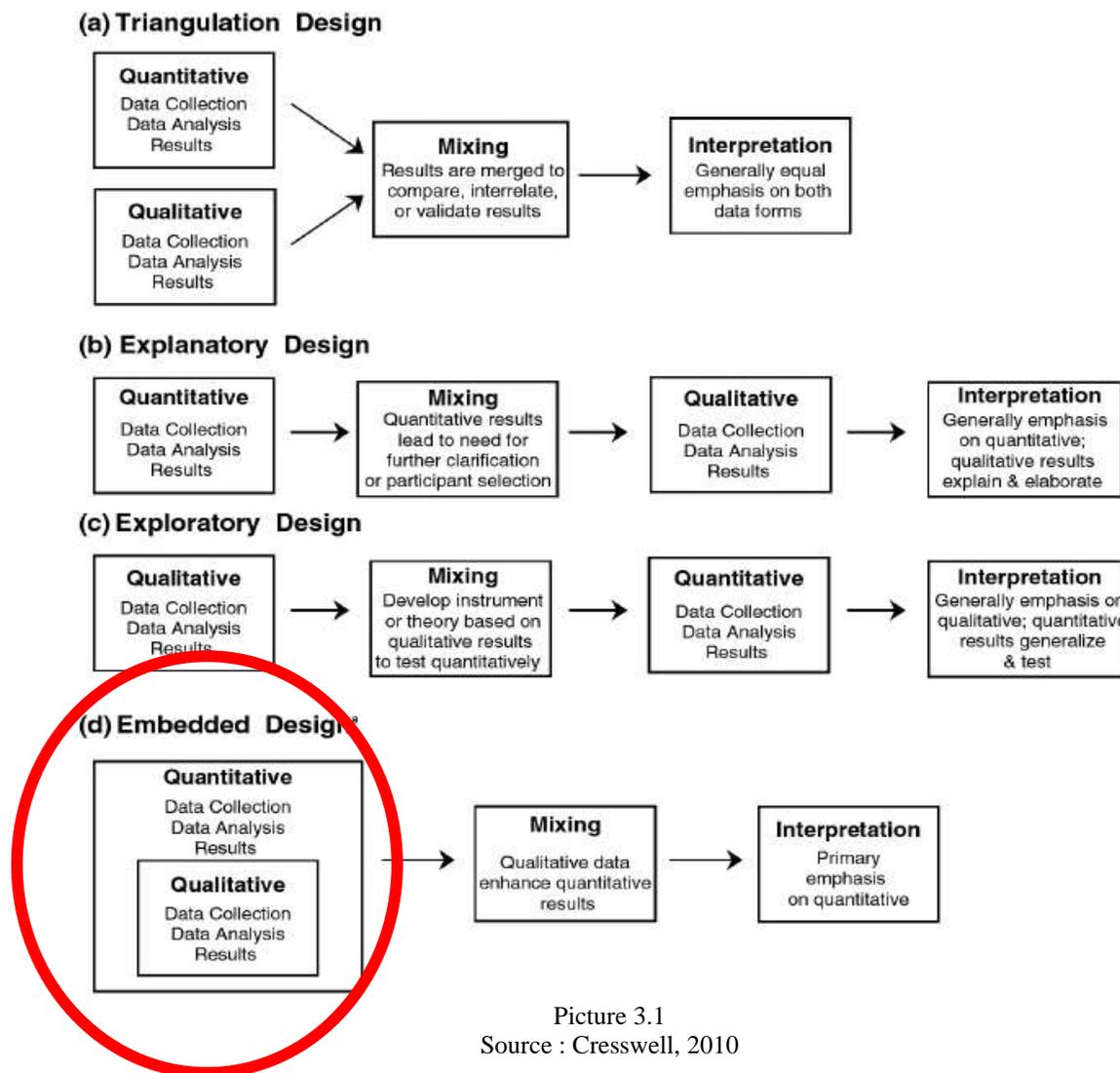
¹⁴ Dahlan, Alwi. 2000. *Perkembangan Industri dan Teknologi Media*, makalah untuk pelengkap kuliah Industri dan Teknologi Komunikasi Semester Genap 1999/2000, Jakarta: Universitas Indonesia:



is the process of choosing or determining various possibilities among uncertain situations.¹⁵ The basis for decision making according to G.R Terry is based on intuition, experience, facts, authority, rationality.¹⁶

3. DATA AND RESEARCH METHODS

This research is a mixed methods research, which is a research step by combining two approaches in research, namely qualitative and quantitative. Mixed research is a research approach that combines qualitative research with quantitative research (Creswell, 2010: 5). Meanwhile, according to Sugiyono (2011: 18) mix methods is a research method by combining two research methods at once, qualitative and quantitative in a research activity, so that more comprehensive, valid, reliable, and objective data will be obtained.

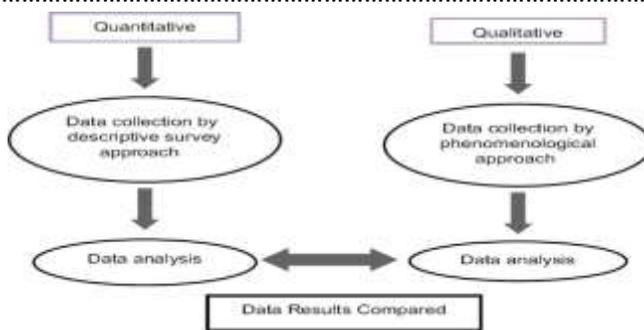


Picture 3.1
Source : Creswell, 2010

This study uses embedded design. Where simultaneous quantitative and qualitative supporting data are carried out, combined and interpreted in the form of interpretation based on valid data as support.

¹⁵ Suharnan. 2005. Psikologi Kognitif. Surabaya : Srikandi, page : 194

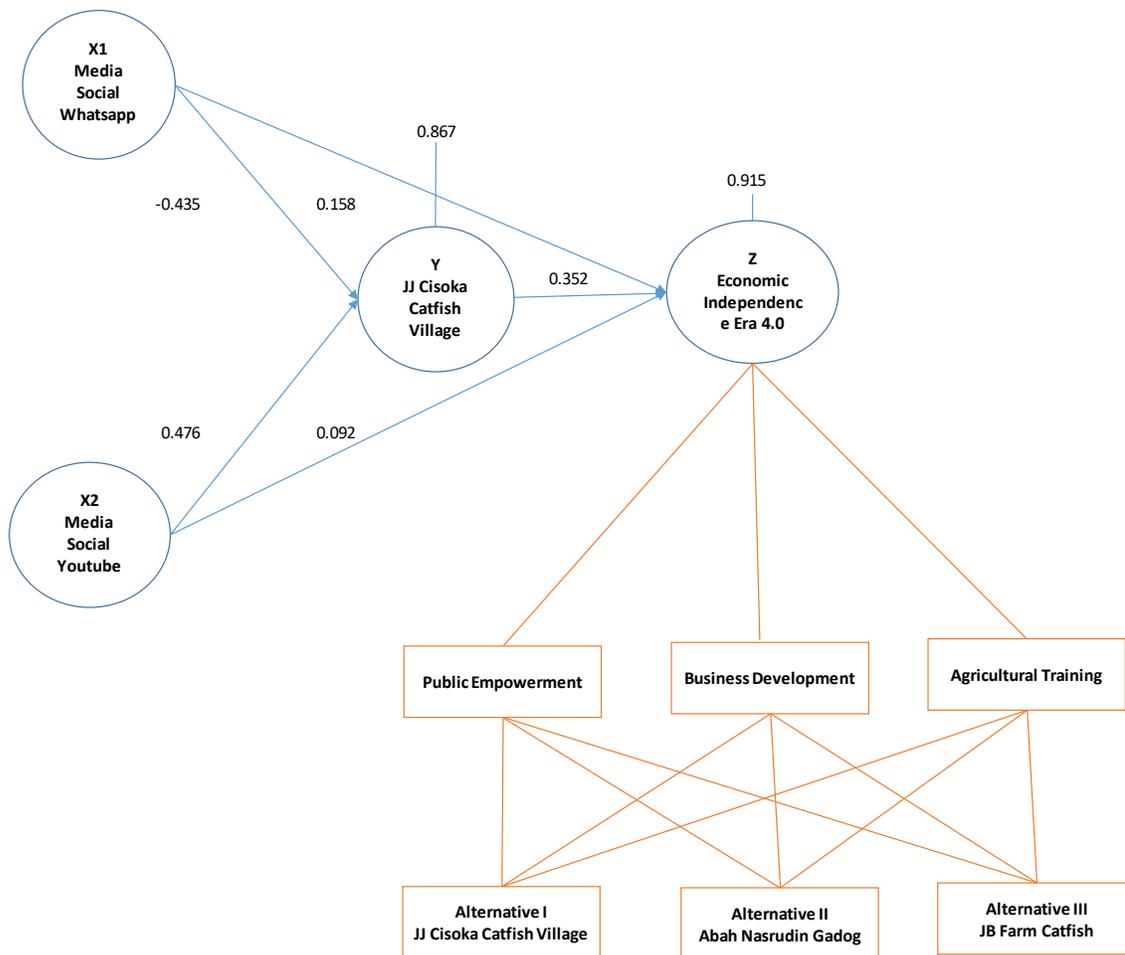
¹⁶ Syamsi, Ibnu. 2000. Pengambilan Keputusan dan Sistem Informasi. Jakarta : Bumi Aksara, Page : 5



Picture 3.2
 Source : Cresswell, 2010

4. FINDING AND DISCUSSION

After conducting the survey, distributing questionnaires to 50 respondents and conducting detailed interviews with autoanamnesa and aloamnesa sources. The results obtained if digital literacy carried out by Kampung Lele JJ Cisoka can have a major influence on 3 main criteria, namely empowerment, business development and agricultural training. This data is strengthened by the results of calculations and quantitative tests on 3 variables in the form of digital transformation, the UMKM actors in Lele Village JJ Cisoka and Economic Independence in Era 4.0. The Quantitative Data is described in detail by Path Analysis in order to obtain correlations between variables.



Picture 4.1
 Analysis Framing



Based on the framework above, the results obtained are X1 to Y showing a significant negative correlation effect where the value is -0.435 where the significance level is 0.003. Whereas X2 on Y has a significant direct effect with a value of 0.476 with a significance level of 0.001. While X1 on Z has an indirect and insignificant effect with a value of 0.158 and X2 on Z has an indirect effect with a value of 0.092. Furthermore, the effect of X1 on Y through Z shows the relationship between the magnitude of the direct influence of X1 on Z is 0.158 and the indirect effect is -0.153, which means that the indirect effect is smaller than the direct effect so that the value of X1 on Y through Z is a negative correlation effect with the level the significance of 0.337 is greater than 0.05 which means it is not significant. Then X1 - Y through Z has no direct and insignificant effect. The next step is the effect of the relationship X2 on Y through Z showing data where the direct effect of X2 on Z is 0.092, the indirect effect obtained is 0.643 with a significance level of 0.582. This means that the indirect effect is greater than the direct effect, so the hypothesis is accepted. The relationship of X1 to Y through Z is influential but not so significant.

Broadly speaking, digital transformation via whatsapp did not have a positive correlation effect but was significantly used as a medium of communication and coordination between members of the JJ Cisoka Lele Village team. Meanwhile, the utilization of the new media Youtube used by Kampung Lele JJ Cisoka shows a positive correlation effect as a means of media promotion and direct broadcasting to reach all people in cyberspace. Thus, with massive promotions in cyberspace, Kampung Lele JJ Cisoka influences the independence of the surrounding villagers and is able to fulfill the capacity of the micro-economic scale in Cisoka and even Indonesia as a whole. The economic revival of Cisoka Village is able to provide a positive stimulus for sectoral development of the economy of other regions in Indonesia. This is proven by the training of representatives of more than 330 local youth throughout Indonesia. The existence of new media in the form of Whatsapp and Youtube social networks has many benefits for human life. Kampung Lele JJ Cisoka optimizes the presence of YouTube media and provides convincing persuasion methods for digital natives to be productive, make money and be economically independent through the world of agriculture, especially catfish fishing.

The results of this analysis are reinforced by an interview matrix of autoamnesia and aloamnesia, where the YouTube channel is a campaign to change the mindset of catfish farmers to become economically independent. This video from Lele JJ Cisoka's lecturer and village was first uploaded by Rudianto. Through this channel, the lecturer shares his experiences and invites the public and even the audience to study together in Cisoka. It is not easy to immediately trust strangers who are just known in cyberspace, let alone to invest without uncertainty. With a reputation that has been well formed by the Lele Lecturer and Village, in the end several investors have joined to become catfish farmers. There are those who take care of it, invest in the form of money, become workers and undergo training starting from nursery to post-harvest even JJ Cisoka Catfish Village also receives the harvest of catfish from local residents.

Several other YouTube channels have also uploaded tips on the success of Kampung Lele Cisoka such as JB Farm Catfish with 4,700 viewers over the last 9 months, Pandumu Banten Channel 1,000 viewers over the past 8 months, Suhendra Marzs Channel 72 viewers, JB Farm Catfish featuring Lecturers and Mother Ratu Agung is watched by 1,600 viewers, Eduprint Podcast 320 viewers for the last 8 months.

Alternative 3 is catfish farmer Abah Nasrudin in Gadog, West Java. Through the YouTube channel, Bondan Smart is watched by 110,000 viewers, Rumahfresh 214,000 viewers for the last 8 years, ZTV 27,000 viewers, Warna TV 29,000 viewers for the last 1 year, Mas Curly 19,000 viewers for the last 1 year, Muhammad Fajar Ilham 949,000 viewers for the last 3 years, Concerned Catfish Farm 21,000 viewers for the last 1 year and more.

Alternative 3 is JB Farm Catfish Farmer with 1,220 thousand subscribers, 112 videos have been uploaded. This channel provides knowledge and information tips for raising catfish with an average viewer of 300 to 3,100 over the past 2 months.

Determination of the criteria for some of these alternatives is based on aspects of public empowerment, business development and agricultural training. With various comparisons after direct surveys, experiences, observations, facts, rationality and intuition for the 3 YouTube channels, a decision was obtained if Kampung Lele JJ Cisoka met the criteria for this study.

In detail, this aspect includes public empowerment carried out by simple methods in the form of returning to nature and caring for fellow beings with all sincerity. The lecturer broke the reputation if the farmer was poor and looked down upon. The lecturer provided counseling and escort from nursery to post-harvest, and even tried to alleviate farmer poverty due to price games by middlemen. Apart from that, Kampung Lele JJ Cisoka also created a free market and competitive prices around the Tangerang area.

From a business development perspective, Kampung Lele JJ Cisoka provides a win win solution strategy. The aspect of profit sharing for investors is based on the MOU and does not harm one another. For starters, Kampung Lele JJ Cisoka provides a guide for raising catfish, preparing water and ingredients in the form of probiotics which don't have to be cultivated several times to make it easier for novice farmers to care for catfish. In business terms, Kampung

Lele offers a promising formula for food counting ratio (FCR). Assuming the FCR of the feed is 8 quintals with a yield of 1 ton of catfish meat.

“Forty thousand of them are guided by me until the harvest, I say. This is miara 10 thousand catfish, he can harvest 1 ton. This is my guarantee of 10,000 catfish, 1 ton of feed, around 40,000 at most, bro, 3 tons and a half, the most, but I've never gotten to that point. He harvests 4 tons, 3 tons and a half harvests 4 tons. That's the most, bro. The capital for the 7 catfish seeds is only 230 per head. 10 thousand and 2,300,000, the feed doesn't even reach a ton, bro. The feed is about 8 quintals. 0.8FCR . No, reverse. Not 0.8. The FCR, that's the end result right? The FCR is 12. For 0.8 feed for 1 ton, the result is 8 quintals. We're back, back. Feed 1 ton can get 8 quintals. So we feed 8 quintals and get 1 ton. 80% feed gets 1 ton” interview Mr. Trison UMT Lecturer (Entrepreneur of Lele Village JJ Cisoka).

From the point of view of training in agriculture, Kampung Lele JJ Cisoka during a 6-month research period in 2020, the pioneer of the idea provided training money of 1,500,000 per month, eating 3 times a day. During trials and research, pioneers invite them to study together and are given funds for research. So it can be said that the loss due to failed research is the full responsibility of the pioneer of the Kampung Lele idea. After succeeding in his discovery, the pioneers of Kampung Lele provided guidelines and ways for the community to taste the sweet fruit.

This digital transformation is expected to contribute to economic independence in the industrial era 4.0. There needs to be an effort from the Government to maximize the potential and a big dream for farmers for micro and macro economic development. If through the new media YouTube alone catfish farmers can create sustainable economic steps, then digitalization with the support of the authorities, infrastructure and government authority is expected to save the global economy and change the new face of MSMEs in Indonesia which are transformed in digital form. In essence, agricultural businesses in full need to get digital support in the form of applications that enable business development. The simple idea is that the capital aspect is supported by a calculated investment value such as stocks. Anyone can invest and get results from agricultural business profits with the application. Integrated applications in one module starting from aspects of investment, production, and distribution in a clear market. This is the new face of MSMEs that are digitally transformed to achieve economic independence in the industrial era 4.0.

5. CONCLUSION

Globally, Indonesia with all the natural resources and human resources potential is ready to develop micro-economic aspects in agricultural business. Another opportunity is digital transformation with Indonesia in the 2017 Digital Evolution Index Graphic Plotting the Digital Evolution Index in the Break Out category, namely a country with a relatively low score, but will evolve rapidly and has the potential to become a country with a digital economy that is strong. This readiness must be accompanied by the implementation steps for the development of agricultural businesses.

Indonesia's potential collaboration with the World Bank includes digital literacy programs and training to increase digital expertise, especially to increase digital technology adoption for MSMEs, and then share information on best practices in creating digital talent with other World Bank member countries. In the form of technical assistance to build a sound policy framework in order to strengthen the digital economy ecosystem in Indonesia, as well as capacity building programs to support digital talent programs that already exist in Indonesia.

Sustainable economic steps, digitalization supported by the role of authorities, infrastructure and government authorities are expected to save the global economy and change the new face of MSMEs in Indonesia which are transformed in digital form. In essence, agricultural businesses in full need to get digital support in the form of applications that enable business development. The simple idea is that the capital aspect is supported by a calculated investment value such as stocks. Anyone can invest and get results from agricultural business profits with the application. Integrated applications in one module starting from aspects of investment, production, and distribution in a clear market. This is the new face of MSMEs that are digitally transformed to achieve economic independence in the industrial era 4.0.

6. ACKNOWLEDMENT

This research is specifically dedicated to Indonesia, the land of Gemah Ripah Loh Jinawi with all its natural wealth which has supported the needs of creatures on this earth. Thank you for the sincerity of the universe in sharing to reach the highest peak of life science to create a prosperous life through this research. Still in a matter of countless and unpredictable steps, thank you to people who are always full of love to share for the benefit of all. Thank you to Mr. Trison as the lecturer and originator of the idea of Kampung Lele JJ Cisoka, thank you to Indonesia, which is very rich and to the professor who teaches the science of eternal life, Boss Mustofa Rachma.

7. REFERENCES



-
- [1] Adiningsih, Sri. Dkk, 2019. Transformasi Ekonomi Berbasis Digital di Indonesia (Lahirnya Tren Baru Teknologi, Bisnis, Ekonomi dan Kebijakan di Indonesia). Jakarta : Gramedia Pustaka Utama.
- [2] Berger, Charles R, dkk. 2015. Handbook Ilmu Komunikasi. Bandung: Nusa Media.
- [3] Budiargo, Dian. 2015. Berkomunikasi ala Net Generation. Jakarta: PT Elex Media Komputindo Kompas Gramedia
- [4] Briggs, Asa. 2002. A Social History of The Media: From Gutenberg to the Internet. Cambridge: Polity Press
- [5] Celina Tri Siswi Kristiyanti, 2008, Hukum Perlindungan Konsumen, Sinar Grafika, Jakarta, h.41
- [6] Creswell, J. W. (2010). Research design: pendekatan kualitatif, kuantitatif, dan mixed. Yogyakarta: PT Pustaka Pelajar.
- [7] Daszko, M. and Sheinberg. (2017). Survival is optional: Only Leaders With New Knowledge Can Lead the Transformation.
- [8] Dahlan, Alwi. 2000. Perkembangan Industri dan Teknologi Media, makalah untuk pelengkap kuliah Industri dan Teknologi Komunikasi Semester Genap 1999/2000, Jakarta: Universitas Indonesia
- [9] Baran, Stanley J dan Dennis K.Davis. 2011. Teori Komunikasi Massa, Dasar Pergolakan dan Masa Depan. Jakarta: Salemba Humanika
- [10] Desmita, Psikologi Perkembangan Peserta Didik, (Bandung: PT. RemajaRosdakarya, 2014), hal. 185.
- [11] Drath, R., & Horch, A. (2014). Industrie 4.0: Hit or hype?[industry forum]. IEEE industrial electronics magazine, 8(2), pp. 56-58
- [12] Fatimah, Enung, Psikologi Perkembangan (Perkembangan Peserta Didik), (Bandung: CV. Pustaka Setia, 2010), hal. 27
- [13] Iskandar Putong, Economics Pengantar mikro dan Makro, (Jakarta,Mitra Wacana Media,2010) h. 1
- [14] Manovich, Lev. "New Media From Borges to HTML." The New Media Reader. Ed. Noah Wardrip-Fruin & Nick Montfort. Cambridge, Massachusetts, 2003.
- [15] Nasrullah, Rulli. (2015). Media Sosial Perspektif Komunikasi, Budaya dan Siosioteknologi. Bandung: Simbiosis Rekatama Media
- [16] Nurhayati, Eti, Psikologi Pendidikan Inovatif, (Yogyakarta: PustakaPelajar, 2011), hal. 131.
- [17] Philp, Mark. "Michel Foucault", dalam Quentin Skinner (ed.), The Return of Grand Theory in the Human Sciences. Cambridge: Cambridge University Press, 1986.
- [18] Pearce, D.W dan Turner, R.K. 1986. "Economics of Natural Resources Environment". London: Harvester Wheatsheaf.
- [19] Sugiyono. 2011. Metode Penelitian Kuantitatif, Kualitatif dan R&D. Bandung: Afabeta
- [20] Susetyo, Benny, Partisipasi Kaum Awam dalam Pembangunan Menuju Kemandirian Ekonomi, (Malang: Averoes Press, 2006), hal. 10
- [21] Suharnan. 2005. Psikologi Kognitif. Surabaya : Srikandi, page : 194
- [22] Syamsi, Ibnu. 2000. Pengambilan Keputusan dan Sistem Informasi. Jakarta : Bumi Aksara, Page : 5
- [23] Tiktik Sartika Partomo&Abd. Rachman Soejoedono, "Ekonomi Skala Kecil/Menengah dan Koperasi", (Jakarta: Ghalia Indonesia, 2004), hal. 13.
- [24] Tulus T.H. Tambunan, UMKM di Indonesia, (Bogor : Ghalia Indonesia, 2009), hal.16
- [25] https://www.kemenkopukm.go.id/uploads/laporan/1617162002_SANDINGAN_DATA_UMKM_2018-2019.pdf diakses 27 Juni 2021 pukul 09:21 oleh Sri Patmi
- [26] <https://www.pikiran-rakyat.com/ekonomi/pr-01379615/1785-koperasi-dan-163713-umkm-terdampak-pandemi-covid-19> diakses 27 Juni 2021 pukul 09:49 oleh Sri Patmi
- [27] <https://www.kominfo.go.id/content/detail/30276/tingkatkan-produktivitas-dan-nilai-tambah-umkm-melalui-teknologi-digital/0/berita> diakses 27 Juni 2021 pukul 10:00 oleh Sri Patmi
- [28] Kagermann, H., Lukas, W.D., & Wahlster, W. (2011). Industrie 4.0: Mit dem Internet der Dinge auf dem Weg zur 4. industriellen Revolution. <http://www.vdinachrichten.com/Technik-Gesellschaft/Industrie-40-Mit-Internet-Dinge-Weg-4-industriellen-Revolution>, diakses 27 Juni 2021 pukul 10:00 oleh Sri Patmi
-

THIS PAGE IS INTENTIONALLY LEFT BLANK