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The Challenges of Digitalization for the Cooperation in West Coast Region of Aceh Province

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Abstract

This paper aims to investigate the challenges for implementation of digitalization for cooperatives in West coast of Aceh Province. The cooperatives are a business and social entity that it belongs to members of the cooperatives. The qualitative method is used for analysis the data. The primary data was collected by depth interview method and literature review. According a survey by Kompas in 2023, there is less than 1 percent of cooperatives has been digitalized by adopting information and technology system. The study will examine the five factors for implementation of digitalization namely human resource management, software resource, hardware resource, networking resource and data resources. Implementation of digitalization in the cooperative can lead a new technique of business such as digital marketing, digital payment, digital procurement and working from distance. This research will assist the policy makers to accelerate the digitalization in cooperative in West Coast Region of Aceh province.

Keywords: Digitalization, Cooperatives, 5 factors

Introduction

Cooperative digitalization aims to encourage the presence of modern cooperatives. The change from traditional systems to automated systems allows for increased effectiveness and efficiency, including in the cooperative business sector (Limanseto, 2021). History proves that technology is a creative destruction. This term was introduced by Austrian economist Joseph A Schumpeter in the mid-1940s who stated that entrepreneurs will continue to develop innovation and creativity to survive and technology is a destroyer that will build new business models (Schumpeter, 1942). Therefore, businesses that are unable to read the changing times will be passed by these changes. Some examples of large companies such as Kodak, Fujifilm, Blackberry, conventional taxis to Toshiba companies that have just announced bankruptcy. (Idris, 2024) In Indonesia, large companies such as the Bata shoe maker have just announced their closure. This is inseparable from the strong

competition and the slow pace of technology adoption.

Digitalization is the key to adapting to a business world experiencing disruption and turbulence, including cooperatives that must compete with other forms of business. Digitalization supported by the government has a positive impact on increasing the competitiveness of cooperatives (Wahyuningtyas et al., 2023). Cooperatives are the pillars of the economy that drive the regional economy. Cooperatives have principles and characteristics that are different from other business entities so that the role of cooperatives in the economy needs to be improved by increasing the capitalization of cooperatives. According to a survey (Kompas, 2021) of 123 thousand active cooperatives, only 906 or 0.73% of cooperatives have adopted digital technology (idxcoop, 2023). Through the digitalization process in services and relationships with consumers. Digitalization also encourages stronger business resilience including small businesses and cooperatives in the face of uncertainty including during covid-19 which proves that businesses that adopt technology are able to survive and thrive (Francia, 2023).

In addition, digital transformation is a social change in society that requires the industry to change and adapt to the needs of society (Sehlin et al., 2019). Consumers change along with the changing times. Current conditions require businesses to serve their consumers quickly and also connect online in payment, purchase and promotion service providers. Therefore, cooperatives must prepare resources for digital transformation in the era of digital society. Based on research on the implementation of cooperative digitalization in Greater Bandung, it is found that the digitalization implementation factor has gone up, but the constraints of human resource readiness are still the things that require the main attention to improve the skills of cooperative managers to adapt to technological transformation (Purbasari, R & Raharja, J, S, 2022). Therefore, the role of government intervention is needed to provide training and technical assistance in order to strengthen the human resources of cooperative management to understand digital transformation in accordance with market needs.

Cooperatives in Aceh Province total 259,749 units (Data from the Office of Cooperatives and SMEs, 2021). However, the number of healthy cooperatives in Aceh province must be increased to realize cooperatives as drivers of the people's economy. Given the important role of cooperatives, the government provides capital, technical and non-technical support for the management of cooperatives to become independent cooperatives. Cooperatives to become independent cooperatives. Forms of government support in encouraging cooperative digitalization through strengthening digital capacity, digital innovation that will increase the copmetitivenss of cooperatives so that they can compete. The Aceh government encourages the digitalization of cooperatives and encourages the number of cooperatives with healthy status to continue to increase from 52 in 2021 to 136 in 2022 (Diskop Provinsi Aceh, 2023).

The research aims to conduct a study on Strengthening Digital Technology in Cooperatives to Improve Business Competitiveness and Member Welfare (Case Study of Cooperatives in South- West Aceh Province).

Based on the above background, several problems can be formulated as follows:

1. Challenges in the digitalization process of cooperatives in the South-West of Aceh province
2. Percentage of cooperatives that have adopted digitalization in the South-West of Aceh Province
3. Formulate recommendations for the digitalization transformation of cooperatives in the South- West of Aceh Province

Literature Review

Cooperative digitalization is a transition of changing the cooperative system from a conventional system to a digital platform. This process is driven by the development of technology and the internet. Previous research using qualitative, quantitative and mixed-method methods from various sources as follows:

From previous research, it is concluded that cooperative digitalization can improve the performance and effectiveness of cooperatives. In addition, the role of the government in supporting cooperative digitalization plays a significant role in the competitiveness of cooperatives. Previous research also confirmed that providing digitalization training to cooperative members and management had an impact on increasing the competence of cooperative members.

Definition of Cooperative

According to (Law of the Republic of Indonesia Number 17 of 2012 concerning Cooperatives, 2012) defines a Cooperative as a business entity consisting of individuals or cooperative legal entities by basing its activities on cooperative principles as well as a people's economic movement based on family principles. According to article 4 of the law, cooperatives have the following roles:

1) Building and developing the potential and economic capacity of members in particular and society in general to improve their economic and social welfare.
2) Actively participate in efforts to improve the quality of human life in society.
3) Strengthening the people's economy as the basis for the strength and resilience of the national economy with cooperatives as its pillar.
4) Strive to realize and develop a national economy which is a joint venture based on the principles of kinship and economic democracy.

Definition of cooperatives according to experts:

a. According to Mohammad Hatta (Father of Indonesian Cooperatives), a cooperative is a joint business that has the aim of improving economic life based on the principle of gotong royong (Itang, 2016).
b. According to the ILO (International Labor Organization), a cooperative is a

group of people based on volunteerism with economic goals to be achieved and in the form of a business organization that is democratically supervised and controlled (Lumbantobing et al., 2002).

c. According to Dr. Fay, a cooperative is an association with the aim of doing business together consisting of those who are weak and are always cultivated with a spirit of not thinking of themselves in such a way that each is able to carry out their obligations as members and get rewards that are proportional to their use of the organization (Hendrojogi, 1997).

Competitiveness

According to Michael Porter (2012), competitiveness is defined based on the productivity produced and focuses on the advantages possessed in a particular cluster. So that to increase competitiveness must be followed by an increase in productivity which is assessed in economic terms.

According to Siregar (2020) Cooperative performance indicators can be measured from:

1) Turnover growth trend
2) Trend of asset growth
3) Trend of growth and development of target markets
4) Trend development in the number of members and communities served

According to the Co-operative Performance Committees UK 2019, which developed key performance indicators to serve as a guide in assessing cooperative performance as follows:

Member Welfare

Several ways are done to improve the welfare of cooperative members, among others, by increasing their own capital, increasing principal savings, mandatory savings, and voluntary savings and by opening other existing business units. Cooperatives are based on the principle of kinship and aim to improve the welfare of members in particular and society in general.

Five indicators to measure the success of the cooperative:

1) Ratio of SHU to business volume
2) Development of the number of members
3) Volume of business
4) Diversification of business
5) Capital development

Adoption of Cooperative Digitalization

A digital cooperative is a transition from a conventional cooperative system to a digital platform. This process involves the implementation of technology and internet and must be supported by the availability of human resources and

infrastructure.

The Research Framework developed by Wahyuningtyas et al., 2021 to improve the competitiveness of cooperatives in Bandung through digitalization. The role of the government in the form of financial and non-financial support for cooperatives which is realized by digital capacity building programs towards digital innovation and will ultimately have an impact on competitiveness. Previous research by Zainuddin et al., 2021 on Cooperative management in Malaysia states that the application of cooperative digitalization will increase competitiveness and more transparent management in cooperative management. One example of the successful application of digitalization through the Kaya digital platform developed by NATCCO and The Philippine Federation of Credit Cooperatoves which allows cooperatives to be connected to the digital payment eco-system since 2021 in the Philippines (DGRV, 2023). The study conducted by Aly et al (2020) mentioned several factors that become barriers to technology adoption, namely: ethnicity, tribe, geographic location, age and special health problems that may be barriers to technology adoption.

While the research framework of this study the effect of digitalization will increase transparency in the management and management of cooperatives which will support the improvement of cooperative competitiveness.

Methodology

This study employs a mixed-method approach, integrating qualitative and quantitative methods to comprehensively analyze the strengthening of digital technology in cooperatives to enhance business competitiveness and member welfare. The research focuses on cooperatives in the South-West region of Aceh Province, particularly in the districts of Aceh Jaya, West Aceh, and Nagan Raya.

The research process begins with the identification of digitalization applications in cooperatives within the study area. This step aims to map the extent to which cooperatives have adopted digital technology in their operations. Following this, an in-depth analysis is conducted to examine the factors influencing the strengthening of digital technology, including both supporting and inhibiting elements. Additionally, a study is carried out to identify the challenges and barriers faced by cooperatives in implementing digitalization.

To achieve these objectives, data collection is conducted through surveys, interviews, and questionnaires involving cooperative administrators, members, and consumers. The quantitative approach is used to measure the percentage of cooperatives that have adopted digital technology, while the qualitative approach provides deeper insights into the success factors, obstacles, and strategic solutions in the digitalization process.

By integrating these methods, this research aims to provide a comprehensive understanding of cooperative digitalization in the South-West region of Aceh

Province, offering valuable insights for stakeholders in developing policies and strategies to enhance cooperative digital transformation.

Data Source

The data source in question is all information in the form of real objects, events. According to (Sukandarrumidi, 2006) qualitative data sources in research are not subjective, therefore they need to be given weight. The data sources used in qualitative research are:

1) Primary Data

Primary data is data obtained directly from the results of interviews and surveys to the cooperative and MSME offices in the South-West region of Aceh Province and conducting interviews with cooperative representatives and distributing questionnaires online.

2) Secondary Data

Secondary data is data obtained from third parties. This data is obtained from the results of data collection from government reports, the Central Bureau of Statistics, previous scientific journals, and reading results from other sources. This data is carried out to strengthen and complement primary data sources that have been conducted through direct interviews with resource persons in the area.

Data Collection Technique

The data collection method is an important step in conducting research, because the data collected will be used as material for analysis in research. The technique used in this data collection uses purposive sampling technique. Purposive sampling is one type of sampling technique commonly used in scientific research. Purposive sampling is a sampling technique by determining certain criteria.

In drawing the sample, some informants who became sources were as follows:

1. Office of Cooperatives and MSMEs in the south-west region of Aceh Province
2. Cooperative management
3. Cooperative members
4. Cooperative expert
5. Digital business expert

Data Analysis Technique

Data analysis is the process of systematically searching and compiling data from interviews, observations and documentation by organizing data and selecting what is important and what needs to be studied and making conclusions so that it is easily understood through data reduction, data presentation, and conclusion drawing.

Result and Discussion

Based on interviews and direct observations to three districts namely Aceh Jaya, West Aceh, and Nagan Raya districts, the following research results were obtained as follows:

Regency/City, Province, and Total	Number of Cooperatives by District/City (Unit)		
	Active	Inactive	Total
	2023	2023	2023
Aceh Jaya	61	147	208
Aceh Barat	189	71	260
Nagan Raya	300	114	414

Source: Statistic Agency Prov. Aceh 2024

Based on data from the Central Bureau of Statistics of Aceh Province in 2024 active cooperatives in 2023 in Aceh Jaya district as many as 61 units, West Aceh 189 units, and Nagan Raya 300 units so that it can be concluded that the largest number of cooperatives with active status of the three districts conducted research is Nagan Raya district.

While the number of cooperatives with inactive status in Aceh Jaya district amounted to 147 units, West Aceh district 71 units and Nagan Raya district 114 units. It can be concluded that Aceh Jata district has the most inactive cooperatives.

Brief Profile of West Aceh Regency

West Aceh District is a district located in the South-West region of Aceh Province. West Aceh Regency has its capital in Meulaboh which borders the Indian Ocean. The economic activities of the community are dominated by the Agriculture, Fisheries and Marine, and Mining. sectors. In addition, West Aceh Regency has several educational centers such as Teuku Umar University, Islamic Religious College, State Community Academy and State Nursing Academy School. In addition, West Aceh Regency is also one of the centers of commerce and trade. Since 2014 the mining sector has been developed with the presence of mining companies in West Aceh Regency. The plantation sector such as oil palm and rubber is a leading sector in the plantation sector.

Brief Profile of Aceh Jaya Regency

Aceh Jaya Regency is an expansion district from West Aceh Regency in 2002. Aceh Jaya Regency consists of 10 sub-districts. The total population reached 93,159. Agriculture and fisheries are the main sectors of community activities.

Brief Profile of Nagan Raya Regency

Nagan Raya Regency is a Regency that was formed in 2002. Nagan Raya Regency has its capital in suka Makmue. Nagan Raya Regency has potential in the oil palm plantation sector, agriculture, especially rice crops, coal mining, PLTU (Steam Power Plant) industry and GIOK mining. The population of Nagan Raya Regency in 2020 reached 85,039 males and 83,353 females.

Discussion of Research

Based on interviews with the Office of Cooperatives and SMEs in three districts—Aceh Jaya, West Aceh, and Nagan Raya—it was found that cooperative development in these areas still faces various challenges. Institutionally, cooperatives are legal entities established with a minimum of nine members, with an unlimited number of members in accordance with cooperative principles. However, from a business perspective, many cooperatives still operate conventionally, with business categories including producer cooperatives, consumer cooperatives, savings and loan cooperatives, marketing cooperatives, and service cooperatives.

In terms of capital, cooperatives obtain funds from principal savings, mandatory savings, reserve funds, and grants from third parties. Principal savings are the initial deposits made by members when they join, while mandatory savings must be paid regularly. Reserve funds come from retained surplus income (SHU), whereas grants come from external assistance. The regulations governing cooperatives include Article 33, Paragraph 1 of the 1945 Constitution, Law No. 25 of 1992 on Cooperatives, and Ministerial Regulation No. 10 of 2005 on cooperative institutions.

One of the main challenges faced by cooperatives in Aceh is the low compliance with the Annual Member Meeting (RAT), which is a mandatory accountability forum for cooperative management and supervisors to report to members. Many cooperatives in Aceh Jaya, West Aceh, and Nagan Raya fail to conduct RATs on time, which should be held no later than six months after the fiscal year ends. This issue is further exacerbated by disharmony between management and members, a lack of understanding of cooperative governance, and transparency issues in cooperative operations. Moreover, cooperatives in these regions also struggle with digitalization. According to the interviews, the adoption of digital technology among cooperatives remains very low, below 1%. The primary barriers to digitalization include a lack of awareness among cooperative members about its benefits, insufficient training on digital technology, and limited infrastructure. For instance, certain areas in Aceh Jaya still have internet blind spots, which hinders the full implementation of digital systems.

From a policy perspective, there are no specific district regulations supporting cooperative digitalization in these three regions. However, local governments have allocated an annual budget of IDR 300–400 million for cooperative development. Despite this allocation, the funds are considered insufficient to monitor and provide

guidance for all cooperatives in the region. Additionally, the limited number of civil servants (ASN) assigned to the cooperative office makes supervision and assistance less effective. The potential for cooperative development in Aceh is actually quite significant, particularly in the plantation, agriculture, and fisheries sectors. However, the low level of digital literacy among cooperative managers and the lack of technical support for developing digital platforms remain major obstacles. To address these challenges, intensive training on the benefits of digitalization, technical assistance in website creation and social media management, and an increase in budget allocations for cooperative digital transformation are necessary.

Results of Respondents' Answer

The results of this study indicate that cooperative management and membership in the South-West region of Aceh Province are predominantly male, with most administrators being millennials aged 18–45 years, holding a bachelor's degree, and having more than 10 years of experience in cooperatives. This demographic composition suggests a potential for digital adaptation, as younger and more educated individuals tend to be more receptive to technological advancements (Purbasari & Raharja, 2022). However, despite the recognition of digitalization's importance—reflected by 60% of respondents agreeing on its necessity—the actual implementation remains limited due to several persistent challenges.

These findings align with previous research that highlights digital literacy gaps and resource constraints as major obstacles to cooperative digital transformation (Wahyuningtyas et al., 2023; Aly, 2020). Specifically, 50% of cooperative administrators in this study lack a comprehensive understanding of the benefits of digitalization for business development, which serves as a significant barrier to adoption. Furthermore, 80% of cooperatives still rely on basic information technology, a trend consistent with the 2021 Kompas survey, which reported that less than 1% of Indonesian cooperatives had adopted digital platforms. This digital divide is further exacerbated by limited training opportunities and inadequate infrastructure, particularly in rural areas, as identified by 40% of respondents who cited poor internet connectivity as a major impediment.

The implications of these findings extend to both research and practical applications. The low level of digital adoption emphasizes the urgency of targeted interventions aimed at enhancing digital literacy among cooperative managers. Prior studies underscore that government-led training and technical assistance are crucial for equipping cooperative administrators with the necessary skills to facilitate digital transformation (Wahyuningtyas et al., 2023). This study reinforces that perspective, as 40% of respondents identified human resource limitations as a primary challenge. Additionally, the economic benefits of digitalization are evident, with 70% of respondents acknowledging that digital platforms improve transparency and accountability in financial management. Moreover, 80% agreed that digital tools

could facilitate membership recruitment and engagement via smartphones, supporting Francia's (2023) argument that technological adoption enhances operational efficiency and member satisfaction. However, the significant financial burden associated with digital transformation remains a key concern, highlighting the need for subsidized funding or grant programs, as emphasized in Aly's (2020) framework on resource constraints in cooperative digitalization.

Another critical aspect revealed in the study is consumer behavior regarding digital transactions. While digitalization offers numerous benefits, 80% of respondents still prefer direct, in-person purchases over online transactions, indicating a need for gradual digital adaptation. Additionally, 80% of cooperatives rely on social media as their primary promotional tool, with only 20% utilizing websites and mobile applications. This underscores the importance of an incremental approach to digital transformation, beginning with cost-effective strategies such as social media engagement before progressing to more advanced digital platforms.

To address these challenges, policy interventions should prioritize improving digital infrastructure, particularly by expanding internet access in underserved areas and providing financial incentives to support digital adoption among cooperatives. Strengthening collaboration between cooperatives and digital service providers could also reduce implementation costs and increase accessibility to digital platforms. By overcoming these barriers, cooperatives in the South-West region of Aceh Province can enhance their competitiveness and member welfare, aligning with broader global trends in cooperative digitalization (Zainuddin et al., 2023).

These findings underscore the critical need for a comprehensive strategy to facilitate the digital transformation of cooperatives, ensuring their sustainability and relevance in an increasingly digital economy.

Conclusion

Based on the results of research conducted under the title *Strengthening Digital Technology in Cooperatives to Improve Business Competitiveness and Member Welfare (Case Study of Cooperatives in the South-West of Aceh Province)* in three districts—Aceh Jaya, West Aceh, and Nagan Raya—it is concluded that many cooperatives are inactive. This inactivity is primarily due to their establishment for short-term purposes, such as obtaining government assistance and grants, rather than focusing on long-term sustainability. Additionally, many cooperatives fail to hold Annual Member Meetings (RAT), which results in stagnation and a lack of progress.

The study also highlights that the percentage of cooperatives that have adopted digitalization remains extremely low, at less than 1%. This limited adoption is exacerbated by the insufficient number of human resources with adequate digital literacy. Many cooperative administrators lack the necessary knowledge and skills to implement digital technology effectively, hindering their ability to modernize

cooperative operations.

Another critical issue identified in the study is the involvement of some cooperative administrators in corruption cases, particularly in West Aceh District. This unethical practice further weakens cooperative institutions and diminishes trust among members, making it even more challenging to implement sustainable business strategies. Furthermore, the research finds that government support for digitalization training programs is inadequate. Without sufficient funding and structured training initiatives, cooperative managers and members struggle to develop the technical expertise needed for digital transformation. As a result, cooperatives in the South-West region of Aceh Province remain largely conventional in their operations, unable to leverage digital tools to enhance efficiency, competitiveness, and member welfare.

To address these challenges, it is essential to provide structured training on the benefits and implementation of cooperative digitalization. Additionally, technical assistance should be offered to support website creation and the management of cooperative social media platforms. Strengthening oversight mechanisms to ensure that Annual Member Meetings are conducted regularly can also improve transparency and accountability within cooperatives. Lastly, increasing government budget allocations for cooperative digitalization initiatives is crucial to accelerating the adoption of digital technology and fostering sustainable cooperative growth.

References

Aly, M. (2020). Factors, barriers and attitudes affecting the adoption of digital technologies by NZ cooperative retailers. *J. Asia Entrepreneurship Sustain. Spec. Ed. Tauranga, 16*(5), 169–209.

Basterretxea, I., & Albizu, E. (2011). Management training as a source of perceived competitive advantage: The Mondragon Cooperative Group case. *Econ. Ind. Democracy, 32*(2), 199–222.

COOP (2019). Key Performance Indicators: A Framework & Guidance for Co-operatives. Retrieved from https://www.uk.coop/sites/default/files/2020-10/KPI_report.pdf.

Dinas Koperasi dan UKM Aceh (2023). *Jumlah Koperasi sehat di Aceh ditargetkan terus bertambah*. Retrieved from https://diskop.acehprov.go.id/berita/kategori/dinas-koperasi-dan-ukm-aceh/jumlah-koperasi-sehat-di-aceh-ditargetkan-terus-meningkat.

Francia, L. P. R. (2023). Digital Transformation to Generate New Business Opportunities, Opening to New Markets in the MSMEs and Gender-Focused Cooperatives, in response to the Economic Crisis Caused by Covid-19. *APEC Small and Medium Enterprises Working Group, July 2023.*

Hasbullah, H., & Bareduan, A. S. (2021). The Framework Model of Digital Cooperative to Explore Economic Potential in Higher Education. *Journal of SINERGI, 25*(2), 195-206.

Hendrojogi. (1997). *Koperasi: Azas-azas dan Praktek*. Raja Grafindo Persada.

Idris, M. (2024). Benarkah Raksasa Elektronik Toshiba Bangkrut? *Kompas*. Retrieved from https://money.kompas.com/read/2024/02/25/171924726/benarkah-raksasa-elektronik-toshiba-bangkrut?page=all.

Idxcoop (2023). *Transformasi digital mengungkit bisnis koperasi, mitos atau fakta?* Retrieved from https://idxcoop.kemenkopukm.go.id/blog/opini-dan-gagasan/transformasi-digital-mengungkit-bisnis-koperasi-mitos-atau-fakta.

International Cooperative Alliance (2022). Large Cooperatives: Digitalization, Participation and Democracy. *World Cooperative Monitor 2022 Extract.*

Itang. (2016). Pemikiran Ekonomi Koperasi Mohammad Hatta: Relevansinya dengan Etika Ekonomi Islam. *Journal of Chemical Information and Modeling.* Laksita Indonesia.

Limanseto, H. (2021). Digitalisasi Koperasi Dorong Pengembangan dan Modernisasi Koperasi. Retrieved from https://ekon.go.id/publikasi/detail/3392/digitalisasi-koperasi-dorong-pengembangan-dan-modernisasi-koperasi.

Lumbantobing, J., Purba, E. F., & Simangunsong, R. (2002). *Ekonomi Koperasi.* Universitas HKBP Nommensen.

Nurdany, A., & Prajasari, C. A. (2020). Digitalization in Indonesia Cooperative: Is It Necessary? *Journal of Developing Economics, 3*(2), 120-231.

Porter, M. (2012). Competitiveness & Economic Development. *Institute for Strategy & Competitiveness, Harvard Business School.*

Purbasari, R., & Raharja, J. S. (2022). Digital Transformation in Cooperative Business Processes: A Study on Cooperatives in the Greater Bandung Area. *Jurnal Inovasi Bisnis, 10*-16-22.

Reis, J., Amrim, M., Melao, N., Coheo, Y., & Rodrigues, M. (2020). Digitalization: A Literature Review and Research Agenda. *IJCIEOM 2019, LNMUINEN*, 443-456.

Schumpeter, J. (1942). *Capitalism, Socialism, and Democracy.* Harper & Bros.

Sehlin, D., Truedsson, M., & Cronemyr, P. (2019). A Conceptual Cooperative Model Designed for Processes, Digitalization and Innovation. *International Journal of Quality and Service Sciences, 11*(4), 504-522.

Siregar, A. P. (2020). Kinerja Koperasi di Indonesia. *Jurnal Ilmu Pertanian Tropika dan Subtropika, 5*(1), 31-38.

Sukandarrumidi. (2006). *Metodologi Penelitian: Petunjuk Praktis untuk Peneliti Pemula.*

The Friedrich-Ebert-Stiftung (2020). What is Digitalization? Opportunities and Challenges in East Africa.

Undang-Undang Republik Indonesia Nomor 17 Tahun 2012 Tentang Perkoperasian. DPR RI (2012).

Wahyuningtyas, R., Disastra, G., & Rismayani, R. (2021). Digital Innovation and Capacity to Create Competitiveness Model for Cooperativeness in Bandung, Indonesia. *Jurnal Manajemen Indonesia, 21*(2), 171-182.

Wahyuningtyas, R., Disastra, G., & Rismayani, R. (2023). Toward Cooperative Competitiveness for Community Development in Economic Society 5.0. *Journal of Enterprising Communities, 17*(3), 594–620. Retrieved from https://doi.org/10.1108/JEC-10-2021-0149.

Zainuddin, S. A., et al. (2023). The Effect of Digitalization of Cooperatives on Better Transparency and Competitive Advantage. In Alareeni, B., & Hamdan, A. (Eds.), *Impact of Artificial Intelligence, and the Fourth Industrial Revolution on Business Success. ICBT 2021.* Lecture Notes in Networks and Systems, Vol 485. Springer, Cham. Retrieved from https://doi.org/10.1007/978-3-031-08093-7_8.