

## CHALLENGES OF INTEGRATING MSME DATA SERVICES AMIDST BUREAUCRATIC DUALISM

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### ABSTRACT

The fragmentation of MSME data managed by two different agencies in Pasuruan Regency causes information inconsistencies and hinders the effectiveness of data-based policies. This study aims to analyze the challenges of integrating MSME data services in the midst of bureaucratic dualism and identify the factors that affect it. The research uses a qualitative approach with a case study method, through in-depth interviews, Focus Group Discussions (FGD), observations of 24 informants from local government elements, MSME program managers, and MSME actors, as well as document analysis. The data were analyzed using the Miles and Huberman model through the stages of reduction, presentation, and conclusion drawn. The results of the study show that MSME data integration faces various obstacles, including the absence of data management standards, limited human resources, inadequate technological infrastructure, and strong sectoral egos between institutions. This condition has an impact on weak institutional coordination and hampered the development of integrated information systems. This study concludes that strengthening MSME data governance requires the development of an integrated information system supported by data standardization, increasing human resource capacity, and strengthening cross-agency coordination. The implications of this research provide strategic recommendations for local governments in building more effective, integrated, and data-based MSME governance.

**Kata Kunci:** *bureaucratic dualism; data fragmentation; data integration; integrated information systems; MSME governance*

### ABSTRAK

Fragmentasi data UMKM yang dikelola oleh dua instansi berbeda di Kabupaten Pasuruan menyebabkan inkonsistensi informasi dan menghambat efektivitas kebijakan berbasis data. Penelitian ini bertujuan untuk menganalisis tantangan integrasi layanan data UMKM di tengah dualisme birokrasi serta mengidentifikasi faktor-faktor yang mempengaruhinya. Penelitian menggunakan pendekatan kualitatif dengan metode studi kasus, melalui wawancara mendalam, Focus Group Discussion (FGD), observasi terhadap 24 informan dari unsur pemerintah daerah, pengelola program UMKM, dan pelaku UMKM, serta analisis dokumen. Data dianalisis menggunakan model Miles dan Huberman melalui tahapan reduksi, penyajian, dan penarikan kesimpulan. Hasil penelitian menunjukkan bahwa integrasi data UMKM menghadapi berbagai hambatan, meliputi ketiadaan standar pengelolaan data, keterbatasan sumber daya manusia, belum memadainya infrastruktur teknologi, serta kuatnya ego sektoral antar lembaga. Kondisi ini berdampak pada lemahnya koordinasi kelembagaan dan terhambatnya pengembangan sistem informasi terintegrasi. Penelitian ini menyimpulkan bahwa penguatan tata kelola data UMKM memerlukan pengembangan sistem informasi terintegrasi yang didukung oleh standarisasi data, peningkatan kapasitas sumber daya manusia, dan penguatan koordinasi lintas lembaga. Implikasi penelitian ini memberikan rekomendasi strategis bagi pemerintah daerah dalam membangun tata kelola UMKM yang lebih efektif, terintegrasi, dan berbasis data.

**Keywords:** *dualisme birokrasi; fragmentasi data; integrasi data; sistem informasi terintegrasi; tata kelola UMKM*



## INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) play an important role in regional economic development. In Indonesia, MSMEs contribute significantly to job creation and economic resilience. As a result, the effectiveness of government programs that aim to support the development of MSMEs is highly dependent on the availability of reliable, accurate, and integrated data (Is, Kv, & Hungund, 2025; Vásquez et al., 2021; Ramadhona et al., 2023). Without proper data governance, policy formulation and program implementation can become inefficient and not well targeted (Kommineni & Chundru, 2025).

Previous studies have emphasized the importance of digital governance and integrated information systems in strengthening public administration. Research shows that e-governance can improve transparency, efficiency, and coordination in government services through the use of digital platforms (Lubis et al., 2024; Sharmin & Chowdhury, 2025; Balaji, 2025). Other studies have also highlighted that integrated information systems can improve policy effectiveness if supported by institutional coordination and strong governance structures (Riyadh et al., 2026; Hanisch et al., 2023; Goyal & Pattyn, 2025; Aldhi et al., 2025). However, previous research has focused on technological innovation and general implementation of e-government. Limited attention is paid to the issue of inter-institutional data integration in MSME governance at the local government level. As a result, empirical studies examining how bureaucratic structures and institutional coordination affect the integration of MSME data are relatively scarce.

This research gap becomes evident in Pasuruan Regency, where MSME data management is conducted by two different government institutions: the Department of Industry and Trade and the Department of Cooperatives. Each institution manages its own database using different classifications, data collection methods, and verification procedures. Such conditions lead to inconsistencies in MSME records and complicate the development of data-driven policies. In the preliminary study based on data in 2024, the researcher obtained the quantification of the data as follows in Table 1.

Table 1. Quantification of MSME Data Fragmentation in Pasuruan Regency, 2024

Indicator	Disperindag (IKM)	Dinkop (UKM)	Discrepancy/Fragmentation
Number of Registered MSMEs in 2024	4.772	1.007	3.765
Percentage of Duplicate Data (%)	2,1 %	12,4 %	10,3%
Number of Inconsistencies in Small and Medium Industries (IKM/UKM)	100 UKM	125 IKM	25 data
Unverified Data (Total)	3 data	2 data	1 data

Source: Field data, 2024.

Based on the information obtained in Table 1, it is stated that there are several indicators that show that there is a difference in data between agencies that handle the small and medium business sector, namely Disperindag and Dinkop. In the first column, showing the number of MSMEs registered in 2024 shows a significant difference, where the Disperindag recorded 4,772 business units while Dinkop only recorded 1,007 business units, so there is a difference of 3,765 data. This difference shows the fragmentation of the data collection system between agencies which may be caused by differences in data collection methods, data sources, and business classification criteria used.

In addition, the second column on the percentage of duplicate data also shows a considerable difference. This difference can be seen from the percentage difference between the



two reaching 10.3%, which is 2.1% in the Disperindag and 12.4% in the Dinkop. It can be interpreted that the verification and data management mechanism has not run optimally, so that one business actor can be recorded more than once in the data collection system.

Dualism is then seen in the third column which lists business category data based on the number of inconsistencies in Small and Medium Industries (SMEs/SMEs). In this column, Dinkop in its recording results was only able to find 100 SMEs while the data at the Disperindag reached 125 SMEs. Thus, the difference in industry inconsistencies is 25 data, which shows that the business classification standards used by the two agencies are not fully aligned, simultaneously, and integrated with each other.

Dualism is the last information in the fourth column which states that there is unverified data. namely 3 data at the Disperindag and 2 data at the Dinkop with a difference of 1 data. This is due to differences in the data verification flow which indicates that the data validation process has not been fully completed according to the procedure or as optimally as possible.

Overall, conclusions can be drawn from the information data Table 1., this condition shows that the main problem in MSME data management does not only lie in the difference in the amount of data, but also in the aspect of information system integration, consistency of business classification, and data verification mechanism between agencies, so that more coordinated efforts are needed to synchronize and integrate databases so that the information produced is more accurate and can be used effectively effective in the formulation of policies and programs for MSME empowerment.

This phenomenon essentially represents inter-agency data fragmentation, which constitutes a significant barrier to MSME management in Pasuruan Regency. The dualism of information systems between the Department of Industry and Trade and the Department of Cooperatives demonstrates a lack of interoperability and cross-sectoral coordination. Both agencies manage MSME data separately, using different nomenclatures, which results in redundancy, inconsistency, and confusion in service delivery. Consequently, MSME actors often face difficulties in accessing services due to unsynchronized information (Olatayo, 2025). Based on the description above, the aim of this research is analyze the challenges of integrating MSME data services in the midst of bureaucratic dualism and identify the factors that affect it.

## RESEARCH METHODS

The research method employed in this study is qualitative research using a case study approach. This approach was selected because it enables a deeper understanding of complex social phenomena and allows researchers to examine in detail various processes, activities, and interactions involving research subjects in the field (Chand, 2025; Rukminingsih et al., 2020). Through the case study approach, the researcher was able to comprehensively explore information regarding the dynamics of the management and empowerment of Micro, Small, and Medium Enterprises (MSMEs) within the institutional context of local government. In addition, the case study approach provides flexibility in presenting empirical findings through qualitative data without emphasizing statistical testing, but rather focusing on interpreting the realities that occur in the field (Darmalaksana, 2020; Nurbaya, et al. 2025; Vargas-Bianchi, 2025).

Operationally, this research was conducted through several systematic stages. The first stage involved research planning, which included determining the research focus, conducting a literature review, designing the research framework, and preparing data collection instruments. The second stage was the data collection stage, which involved gathering data in the field through observation, in-depth interviews, and Focus Group Discussions (FGDs). The third stage involved data processing and analysis, which consisted of organizing, categorizing, and interpreting the data



obtained from the field. The final stage was the conclusion and verification stage, which involved systematically formulating the research findings and re-examining the validity of the collected data.

The research was conducted at the Department of Industry and Trade and the Department of Cooperatives and Small and Medium Enterprises of Pasuruan Regency. The selection of these locations was based on the consideration that both institutions play a strategic role in policy formulation, guidance, and empowerment programs for MSMEs in the region. The field research was carried out over several stages of data collection. The research subjects consisted of 24 participants, including structural officials from both institutions, MSME program managers, and members of the Pasuruan Regency MSME Association as beneficiaries of government policies. The research subjects were selected using a purposive sampling technique, in which informants were deliberately chosen based on their knowledge, experience, and direct involvement in the management and development of MSMEs in Pasuruan Regency.

The main focus of this study is data governance and MSME information management systems within the local government environment, particularly concerning data integration, inter-agency coordination, and the effectiveness of data utilization in policy decision-making. This study also examines several problems in MSME data management, including data fragmentation between agencies, duplication of information, and limitations in integrated information systems. Therefore, this research seeks to examine in depth how data management practices are implemented and how they influence the effectiveness of public services related to MSME empowerment.

The research instruments used in this study consisted of several data collection tools adapted to qualitative research techniques. These instruments included observation sheets, in-depth interview guidelines, and Focus Group Discussion (FGD) guidelines. Observation sheets were used to record various phenomena, activities, and interactions occurring within the relevant agencies during the MSME data management process. The interview guidelines were used to obtain in-depth information from informants regarding their experiences, perceptions, and views about the MSME data management system. Meanwhile, the FGD guidelines were used to facilitate group discussions involving various stakeholders in order to obtain broader perspectives regarding existing problems and potential solutions.

Data collection techniques in this study included field observations, in-depth interviews, and Focus Group Discussions (FGDs) (Abdussamad, 2021). Observations were conducted to obtain a direct understanding of the empirical conditions and data management practices of MSMEs within the relevant institutions. In-depth interviews were conducted in a semi-structured manner with selected informants to obtain more detailed and contextual information. Meanwhile, FGDs were conducted by involving representatives from government agencies and MSME actors to discuss strategic issues related to MSME data management and empowerment. In addition to primary data, this study also utilized secondary data obtained from official government documents, activity reports, institutional archives, and relevant scientific literature.

The validity and credibility of the research data were ensured through several validation procedures. One of the techniques employed was triangulation, including both source triangulation and technique triangulation. Source triangulation was conducted by comparing information obtained from various informants with different backgrounds and positions. Meanwhile, technique triangulation was performed by comparing data obtained from observations, interviews, and FGDs. Through this process, the collected data could be verified to produce more accurate and scientifically accountable research findings. The data were then analyzed using qualitative data analysis techniques adapted from the model developed by Miles, et al (2014).

The data analysis process was carried out through several stages: data reduction, data display, and conclusion drawing or verification. In the data reduction stage, the researcher selected,



simplified, and categorized data that were relevant to the research focus (Saleh, 2017). The next stage was data display, in which the reduced data were organized into narratives, matrices, or tables to facilitate interpretation. The final stage was conclusion drawing and verification, which involved interpreting the meaning of the data and ensuring the consistency of findings through cross-checking various sources of information obtained during the research process.

## RESULTS AND DISCUSSION

The process of collecting data on MSME actors in Pasuruan Regency is currently carried out by two main agencies using different methods and approaches: the Department of Industry and Trade (Dinas Perindustrian dan Perdagangan – Disperindag) through the Satria Emas program, and the Department of Cooperatives (Dinas Koperasi) through the APIK platform, which was launched in mid-2024. Although both systems aim to record micro and small business actors in the region, they do not operate within a unified framework. This lack of integration has become the root cause of data management problems, which ideally should support the formulation of accurate and responsive policies.

The Satria Emas program developed by Disperindag adopts a proactive outreach approach by directly collecting data from IKM actors in the field. Each area is first mapped, after which facilitators manually complete survey forms and provide technical assistance to business actors. Meanwhile, the Department of Cooperatives collects data on Small and Medium Enterprises (SMEs) through the APIK digital platform, drawing on input from PK2UMK provided by the Provincial Government as well as third-party survey results obtained via LPSE.

Although both initiatives share similar objectives, there is no consensus on systems, verification instruments, or business classifications. This has resulted in data overlap, inconsistencies between IKM and UKM classifications, and difficulties in cross-validation. In some cases, business actors are recorded in both systems, while others are not recorded at all. This lack of synchronization not only confuses MSME actors but also complicates the local government's efforts to design accurate, data-driven policies.

In Pasuruan Regency, the separation of MSME data between agencies indicates that digital initiatives remain largely technical. Public trust, however will be built if digital transformation is directed not merely toward technological modernization, but also toward strengthening governance, leadership, and community engagement to ensure responsive and inclusive services (Virnandes et al., 2024; Paulus et al., 2025), who argue that participatory approaches in development often arise not from spaces initiated by the community, but from invited spaces defined and constrained by governmental authority. A comparable pattern is evident in Pasuruan Regency, where MSME data management remains confined to the technical framework of sectoral agencies rather than being developed through a cross-actor collaborative design. In fact, the role of innovation intermediaries is crucial for integrating of innovation in complex environments such as ecosystems, where the complexities and uncertainties arising from interdependencies and co-specialization coexist simultaneously, thereby creating major challenges. These challenges lead to serious issues in coordination and cooperation (Datt'ee et al., 2018; Kapoor, 2018; Marinelli et al., 2024).

Such a condition reinforces that data fragmentation is not merely a technical issue but also an institutional one. Weak coordination between OPDs, the absence of a data integration protocol, and the dominance of sectoral egos are the main causes of ineffective data collection. This finding is consistent with the study by Mindarti, L & Muzaqi, A (2015), which emphasized the importance of regular data updating as a prerequisite for equitable MSME empowerment: MSME offices need to



improve and update data on MSME actors so that the government can provide assistance evenly (Mindarti, L & Muzaqi, A, 2015).

Furthermore, they highlighted the importance of the Quadruple Helix approach collaboration between government, the business sector, academia, and civil society as an inclusive governance model for building a resilient and sustainable MSME information system: The Quadruple Helix is a concept that collaborates four sectors, they are; government, business, academics, and civil society that aims to push the development of innovation, so that it can support the country's success in implementing the development (Mindarti & Muzaqi, 2015; Romadhoni et al., 2025; Imtihan et al., 2025).

From the perspective of institutional design, there is still no coordination forum among local government agencies (OPDs) specifically tasked with integrating the cross-sectoral MSME database. Each agency continues to operate based on its own sectoral mandate, without mechanisms for data sharing, validation, or indicator alignment. The literature on digital transformation in the public sector highlights a significant gap between the public sector's digital aspirations for social development and the actual digital and contextual capabilities it possesses (De Angelis, 2013; Janowski, 2015; Pittaway & Montazemi, 2020; Shirish et al., 2025). This knowledge gap is evident among government officials responsible for implementing digital transformation programs (Shirish et al., 2025; Djatmiko et al., 2025). According to Iswanto (2022), the success of digital governance relies not only on technology but also on strengthening human resource capacity and stakeholder coordination: The implementation of information systems in the regions cannot run optimally without the support of competent *human* resources and synergistic cross-sectoral coordination (Iswanto, 2022).

Soesanto (2021) further argues that public innovation requires a systemic approach. In the context of MSME data management, this means developing systems that address social and institutional aspects rather than simply multiplying applications or software: Problems of innovation in the public sector cannot be solved solely through technical approaches, but require systems that connect entities and consider institutional capacity (Soesanto, 2021).

In addition, Iswanto (2022), in his study on Smart Villages, noted that information technology at the local level is only effective when supported by responsive institutional structures and strong digital culture: Technology implementation must be accompanied by improving the capacity of officials and raising digital awareness in society to ensure the sustainability of the information system (Iswanto, 2022).

From an e-governance perspective, the weak integration of information systems among OPDs in Pasuruan reflects the absence of an inclusive and interoperable data architecture. While information systems should serve as policy formulation tools, in practice they function merely as administrative instruments. In the context of public information management, system disparities and sectoral egos remain major obstacles to data integration. Soesanto (2021) explains that: The greatest challenge of public information systems is not merely technological, but lies in how institutions can build structured systems and actively engage organizational actors.

This illustrates the need for a systemic approach based on Soft Systems Methodology to ensure that system integration does not remain confined to the technical application level. Furthermore, the success of public data reform is largely determined by collaborative commitment and clearly defined roles among institutions. In the context of cross-sectoral collaboration (Fauzi & Rahayu, 2019) state that: The capacity to take collective action is the third aspect of collaboration dynamics, which is the result of principled engagement and shared motivation. The capacity to take collective action consists of elements such as procedural and institutional arrangements, leadership, knowledge, and resources.

Among the various inhibiting factors, MSME data fragmentation in Pasuruan also directly impacts business actors. Many report confusion due to discrepancies in information and data across agencies. When MSME actors attempt to access aid programs or training, they are often required to update their data in two different places without certainty of synchronization. This demonstrates that disconnected information systems have become an additional burden rather than a solution.

The necessary solution goes beyond creating new applications and requires a comprehensive reform of the system. The local government must initiate the development of a shared data architecture, establish a cross-OPD coordination forum, and strengthen regulations that encourage integration and accountability. Involving MSME actors in the data validation process is also crucial to ensuring that the system built is responsive to actual needs in the field.

Therefore, the approach required is not merely technological enhancement but a reform of public information governance. Local governments must play a central role in formulating standardized MSME classifications, establishing a unified system architecture, and ensuring the existence of a coordinating forum that facilitates inter-agency collaboration. At the same time, MSME actors should be involved in data validation and policy evaluation to create an information ecosystem that is both responsive and participatory.

The comparison of the approach in collecting data between the two related agencies by the researcher is simplified in the form of a diagram. The diagram in question is Figure 1.

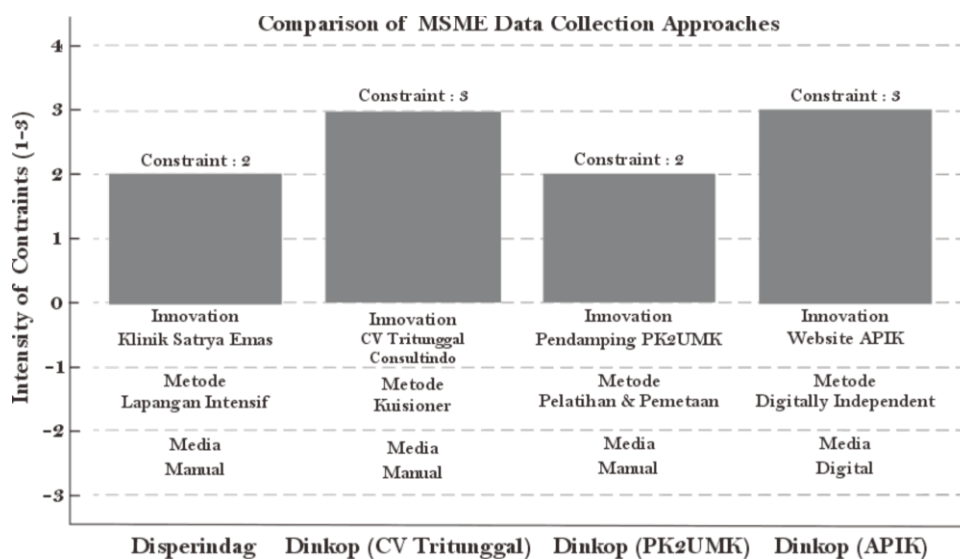


Figure 1. Comparative Analysis of MSME Data Collection Approaches in Pasuruan Regency (Source: Processed field data, 2024)

Based on Figure 1, there is data in the form of a bar chart above which compares four MSME data collection approaches based on constraint intensity (scale 1–3), it is accompanied by descriptive annotations indicating the type of data centralization innovation, the primary data collection method, and the media used. A higher bar indicated greater challenges or weaknesses associated with that approach.

- Innovation refers to the type of program or implementing entity.
- Method refers to the primary means of data collection.
- Media indicates the tools utilized, whether manual or digital.

Based on the data collection methods implemented by the two relevant agencies, the levels of accuracy, consistency, and data timeliness are summarized in the following Figure 2.

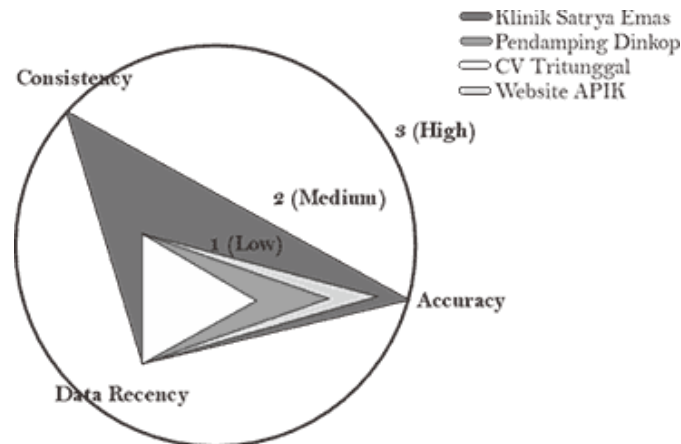


Figure 2. Accuracy, Consistency, and Recency of Data  
(Source: Processed Field Data, 2024)

Based on Figure 2. the radar chart above compares four MSME data collection methods across three key aspects: Accuracy, Consistency, and Data Timeliness. Each aspect is assessed using an interpretive 1–3 scale:

1. Scale 3 (High) – The method performs very well in the respective aspect (e.g., consistently implemented, highly accurate, and regularly updated).
2. Scale 2 (Moderate) – The method is reasonably effective but has notable limitations.
3. Scale 1 (Low) – The method is weak or ineffective in the respective aspect.

This assessment is derived from descriptive narratives in the original dataset and is intended to provide a clearer visual comparison among the methods.

## CONCLUSION AND SUGGESTIONS

This study demonstrates that the integration of MSME data services in Pasuruan Regency remains constrained by institutional fragmentation resulting from bureaucratic dualism between the Department of Industry and Trade and the Department of Cooperatives. The existence of separate data management systems, differing classifications, and inconsistent data standards has produced fragmented information that limits the effectiveness of public service delivery and weakens the formulation of evidence-based policies for MSME development. The findings further indicate that the absence of standardized data governance protocols, limited human resource capacity, inadequate technological infrastructure, and strong sectoral interests constitute the primary barriers to the establishment of an integrated MSME data system. These conditions illustrate that the challenges of data integration are not merely technical but are also closely related to institutional coordination and governance arrangements.

As for the suggestions to the agencies mentioned in this study, there is a need for increased integration and collaboration between the two. So that the data accessed by the general public is complete data that is not biased as a reference for MSME actors and do not close yourself if there are researchers or parties who want to offer solutions. Then, for future researchers, especially in Economics and Administration, provide new breakthroughs on social problems that exist in public service information providers are getting better.

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