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Collaborative Governance in Driving MSME Technology Adoption for Smart Economy Acceleration in Yogyakarta

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Abstract

This research examines the role of Collaborative Governance in encouraging technology adoption by MSMEs to accelerate the smart economy in Yogyakarta. MSMEs have a strategic role in the regional economy, but still face obstacles in digitalization. The Collaborative Governance approach was chosen because it allows active involvement of various stakeholders in supporting the digital transformation of MSMEs. The method used is qualitative with a case study approach. Data were obtained through interviews with the DIY Cooperative and SME Agency and Bapperida, as well as analysis of relevant documents. Data analysis was conducted using interactive model techniques and Nvivo 12 Plus software. The results show that collaboration between the government, private sector, and the MSME community plays an important role in providing digital infrastructure, training, and support for programs such as SiBakul. This process takes place through three main stages: (1) identification of barriers and opportunities, (2) formulation of digitalization strategies, and (3) implementation of technology-based programs. In technology adoption, the highest indicators are perceived benefits and ease of use, indicating MSMEs' awareness of the benefits of technology. Although MSME awareness is high, technology implementation is still constrained in intention and actual use.

Keywords: Collaborative governance, MSMEs, technology adoption, Special Region of Yogyakarta.

Abstrak

Penelitian ini mengkaji peran Collaborative Governance dalam mendorong adopsi teknologi oleh UMKM untuk akselerasi smart economy di Yogyakarta. UMKM memiliki peran strategis dalam perekonomian daerah, namun masih menghadapi kendala dalam digitalisasi. Pendekatan Collaborative Governance dipilih karena memungkinkan keterlibatan aktif berbagai pemangku kepentingan dalam mendukung transformasi digital UMKM. Metode yang digunakan adalah kualitatif dengan pendekatan studi kasus. Data diperoleh melalui wawancara dengan Dinas Koperasi dan UKM DIY dan Bapperida, serta analisis dokumen-dokumen yang relevan. Analisis data dilakukan dengan menggunakan teknik model interaktif dan software Nvivo 12 Plus. Hasil penelitian menunjukkan bahwa kolaborasi antara pemerintah, sektor swasta, dan komunitas UMKM berperan penting dalam menyediakan infrastruktur digital, pelatihan, dan dukungan untuk program seperti SiBakul. Proses ini berlangsung melalui tiga tahap utama: (1) identifikasi hambatan dan peluang, (2) perumusan strategi digitalisasi, dan (3) implementasi program berbasis teknologi. Dalam

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adopsi teknologi, indikator tertinggi adalah manfaat yang dirasakan dan kemudahan penggunaan, yang mengindikasikan kesadaran UMKM akan manfaat teknologi. Meskipun kesadaran UMKM tinggi, implementasi teknologi masih terkendala pada niat dan penggunaan aktual.

Kata Kunci: Adopsi teknologi; kolaboratif governance; UMKM; Daerah Istimewa Yogyakarta

INTRODUCTION

The Special Region of Yogyakarta has great potential in driving the regional economy in the disruptive era. This opportunity is supported by the existence of 345,980 units of Micro, Small and Medium Enterprises (MSMEs) spread throughout Yogyakarta (Bapperida, 2024). The following is a breakdown of the number of MSMEs based on their business scale:

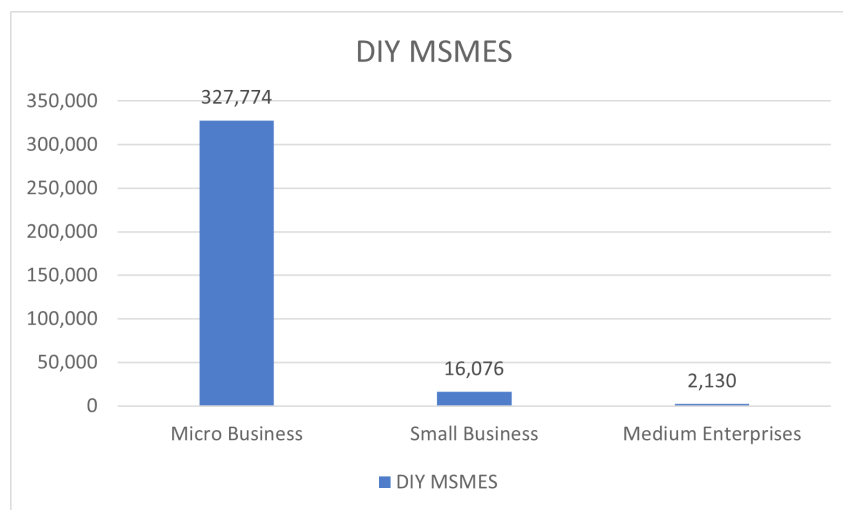


Figure 1. Number of MSMEs in Yogyakarta Special Region by Business Scale

The large number of MSMEs plays a strategic role in realizing the Sustainable Development Goals (SDGs), especially in alleviating poverty, increasing employment, and improving people's lives (Endris & Kassegn, 2022). Ironically, MSMEs in the Special Region of Yogyakarta still face various obstacles in developing their businesses. More than 50% of MSMEs in Yogyakarta do not yet have a Business Identification Number, so they are still classified as the informal sector and cannot access capital assistance programs and business capacity building from the government (Leon, 2023). In addition, the utilization of digital devices and the internet in business management is still minimal among MSME players in the Special Region of Yogyakarta (Junianto, 2021).

Although digitalization offers great opportunities for MSME players, limitations in the operation of digital technology are still a significant obstacle in product marketing (Ari, 2021). This condition emphasizes the importance of increasing human resource capacity, utilizing digital technology, improving product quality, and implementing more structured business management (Harvie, 2019). More than just efficiency, digitalization also opens up access to shared resources and knowledge that MSMEs can leverage to strengthen competitiveness (Benitez et al., 2022). Ramella (2019) extends this view by pointing out that digitalization also encourages cooperation between businesses through more open and decentralized interactions.

Technology adoption is also a determining factor in the success of this transformation. Sengkalit et al (2025) assert that the use of technology has a significant impact on improving operational efficiency, customer engagement, and productivity of MSMEs. However, this potential will not be optimized without adequate digital ecosystem support. Barriers such as uneven digital infrastructure and low digital literacy are still the main challenges that hinder the overall technology adoption process (Hsb et al., 2025). Therefore, the strategy of strengthening MSMEs through digitalization requires collective interventions that are cross-sectoral in nature.

In this context, the collaborative governance approach is becoming increasingly relevant. Viana (2025) points out that collaborative governance is able to address the complexity of digitization challenges through improved coordination between central and local governments, data integration, and more targeted program implementation. Rahayu et al (2023) support this view by emphasizing that synergies between actors will strengthen the position of MSMEs in the digital economy ecosystem. This is reinforced by Hidayat (2022) that examines a collaboration-based MSME digitalization development model in Bangka Belitung, and Ekowanti & Ambarwati (2018) that explores strategic partnerships between the government, private sector, and MSMEs. Suhartini et al (2022) also added that business collaboration can be an important instrument in supporting MSMEs' adaptation to technology.

Technology integration in the economic sector plays an important role in encouraging the acceleration of smart economy implementation in a region, especially through a collaborative governance approach. A review of previous research on the smart economy was conducted using VOSviewer software, by analyzing 362 documents obtained from the Scopus database:

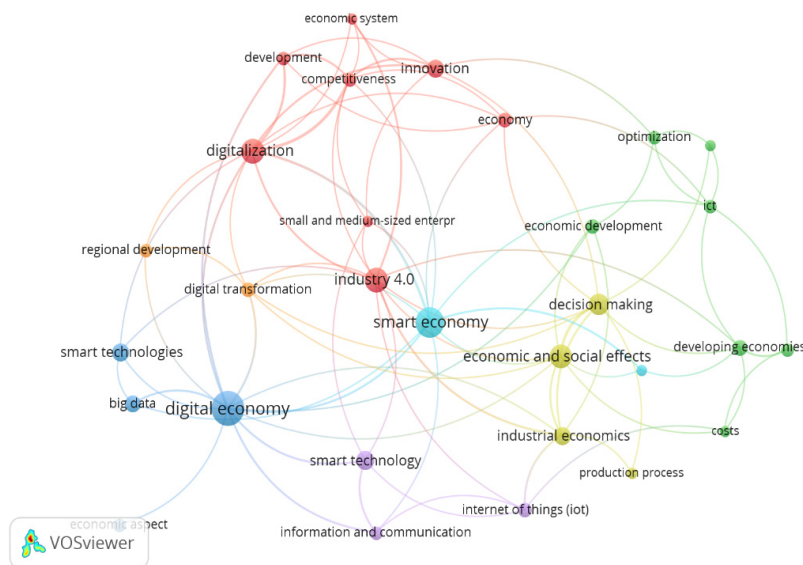


Figure 2. VOSviewer Analysis with Keyword Smart Economy

The analysis using VOSviewer shows that previous studies generally focus on key themes such as innovation, digitalization, industry 4.0, and the economic and social impacts of technology adoption. The dominant clusters in this mapping show the close relationship between digital technology, big data and industrial transformation in improving economic efficiency and competitiveness. However, on closer inspection, there are considerable thematic gaps. Keywords such as collaborative governance, MSMEs, digital divide, and the role of local actors in digital economic governance have not significantly emerged. This suggests that aspects of collaborative governance and the local context - particularly in relation to technology adoption by small and medium-sized enterprises in developing countries - still receive little attention in the global literature. Therefore, this research aims to fill this gap by emphasizing the importance of cross-actor collaboration in strengthening the capacity of technology adoption by MSMEs, as an important part of inclusive and sustainable smart economy development. Based on this background, the research question posed is: "How does the implementation of collaborative governance support technology adoption by MSMEs in Yogyakarta?"

THEORITICAL FRAMEWORK

Collaborative Governance in the Digital Economy

Ansell & Gash (2008) explain that collaborative governance is a new strategy in governance that involves various stakeholders. This collaboration allows actors from the public, private and civil society sectors to work together in a forum to formulate decisions together. In the

context of governance, the three main actors that have important roles are the government, the private sector and the community. The government no longer acts as the only entity that controls the course of government, but functions as a facilitator that encourages the involvement of various parties to overcome resource limitations and improve policy effectiveness (Bila & Saputra, 2019). The Collaborative Governance approach emphasizes the need for involvement of various parties in the process of program planning, implementation, and evaluation. According to Ratner, collaborative governance consists of three main phases that become stages in the collaboration process in governance (Irawan, 2017). These phases can be seen in the following figure:

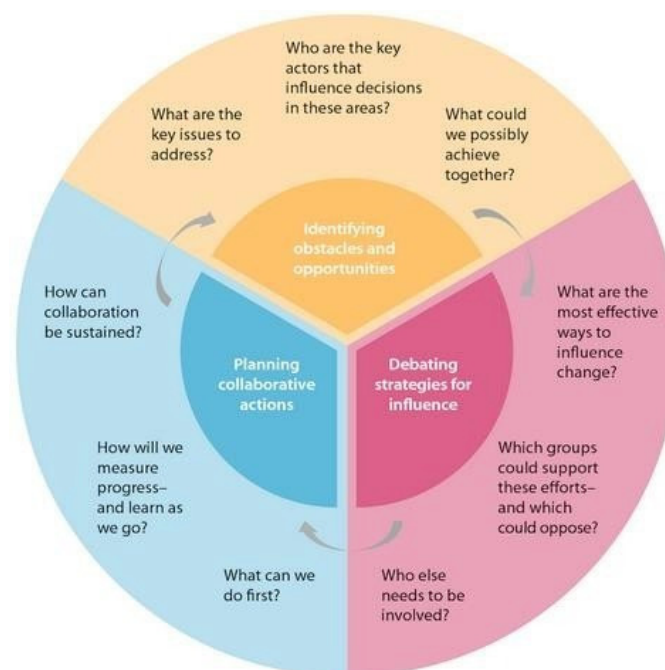


Figure 3. Collaborative Governance Assessment by Ratner

Based on the image above, there are three main stages in the collaborative process, namely:

1. Identifying Obstacles and Opportunities (Listening Phase)

In this initial stage, the government, together with stakeholders—including the private sector and the community—identifies various obstacles and opportunities that may arise in the governance process. This phase focuses on mutual communication of issues from each party and listening to the perspectives and experiences of others. Each stakeholder is given an equal opportunity to express their views regarding the challenges and potential solutions that can be taken. In addition, they begin to consider various alternative solutions and the potential achievements that could be reached through the

collaboration. The core of this phase is to build mutual understanding through the process of listening and recognizing the hidden opportunities behind every issue presented.

2. Debating Strategies for Influence (Dialogue Phase)

This stage is marked by intensive dialogue among stakeholders to discuss the previously identified barriers. Through constructive discussion, the parties determine the most effective strategies or steps that can be implemented to address the issues. They also identify the roles of each party in supporting the implementation of the chosen strategies. This phase emphasizes the importance of open idea exchange to formulate strategies that are inclusive and acceptable to all parties involved.

3. Planning Collaborative Actions (Collaborative Action Planning Phase)

After the listening and dialogue processes have been completed, the next step is to design a collaborative action plan. At this stage, each stakeholder begins to formulate implementation steps based on the strategies previously agreed upon. This action plan includes the identification of initial steps in the collaboration process among the government, private sector, and the community. In addition, indicators or measurement tools are developed to evaluate the success of each phase carried out. Mechanisms are also designed to ensure the sustainability of the collaboration in the long term.

Technology Acceptance Model (TAM)

The main goal of the Technology Acceptance Model (TAM) is to explain how and why individuals accept or reject a technology. Theoretically, TAM aims to predict user behavior and understand the factors that influence the successful implementation of technology. Practically, this model serves as a guide for practitioners in designing strategies prior to implementing a technological system (Marikyan & Papagiannidis, 2023).

The model was developed based on the Theory of Reasoned Action (TRA) and explains the relationship between external factors (e.g., system features) and actual system use. This process is mediated by two key variables:

1. Perceived Usefulness (PU) – the degree to which a person believes that using the technology will enhance their performance.
2. Perceived Ease of Use (PEOU) – the degree to which a person believes that using the technology requires little effort.

These two constructs are proven to be the primary determinants of user acceptance, as an individual's decision to use a technology is influenced by the trade-off between perceived benefits and the effort required.

1. Perceived Usefulness is rooted in the concept of *outcome expectancy*, which is the belief that an action will lead to positive outcomes.
2. Perceived Ease of Use relates to the concept of *self-efficacy*, or the belief in one's ability to use technology effectively.

Additionally, PEOU aligns with the concept of “complexity” in the diffusion of innovation theory, which states that the more difficult a technology is to use, the less likely it is to be adopted.

TAM describes technology acceptance as a three-stage process:

1. External factors (such as system design) influence
2. Cognitive responses (PU and PEOU), which then shape
3. Affective responses and behavioral intentions, which ultimately lead to actual use.

In this model, PU has a direct effect on usage behavior. Meanwhile, PEOU influences behavior indirectly by enhancing PU. In other words, if a technology is perceived as easy to use, users are more likely to perceive it as useful as well (Marikyan & Papagiannidis, 2023).

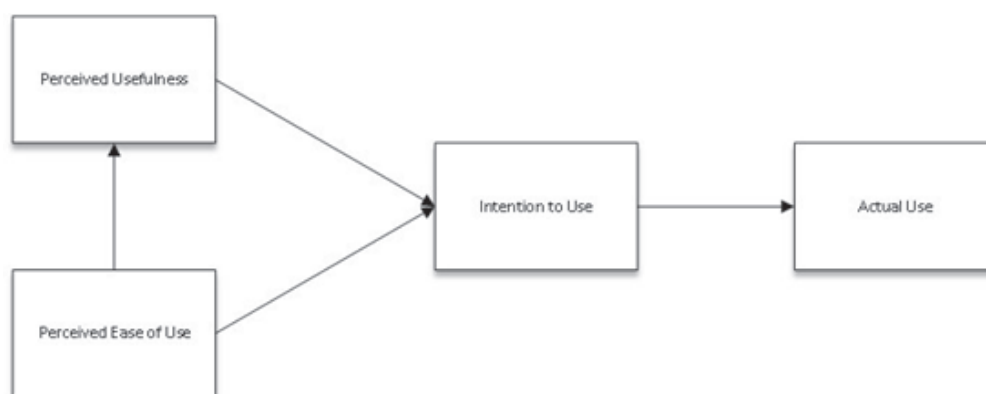


Figure 4. Technology Acceptance Model

RESEARCH METHOD

This research uses a qualitative method with a case study approach to deeply understand collaborative governance in encouraging MSME technology adoption in the Special Region of Yogyakarta. Data were collected through in-depth interviews and documentation analysis. Informants were selected by purposive sampling based on their relevance and involvement

in the formulation and implementation of policies related to MSMEs. Interviews were conducted with three informants, namely the Head of the Entrepreneurship Division of the Cooperative and SME Agency of the Special Region of Yogyakarta, and two staff from the Economic Division of the Planning, Development, Research and Innovation Agency of the Special Region of Yogyakarta. These three informants have strategic positions in the planning and implementation process of smart economy in Yogyakarta Special Region.

Interviews lasted 30 to 60 minutes, using semi-structured guidelines that were flexible to allow the researcher to explore various topics according to the context of the informants' answers. Data saturation was reached when the information obtained from interviews no longer provided meaningful new findings. In addition to primary data from interviews, this study also used secondary data in the form of policy documents, annual reports, previous research articles, and media coverage relevant to the study topic.

Data analysis was conducted using Miles and Huberman's interactive analysis model, which consists of the stages of data reduction, data presentation, and conclusion drawing (Creswell, 2018). To support this process, researchers used NVivo 12 Plus software as a tool for organizing and visualizing data. The coding process was done thematically with an inductive and deductive approach. Initial codes were organized based on the conceptual framework, then further developed based on patterns that emerged from the field data.

In maintaining the validity of the findings, this research applies source triangulation by comparing interview results and policy documents. Validation was also strengthened through member checking, where the researcher confirmed the summary of the interview results to the informant to ensure no misinterpretation occurred. This research was conducted by observing the principles of research ethics, such as obtaining participants' informed consent and obtaining official permission from the institution where the researcher is affiliated.

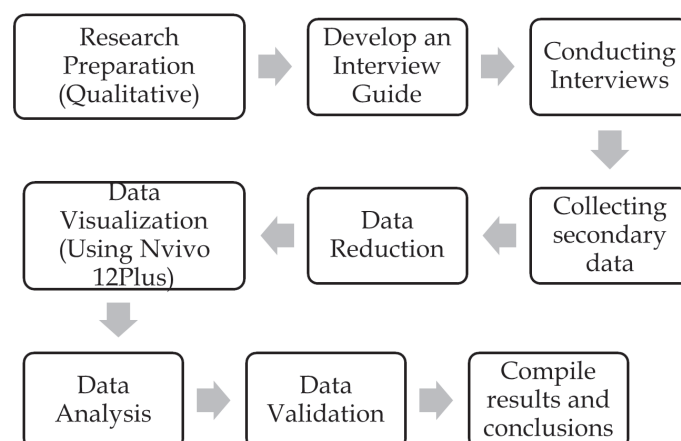


Figure 5. Research Flow

TAM Analysis Method

The data used in the graphical results of the discussion on TAM includes secondary data and primary data. Secondary data was obtained from online news to capture the perspective of MSMEs, while primary data came from interviews with government officials. The analysis was conducted in a qualitative-quantitative manner with a semi-quantified content approach: each piece of information containing TAM indicators in the narrative was given a representation weight in the form of a percentage, based on the intensity of its appearance in various sources.

It should be noted that the numbers in the graphs do not represent the results of primary surveys or statistical processing of respondents. Rather, they are the result of a thematic dominance analysis of the narratives in the secondary data. This process is done through coding the data based on the dimensions of TAM, then tabulating the frequency of occurrence of each indicator. Thus, the graph reflects the level of emphasis or focus of the analyzed narratives.

RESULTS AND DISCUSSION

In the era of digital disruption, technology adoption by MSMEs is a key factor in accelerating the realization of a smart economy. The Government of Yogyakarta Special Region, through Governor Regulation No. 32 Year 2024 on the Smart Jogja Province Master Plan Year 2024-2028, focuses on digital and innovation-based regional development in various aspects of development. One of the main aspects of concern is the smart economy, which aims to strengthen economic competitiveness through the use of technology and digitalization of MSMEs. In realizing a smart economy, the Government of Yogyakarta Special Region cannot work alone, but must collaborate with various stakeholders, both from within the government and external parties.

Collaborative Governance to Accelerate Smart Economy in Yogyakarta Special Region

The collaborative governance approach does not merely emphasize multi-stakeholder involvement in the program planning and implementation process, but serves as a strategic mechanism for aligning interests, building trust between actors, and creating joint solutions to structural problems. Referring to Ratner in Irawan (2017), this approach consists of three main phases, which in the policy context are not just procedural stages, but discursive spaces where negotiations of meaning, distribution of roles, and consolidation of power among key actors occur. The first phase, Identification of Obstacles and Opportunities, requires policy actors to not only map the problem, but also develop a strategic narrative about who has the legitimacy to act and how resources can be consolidated collectively.

In the context of accelerating the smart economy in the Special Region of Yogyakarta, the presence of government actors such as the Regional Research Development and

Innovation Agency, the Cooperative and SME Agency, the Industry and Trade Agency, and the Communication and Informatics Agency shows institutional fragmentation that needs to be synergized through a collaborative framework. The strategic role of the Office of Cooperatives and SMEs as a driver of MSME transformation and the Office of Communication and Informatics as a facilitator of digitalization may not be effective if they work in institutional silos. In this case, collaborative governance is needed to overcome the imbalance of vision and ensure that digital transformation is not only technocratic, but also responsive to the needs of businesses. As stated by an informant from the Regional Research Development and Innovation Planning Agency, *“The leading sector for MSMEs is the DIY Cooperative and SME Agency, while for the digitalization aspect, the leading sector is the DIY Communication and Information Agency.”* This suggests a relatively structured division of roles between institutions, which has the potential to strengthen collaborative governance.

The high-quality human resources in Yogyakarta, supported by its role as an educational city, represent a valuable social and intellectual asset for driving digital economic growth. However, without governance capable of integrating local innovations, creative communities, and private sector actors into the policymaking process, this potential will remain fragmented and underutilized. The rapidly growing creative industry ecosystem reflects a strong grassroots drive, yet it often lacks alignment with government policies. Therefore, the main challenge lies not only in the technical acceleration but in governance capacity to unify various stakeholders and diverse resources within a responsive and flexible policy system that can adapt to change.

Although the smart economy acceleration initiatives in the Special Region of Yogyakarta show positive progress, several strategic challenges still need to be addressed. One indication can be seen in how the government interprets and responds to the implementation of the smart economy. The image below illustrates the proportion of positive and negative sentiments coded from government data related to smart economy implementation.

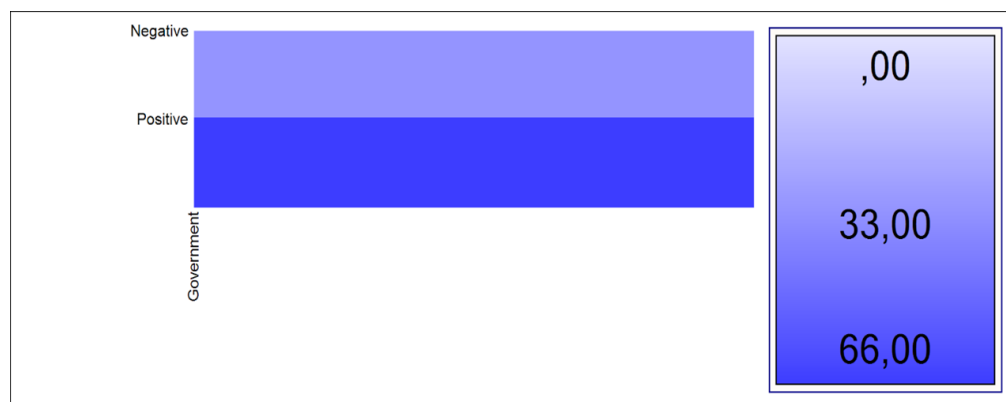


Figure 6. Sentiment Analysis of Yogyakarta Government towards Smart Economy

Based on the color scale shown in the legend on the right, the value range starts from 0.00, indicated by a very light blue color, then increases to a mid-range value around 33.00, and reaches a maximum value of 66.00, marked by the darkest blue. From this visual representation, it can be observed that the area labeled “Positive” has the darkest shade of blue, indicating that the value is close to 66.00. Conversely, the area labeled “Negative” appears in a lighter blue, meaning its value is closer to 0.00. Thus, this visualization illustrates that the government’s sentiment toward the smart economy tends to be highly positive, with a high level of positive sentiment (around 66.00) and a very low level of negative sentiment (close to 0.00). This dominance of positive sentiment suggests that the government holds strong optimism toward the digital economy as one of its medium-term development strategies. However, the presence of negative sentiment, though relatively minor, remains important to note, as it reflects existing structural challenges that need to be addressed to ensure equitable digital transformation.

This governmental optimism is reflected in several strategic policies, such as Governor Regulation No. 32 of 2024 concerning the 2024–2028 Jogja Smart Province Master Plan and the Regional Long-Term Development Plan (RPJPD). These two documents not only emphasize the smart economy as a top priority but also propose a phased development approach, beginning with foundational stages and progressing toward mission realization. This approach indicates that the government recognizes the need for institutional readiness before accelerating comprehensive digitalization.

Currently, the Special Region of Yogyakarta is in the foundational stage of development. In this phase, the focus is directed toward creating a digital ecosystem as the basis for innovation-driven economic growth. The government has begun to intervene in strategic sectors such as agriculture, fisheries, manufacturing, MSMEs, tourism, and the creative industries. This marks an initial effort to ensure that digital transformation is not only concentrated in urban areas but also extends to local economic sectors that form the backbone of the region. One concrete example of this strategy is the SiBakul Jogja program, which is designed to empower MSMEs through training, digital innovation development, and the expansion of market access and financing. Several studies, such as those conducted by Alchudhory et al (2024) and Amari’a & Ulinuha (2023), indicate that the program has had a positive impact on increasing income and fostering the independence of MSME actors. This demonstrates that structured digital interventions can generate direct economic benefits for vulnerable groups.

Study explains that the SiBakul program provides wider access, skills training, and business capital. This has an impact on increasing the income, standard of living, and economic independence of MSME actors. This is reinforced by Naami & Maemunah (2024), that the Sibakul Jogja program in empowering MSME partners in Yogyakarta has been running effectively. SiBakul Marketplace is in line with the concept of MSME empowerment as stipulated

in Government Regulation Number 29 of 2021 concerning the Implementation of the Trade Sector, specifically Article 58. This regulation emphasizes the importance of supporting MSMEs through digitalization, expanding market access, increasing business capacity, and facilitating the trade ecosystem (Agus et al., 2024).

However, the effectiveness of programs like SiBakul heavily depends on adequate basic infrastructure. In peripheral areas such as Kulon Progo and Gunungkidul, limited internet access is a major obstacle. One example is in the Sibakul program, which features *free ongkir* for MSMEs (Naami & Maemunah, 2024). Although the Sibakul program has operated efficiently and provided various conveniences for MSMEs. However, the results are still not optimal due to limited internet access in the Kulon Progo and Gunungkidul regions. As explained by Jabawidhiartha et al (2024), the *free ongkir* program has successfully attracted shoppers, but still faces several challenges, such as the lack of effective socialization, limited infrastructure, lack of innovation in promotional strategies, and dependence on operators.

Although the *free ongkir* programs are already in place to reach national and international markets, the lack of digital infrastructure means that the benefits are not distributed evenly. This issue highlights the spatial fragmentation in the implementation of the smart economy—an urgent challenge that must be addressed to prevent new regional disparities from emerging. Another challenge arises from the regulatory aspect. The lack of synchronization between central and regional policies—for instance, the requirement for a minimum asset value of 10 billion rupiah for foreign investment companies—poses difficulties for small startups in Yogyakarta seeking international investors. These administrative barriers underscore the importance of formulating regulations that are adaptive to local contexts and fostering more open dialogue between central and regional governments.

On the other hand, the gap between the financial inclusion index and financial literacy index in the Special Region of Yogyakarta illustrates a more complex digital dilemma. As stated by an informant from the Regional Development, Research, and Innovation Planning Agency, *“In DIY, the financial inclusion index is higher (80%) compared to the financial literacy index, which is only 30%.”* While access to financial services has increased, low financial literacy makes communities vulnerable to high-risk financial practices such as illegal online lending. This demonstrates that increasing access without proper education only amplifies socio-economic risks rather than strengthening community resilience in the digital era.

Sociocultural perspectives also need attention. Most MSME actors still rely on external digital platforms, such as online marketplaces, without having the capacity for independent marketing. According to mentors from the DIY Cooperatives and MSME Agency, this condition could weaken long-term competitiveness, as business actors tend to compete solely on price rather than on quality or innovation. *“According to some mentors, there is no future for businesses that rely solely on such marketplaces,”* said the Head of the Entrepreneurship Division of the Cooperatives and MSME Office of DIY. Therefore, digital transformation must

be accompanied by efforts to strengthen branding capacity, digital literacy, and data-driven business management.

Considering these various dynamics, it becomes clear that the successful implementation of the smart economy in the Special Region of Yogyakarta depends not only on policy and infrastructure, but also on human resource capabilities, digital inclusion, and cultural and mindset shifts that support widespread technology adoption. Strengthening individual and group capacities to utilize technology—among both business actors and the general public—will be crucial to the success of the digital economy in Yogyakarta. Moreover, the quality of coordination among actors is also a key factor in ensuring that the digital economy develops inclusively and sustainably. Coordination is essential for aligning decisions and making governance more effective. The following illustrates the government’s coordination flow in accelerating the smart economy.

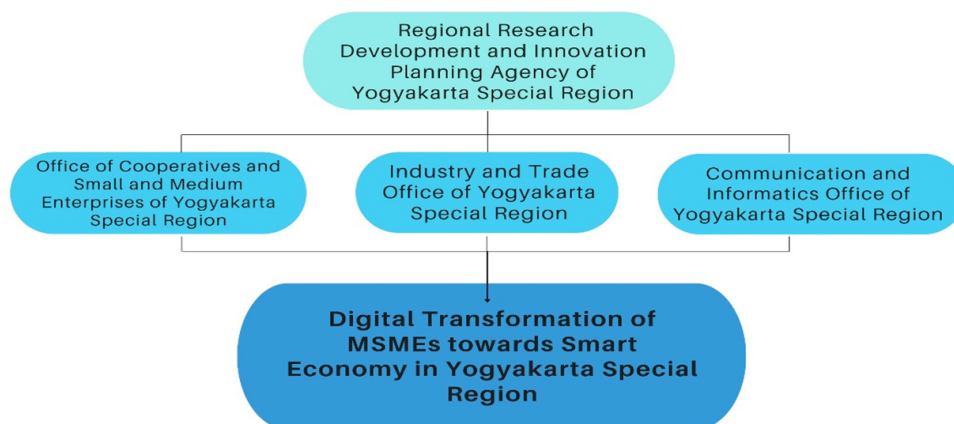


Figure 7. Government Coordination Flow

Edward P. Weber, Nicholas P. Lovrich, and Michael Gaffney (2005) identify three main dimensions of collaboration: the vertical dimension, the horizontal dimension, and partnership relationships (Elani et al., 2025). The horizontal dimension and partnership relationships play a crucial role in accelerating the smart economy in Yogyakarta. The horizontal dimension, which emphasizes equal cooperation among local actors, can be seen as a key element in designing solutions that are relevant to the region’s needs, as evidenced in the synergy among the relevant agencies. By creating more open and equal relationships between various parties, collaborative governance in Yogyakarta can accelerate digital transformation and strengthen the technology-based economic ecosystem. The synergy between the four main agencies—Regional Development, Research, and Innovation Planning Agency; Cooperatives and MSME Office; Industry and Trade Office; and Communication and Information Office—demonstrates the success of this horizontal dimension.

However, further analysis shows that although the Regional Development, Research, and Innovation Planning Agency plays a role as a regulator, its strategic role in monitoring and evaluation is often limited to the policy level, without significant involvement in program implementation. This role focuses more on control and alignment between policy and implementation carried out by other Regional Government Organizations (OPDs). Meanwhile, initiatives like Focus Group Discussions (FGD) and audiences held by the Regional Development, Research, and Innovation Planning Agency demonstrate efforts to create dialogues that can overcome barriers in policy implementation.

On the other hand, the role of the DIY Cooperatives and MSME Office in driving the digitalization of MSMEs is an example of a more direct and integrated partnership. The DIY Cooperatives and MSME Office collaborates with various parties, including cooperatives and courier services, to ensure digital market accessibility for MSMEs. This partnership is not limited to technical aspects but also includes empowering MSMEs through training and additional facilities such as free product photography and free shipping. This illustrates the partnership relationships that have been established by the Special Region of Yogyakarta Government. According to the theory by Weber, Lovrich, and Gaffney, partnership relationships in Collaborative Governance represent close and sustained collaboration between various sectors. Collaboration is not temporary but built with mechanisms that ensure long-term cooperation (Elani et al., 2025). Thus, the DIY Cooperatives and MSME Office effectively builds an ecosystem that supports MSMEs in transitioning to the digital economy, an example of collaboration that not only supports sustainability but also leads to more inclusive empowerment.

However, behind this success, there are challenges that need attention. For example, the Industry and Trade Office of DIY, despite its good intentions in facilitating MSME digitalization through the Jogjaplaza platform, faces issues related to the lack of financial benefits for business actors. Research by Intanny et al (2018) revealed that although the Jogjaplaza app is considered easy to access and use, the platform does not have features that support direct e-commerce transactions, making it less effective in boosting MSME sales. Currently, the DIY Industry and Trade Office is focusing more on increasing digital literacy for business actors, particularly traditional market traders and small shops. This effort aims to introduce and educate them about utilizing digital technology in business activities, thus enhancing their competitiveness in the digital economy (Admin, 2023). This shows that the success of collaboration does not only depend on the availability of digital platforms but also on the design of business models that benefit both the government and the business world. The decline in MSME participation on the platform indicates that a more inclusive and need-based design is crucial to ensuring the sustainability and effectiveness of this collaboration.

Additionally, the Communication and Information Office of DIY plays a central role in providing digital infrastructure that supports the acceleration of the smart economy. While this is a positive step, the bigger challenge lies in the management and maintenance of applications that facilitate MSMEs, such as SiBakul. In this case, although the Communication and Information Office of DIY is not directly involved in developing content or services for MSMEs, its responsibility in maintaining the sustainability of this system is vital to supporting the overall competitiveness of Yogyakarta's digital economy.

This stage marks the second phase of the collaborative concept proposed by Ratner, which is debating influence strategies. Overall, the success of collaborative implementation in accelerating the digital economy in Yogyakarta depends heavily on how effectively these partnership relationships and horizontal dimensions are managed. The collaboration must not be temporary but built with mechanisms that strengthen sectoral synergies and ensure long-term sustainability.

In the third phase, collaborative action planning, stakeholders begin to formulate implementation plans for the strategies discussed earlier. In the context of accelerating the smart economy in Yogyakarta, this planning not only includes the formulation of regulations but must also reflect adaptation to practical needs on the ground and responses to challenges faced by key actors in the digital ecosystem. The formulation of regulations that serve as the legal basis for digital transformation policies is essential for creating a structure that supports the holistic development of the smart economy. Regulations issued by the Regional Development, Research, and Innovation Planning Agency of the Special Region of Yogyakarta, such as Governor Regulation No. 32 of 2024 on the Smart Province Master Plan of Yogyakarta 2024-2028, which includes the smart economy as one of its main focuses, serve as a clear framework for stakeholders.

As the coordinator in this process, the Regional Development, Research, and Innovation Planning Agency of the Special Region of Yogyakarta plays a crucial role in ensuring that the policies developed do not remain theoretical but become concrete programs that support the development of the smart economy ecosystem in DIY. On the other hand, Regional Regulation No. 10 of 2024 on the Long-Term Regional Development Plan of DIY 2024-2045, which emphasizes the importance of digital-based development, provides long-term guidelines but also requires active involvement from all relevant agencies to achieve these goals. Therefore, while this regulation provides clear direction, the success of its implementation depends on the synergy between the various involved parties and a comprehensive understanding of each party's role in realizing the smart economy vision.

Beyond regulations, this collaborative action planning also includes the formulation of more concrete and applicable work programs. The provision of digital infrastructure, increasing digital literacy for MSMEs and the creative industry, and the development of digital platforms such as SiBakul Jogja to facilitate the marketing of local products are steps that demonstrate

the DIY government's intention to support inclusive digitalization. However, the challenge that needs to be addressed in implementation is ensuring that the digital infrastructure provided reaches all layers of society, especially those in more remote areas. Furthermore, increasing digital literacy is not only related to introducing technology but also to changing the mindset of MSME actors and the creative industry to adopt technology more efficiently and sustainably.

One important aspect of this planning is the development of a sustainable monitoring and evaluation mechanism to assess the effectiveness of policies. Without this mechanism, it is difficult to measure the extent to which the planned policies and programs achieve the desired objectives. The DIY government must ensure that this long-term collaboration does not just become a series of isolated policies and programs but a connected ecosystem with clear long-term goals. Well-structured planning should be complemented by continuous assessment of achieved outcomes, which in turn can guide further efforts to accelerate the digitalization of the economic sectors in DIY.

Technology Acceptance Model in Supporting the Implementation of Smart Economy in the Special Region of Yogyakarta

In the era of digital disruption, technology acceptance becomes a crucial factor in accelerating the smart economy, especially for business actors, including MSMEs. Technology adoption plays a vital role for MSMEs in enhancing operational efficiency and strengthening competitiveness, ultimately supporting the development of the smart economy. Technology adoption is not only dependent on the availability of technological infrastructure but also on the extent to which MSME actors understand its benefits and ease of use.

The following is the result of a crosstab analysis showing the tendency of technology adoption by MSME actors in DIY, based on the Technology Acceptance Model (TAM) theory. This analysis utilizes four key indicators: perceived usefulness, perceived ease of use, intention to use, and actual use.

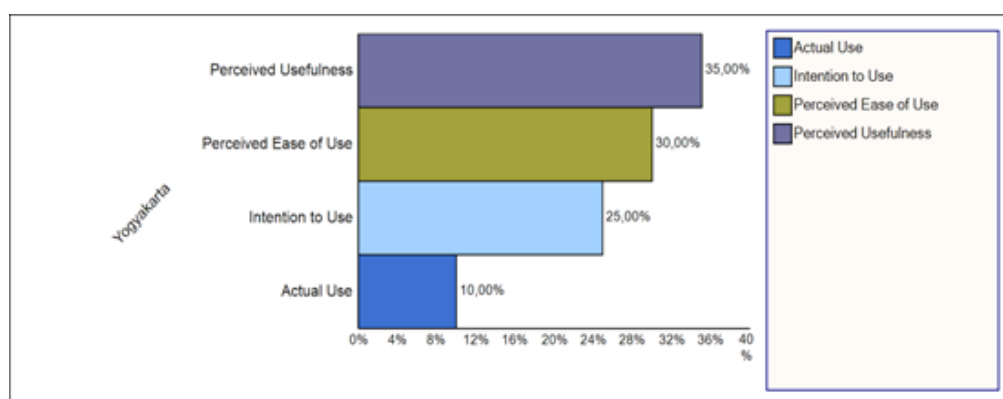


Figure 8. Technology Acceptance Model Analysis in Yogyakarta

Based on the data obtained, perceived usefulness (PU) shows the highest percentage at 35%, followed by perceived ease of use (PEOU) at 30%. Meanwhile, intention to use only reaches 25%, and actual use is at the lowest, at 10%. These findings indicate a contradiction between the high perceptions of the benefits and ease of technology and the low actual usage. In other words, although SMEs believe that technology is useful and easy to use and show a strong intention to adopt it, the reality is that few have fully integrated technology into their daily operations. This contradiction reflects the gap between intention and action, which needs further analysis.

The indicator of perceived usefulness is the most dominant in influencing technology adoption by SMEs in DIY. This aligns with the findings of Pusfitaningrum et al (2022), who stated that the perception of usefulness positively influences attitudes and intentions toward using e-commerce. PU refers to the extent to which SMEs believe that adopting technology can improve efficiency, productivity, and business sustainability. The high value of PU in this context is closely related to the role of the local government through initiatives like the SiBakul Jogja platform, which provides an integrated digital ecosystem with supporting features in production, marketing, finance, HR, and institutional areas. This effort reinforces the perception that digitalization can offer tangible added value for the sustainability of SMEs.

The second-highest indicator, perceived ease of use, at 30%, reflects that most SMEs feel the technology provided is relatively easy to use. This aligns with the TAM theory (Davis, 1989), where ease of use significantly contributes to the formation of the intention to use technology. In the context of DIY, the high PEOU can be explained by the availability of assistance from PLUT consultants, SME assistants, and interns who help with the digitalization of content. Adequate technology literacy and additional services like product photography studios and simplified platform registration also strengthen this perception of ease. Musyaffi et al (2025) also stated that digital literacy plays a key role in improving perceptions of ease and usefulness of technology, which in turn boosts the intention to use it.

Despite high PU and PEOU, the intention to use only reaches 25%. This indicates that not all SMEs directly transform these positive perceptions into concrete intentions. However, the intention remains in the high range, supported by data showing that more than 345,000 SMEs have registered on the SiBakul platform. This aligns with the TAM concept that PU and PEOU directly or indirectly influence user intentions. These findings are also consistent with Apriliana & Sebayang (2024), who found that the combination of PU, PEOU, and intention to use contributed to a high level of technology acceptance.

However, the actual use indicator is at the lowest level, at only 10%. This suggests that most SMEs with the intention have not yet reached the stage of actively and routinely implementing technology in their business activities. This gap reflects the phenomenon known in the literature as the intention–behavior gap. Studies by Asmara et al (2023) and Truong

(2022) explain that external factors such as limited digital infrastructure, access to capital, and technological skills are the main barriers in actualizing these intentions. Furthermore, a preference for conventional methods and reliance on government programs also slows down the transition to full digitalization.

Conceptually, the contradiction between high intention and low actual use reflects the importance of external and contextual factors in the success of technology adoption. This reinforces the argument that the success of digital transformation in SMEs does not only depend on individual perceptions of technology but also on the supporting ecosystem, such as government policies, technical training, and digital incentives. Baso & Daryanti (2022) emphasize that the utilization of new technology will be effective if supported by guidance, capacity building, and the integration of business systems that align with the needs of SMEs. According to Khong et al (2022), digital transformation and digital marketing have a significant influence on technology acceptance so there is a need for policies to support these efforts. In implementing the MSME digitalization development program, digital payment systems are very helpful for MSME players or consumers (Handayani & Soeparan, 2022).

Thus, although the indicators of PU and PEOU show positive signals regarding the digital readiness of SMEs in DIY, the significant gap between intention and actual use highlights the need for more comprehensive intervention strategies. Efforts such as enhancing practical digital literacy, providing infrastructure access, and offering continuous mentoring programs are crucial to bridging this gap. This approach will not only accelerate digital transformation but also ensure that SMEs can truly integrate technology into their business models sustainably.

CONCLUSION

Based on the discussion results, it can be concluded that the Special Region of Yogyakarta's local government is initiating and strengthening cross-sectoral collaboration to accelerate the transformation toward a collaboration-based digital economy or smart economy. Horizontal coordination between key actors such as the Regional Development Planning Research and Innovation Agency, the Department of Cooperatives and Small and Medium Enterprises, the Department of Communication and Informatics, and the Department of Industry and Trade demonstrates the increasingly strategic application of the principles of collaborative governance in the context of the digital economy. This acceleration process is carried out through three main phases: (1) identifying barriers and opportunities for digitalization, (2) developing data-driven strategies and innovations, and (3) implementing digital programs and policies. However, the adoption of technology by SMEs is still relatively low. Although awareness of the benefits of technology is quite high, the application of digital technology in daily business activities remains limited. This indicates the need for more systematic and sustainable empowerment strategies, such as need-based training and the

provision of technology adoption incentives.

Theoretically, this research contributes to the development of the Collaborative Governance discourse by highlighting the importance of cross-sectoral actor synergy in accelerating the digital economy agenda at the regional level. Additionally, findings related to the perceptions and adoption of technology by SMEs can enrich the application of the TAM in the context of the digital economy in Indonesia. From a policy perspective, this research can serve as the basis for formulating digital economy programs at both the regional and national levels. There is a need for more inclusive and responsive policies that address the needs of SMEs, including aspects of digital literacy, access to technology infrastructure, and fiscal incentives to promote equitable digital transformation. This study has limitations in terms of the lack of representation of the voices of SMEs, which are key actors in the implementation of digital economy policies. Therefore, further studies are recommended to use a more comprehensive approach, such as a multi-case comparative study, longitudinal research, as well as integrating quantitative methods like large-scale surveys to validate these initial findings.

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