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DIGITAL LEADERSHIP AND CIRCULAR ECONOMY ADOPTION IN RURAL MSMES: A CASE STUDY IN BUGEL VILLAGE, CIAWI DISTRICT, TASIKMALAYA REGENCY, WEST JAVA, INDONESIA

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Abstract

Digital transformation in rural areas demands the presence of adaptive leadership, especially in encouraging sustainable economic practices such as the circular economy. This study aims to analyze the role of digital leadership of village heads in encouraging the adoption of circular economy principles among craft MSMEs in Bugel Village, Ciawi District, Tasikmalaya Regency. This study also examines how village digital infrastructure moderates this relationship. The method used is a qualitative case study with an exploratory approach. Data collection was carried out through in-depth interviews with village heads, MSME actors, and other village stakeholders, as well as direct observation of digitalization activities and waste management in the local craft sector. Data were analysed using thematic techniques and mapping of relationships between variables based on the Miles and Huberman interactive model. The results of the study show that the digital leadership of village heads plays an important role in creating a culture of innovation, opening access to digital market information, and encouraging collaboration across business actors. However, the adoption of a circular economy is significantly influenced by the availability and quality of digital infrastructure, including internet connectivity and digital-based service platforms. This study concludes that the synergy between digital leadership and adequate digital infrastructure is an important prerequisite for mainstreaming the circular economy in rural areas. The practical implications of this study are useful for village policy designers and technology-based MSME empowerment programs.

Keywords: Digital Leadership; Circular Economy; Rural MSMEs; Digital Infrastructure; and Case Studies.

INTRODUCTION

Digital transformation in rural areas not only changes the pattern of community interaction, but also demands a new pattern of leadership that is adaptive and visionary. Based on data from the Ministry of Communication and Information (Kominfo, 2023), by the end of 2022 there were more than 12,000 villages that had been connected to the internet network, an increase from 8,000 villages in the previous year. This shows the acceleration of village digitalization which requires local leaders who are tech-savvy and able to translate digital potential into concrete benefits.

Village heads as local leaders are now required to be able to respond to the development of digital technology as an instrument for empowering communities and business actors. A study by Bappenas (2021) states that village heads who have digital leadership skills are able to encourage increased community participation in development, accelerate digital-based public services, and encourage village economic innovation.

In the context of sustainable development, one of the main challenges faced by rural MSMEs is how to adopt a circular economy model that emphasizes resource efficiency, waste reduction, and environmental sustainability. According to the report of the Ministry of Cooperatives and SMEs (2022), more than 60% of rural MSMEs have not adopted the principles of a circular economy due to limited information, technology, and leadership that encourages it.

Bugel Village in Ciawi District, Tasikmalaya Regency, is one of the villages that has quite strong local craft potential but faces classic challenges: limited market access, dependence on natural raw materials, and minimal waste management. On the other hand, this village also shows signs of digital transformation through the proactive leadership of the village head, as well as the availability of basic digital infrastructure.

This study aims to explore how the digital leadership of village heads influences the adoption patterns of circular economy in local MSMEs, and how digital infrastructure strengthens or limits this influence. This study contributes to the academic discourse in the fields of digital leadership, sustainable economy, and village development. The novelty of this study lies in the case study approach at the village level which is rarely discussed in the context of digital-based circular economy adoption.

LITERATURE REVIEW AND HYPOTHESIS FORMULATION

This research is built on three main concepts: digital leadership, circular economy, and digital infrastructure. A literature study was conducted to explore the latest developments related to these concepts, especially in the context of MSMEs in rural areas.

Digital Leadership in the Context of Village Government

Digital leadership refers to a leader's capacity to integrate digital technology into decision-making processes, community empowerment, and innovation development (Northouse, 2022). In the context of village governance, a village head with digital capabilities is able to facilitate access to information, connect residents with online resources, and direct MSMEs to utilize technology.

A study by Kominfo (2023) highlighted the importance of training and strengthening the digital capacity of village heads as part of the village digital transformation agenda. Meanwhile, Bappenas (2021) emphasized that digital leadership is key to the successful implementation of technology for public services and village economic empowerment.

Circular Economy and Its Implications for MSMEs

Circular economy is an economic model that aims to minimize waste and maximize resource reuse in the production cycle (Geissdoerfer et al., 2017). For MSMEs, the application of circular economy principles can create cost efficiency and competitive advantage through environmentally friendly products and more resource-efficient production processes.

However, the implementation of a circular economy by rural MSMEs still faces major challenges, especially in terms of awareness, technological capacity, and leadership capable of facilitating change. The report of the Ministry of Cooperatives and SMEs (2022) shows that the majority of MSMEs in rural areas have not adopted the principles of a circular economy due to limited access and literacy.

Digital Infrastructure as a Moderating Factor

Digital infrastructure includes the availability of internet networks, technological devices, and digital application ecosystems that support people's economic and social activities. In this study, digital infrastructure is positioned as a moderating variable that strengthens or weakens the influence of digital leadership on the adoption of a circular economy.

According to Kominfo (2023), there is a significant digital gap between villages and cities, both in terms of connection quality and people's digital skills. Without adequate infrastructure, village digitalization initiatives often stall at the discourse level.

Case Study as a Research Approach

The case study method allows researchers to explore in depth the social, cultural, and institutional contexts of the research site (Miles & Huberman, 1994). In this study, Bugel Village was chosen as a case because it has a combination of craft economic potential, active village leadership, and developing digital infrastructure.

Case studies also allow for the integration of empirical data with the theoretical framework discussed, and allow for exploration of the dynamics of relationships between variables in real

contexts. This approach is relevant to answering the questions of "how" and "why" in the context of village digital transformation.
Based on the literature, the conceptual framework of this study states that the digital leadership of village heads has a positive influence on the adoption of a circular economy in rural MSMEs, with digital infrastructure as a variable that strengthens or weakens the relationship.

H1: Brand storytelling has a positive effect on consumer purchasing decisions.
H2: Lifestyle acts as a moderating variable that strengthens the influence of brand storytelling on purchasing decisions.

RESEARCH METHODS

This study uses a qualitative approach with a case study method. Case studies are chosen because they allow researchers to explore in depth the phenomenon of digital leadership of village heads in encouraging the adoption of a circular economy by MSMEs, especially in Bugel Village, Ciawi District, Tasikmalaya Regency. Research Design This research design is descriptive exploratory with a single case study approach. The focus is on the dynamics of the relationship between digital leadership and circular economy practices at the local level, and how digital infrastructure plays a role in strengthening or weakening the relationship. Population and Subjects of the Study The population in this study were all craft MSME actors in Bugel Village, village government officials, and parties involved in village digitalization activities. The sample was selected purposively, consisting of: Bugel Village Head, 7 craft MSME actors, 1 village apparatus in the IT field, 1 village assistant.

Data Collection Techniques and Instruments Data were collected through: In-depth interviews: Using semi-structured interview guidelines based on the themes of digital leadership, adoption of the circular economy, and the role of digital infrastructure. Participatory observation: Researchers observed MSME production activities, use of digital platforms, and interactions between residents and the village head. Document study: Including RPJMDes documents, village digitalization activity reports, MSME profiles, and village social media publications.

The instruments used were interview guidelines, field notes, documentation cameras, and audio recorders. All digital data were stored with encryption to maintain the confidentiality of respondents. Data Analysis Data were analyzed using the interactive model of Miles and Huberman (1994), namely: Data reduction, namely organizing the results of interviews and observations based on themes. Data presentation, namely in the form of descriptive narratives, summary tables, and direct quotes. Conclusion Drawing, namely identifying patterns of relationships between concepts and thematic generalizations.

Researcher Presence and Data Validity, Researchers were present directly in the field for 5 weeks in April - May 2025. Interactions were carried out openly but ethically. Data validity was maintained through source triangulation (between informants), method triangulation (interviews, observations, documents), member checking, and peer debriefing.

RESULTS AND DISCUSSION

The research results are presented with a case study approach to Bugel Village, which represents a portrait of a rural village with craft potential, limited digital infrastructure, and active local leadership figures. The analysis of the results is divided into three thematic focuses based on field findings: (1) The digital leadership style of the village head; (2) Responses and behavior of circular economy adoption by MSMEs; and (3) The role of digital infrastructure as a reinforcing factor.

1. Digital Leadership Style of Village Head

The Head of Bugel Village, Ruhimat Asep Saepudin or often called Pak Ruhimat / Pak Imat, shows a transformational and digital leadership style. In an interview, the village head conveyed his vision to make the digital economy and sustainability the foundation of village development. He

actively facilitates digital literacy training, opens online market access for craft MSMEs, and encourages production based on the 3R principle (Reduce, Reuse, Recycle). One real initiative is to encourage the use of packaging from waste materials and market MSME products through the village's official social media.

In addition, the village head builds networks with universities and digital communities to transfer knowledge to business actors. The open and participatory leadership character is the main key to his success in mobilizing residents and business actors.

2. Responses and Changes in MSME Behavior in Adopting a Circular Economy

The activities of the UMKM studied are located in Bugel Village, Ciawi District, Tasikmalaya Regency. This UMKM is engaged in recycling crafts by utilizing household waste such as straws, bottle caps, used cooking oil plastic, and coffee packaging. The waste is creatively processed into products with economic value such as brooches, bags, mats, and stationery containers.

This activity involved 30 people consisting of PKK members and village officials. They actively developed this business as a form of implementing an environmentally friendly and sustainable circular economy.

MSMEs also manage waste by recycling plastic waste into products of economic value. In marketing, they actively use social media and village digital platforms to reach a wider market.

MSMEs in Bugel responded positively to the village head's initiative, although there was variation in adoption rates. MSMEs that were already accustomed to using digital technology were quicker to adopt circular economy practices, such as recycling wood waste raw materials and packaging products with environmentally friendly materials. Some MSMEs even used digital platforms to educate consumers about their circular products.

However, there are also MSMEs who do not fully understand the principles of the circular economy, especially business actors who are more senior and not yet familiar with technology. They need further assistance, especially in developing a circular business model that is in accordance with local capacity.

3. Digital Infrastructure as a Moderating Factor

A key finding in this case study is the gap in outcomes related to digital infrastructure conditions. In areas with stable internet signals and access to digital devices, MSMEs experienced acceleration in technology adoption and transformation to circular practices. Conversely, in areas with weak infrastructure, MSMEs faced serious obstacles, despite having high will and motivation.

The village head said that the digital village program that was rolled out had not yet reached all RW evenly. This has an impact on the adoption gap among business actors. Several residents said that they had to piggyback on Wi-Fi networks from the village hall or coffee shops to upload products or access online training.

4. Discussion and Interpretation of Findings

The results of this study strengthen the literature on the importance of digital leadership in the process of socio-economic transformation in villages (Northouse, 2022; Bappenas, 2021). Village heads as agents of change play a central role in connecting digitalization discourse with real practices in the field.

From the circular economy perspective, this study confirms that rural MSMEs have great potential to transform towards a green economy. However, the success of this transformation is highly dependent on structural support such as digital infrastructure and supporting ecosystems.

This study also reinforces the importance of a contextual approach in developing digital village policies. The strength of this case study lies in its ability to explore the interconnectedness of local actors, practices, and conditions that are not captured in quantitative approaches. For example, the presence of the village head in every digital training has a positive psychological effect on MSME actors who feel they are being cared for and encouraged directly.

Overall, the case study approach in Bugel Village provides a holistic picture of the dynamics of digital leadership and circular economy adoption. The interaction between the village head's vision, the readiness of MSME actors, and digital infrastructure creates a transition ecosystem towards a

sustainable village economy. These findings also form the basis for recommending the expansion of digital village programs that are more equitable and based on the needs of local communities.

CONCLUSION, IMPLICATIONS, AND SUGGESTIONS FOR FURTHER RESEARCH

This study concludes that the digital leadership of village heads has a significant influence in encouraging the adoption of a circular economy among rural MSMEs. This influence is seen through training initiatives, strengthening awareness, and facilitating digital market access carried out systematically and participatively by village heads. However, the effectiveness of this leadership is highly dependent on the support of digital infrastructure available in the village environment. Without adequate internet access and supporting digital devices, the potential for digital leadership cannot be optimized.

The practical implications of this study are the need for village governments and other stakeholders to design a structured digital leadership capacity building program, while ensuring equal distribution of digital infrastructure down to the RT/RW level. Future village development interventions should integrate aspects of technology, economic empowerment, and environmental sustainability in a digital-based development framework.

The limitations of this study lie in the context of a single location and a qualitative approach that does not allow for broad generalization. In addition, the limited time for data collection has resulted in the dynamics of long-term changes in MSME behavior in adopting a circular economy not being explored.

Therefore, suggestions for further research are to conduct comparative studies in several villages with different characteristics, using a mixed methods approach to strengthen the validity of the findings. Longitudinal research is also recommended to more fully assess the influence of digital leadership on the sustainability of the village economy in the long term.

BIBLIOGRAPHY

Geissdoerfer, M., Savaget, P., Bocken, N. M. P., & Hultink, E. J. (2017). The Circular Economy – A new sustainability paradigm? *Journal of Cleaner Production*, 143, 757–768. https://doi.org/10.1016/j.jclepro.2016.12.048

Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook*. SAGE Publications.

Bappenas. (2021). *Peta Jalan Transformasi Digital Indonesia 2021–2024*. Kementerian Perencanaan Pembangunan Nasional/Bappenas.

Geissdoerfer, M., Savaget, P., Bocken, N. M. P., & Hultink, E. J. (2017). The Circular Economy – A new sustainability paradigm? *Journal of Cleaner Production*, 143, 757–768. https://doi.org/10.1016/j.jclepro.2016.12.048

Kementerian Koperasi dan UKM. (2022). *Laporan Tahunan UMKM Indonesia 2022*. Jakarta: Deputi Bidang UKM.

Kementerian Komunikasi dan Informatika. (2023). *Data Capaian Akses Internet Desa Tahun 2022*. https://kominfo.go.id

Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook*. SAGE Publications.

Northouse, P. G. (2022). *Leadership: Theory and Practice* (9th ed.). SAGE Publications.