



The unsuccessful of Satu Data Indonesia (SDI) implementation: a lesson learned from local government

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ABSTRACT

Data is a new asset in an organization. Data governance is needed for data to become a valuable asset. However, the implementation of data governance at the regional level, known as SDI has not been successful. SDI readiness score of 45.60%. Therefore, this study aims to identify problems and strategies related to the implementation of SDI at the regional level. Based on the results of an exploration of the implementation of SDI in the Madiun Regency Government, 24 problems were found. There are 3 problems in each aspect of SDI readiness. The eight aspects cover regulation, institutional, performance and conformance, management and utilization, technology, human resources, finance, and collaboration. To address these issues, eight strategies were proposed, including strengthening policies, increasing stakeholder commitment, formulating clear guidelines, raising awareness, facilitating infrastructure, developing employee skills, optimizing budget allocations, and promoting collaboration. These strategies aim to ensure successful SDI implementation in local government by improving data management, stakeholder involvement, resource allocation, and performance. Continuous improvement is important for long-term success.

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1. INTRODUCTION

Data is an essential asset in the organization. It is not only their number that continues to increase but also their role (Tallon et al., 2013)(Weber et al., 2009). Data governance is a solution to make data a valuable asset (Khatri and Brown, 2010). Practitioners also regard data governance as a promising approach for organizations (Hagmann, 2013)(Kamioka et al., 2016)(Rasouli et al., 2016). Conversely, the absence of data governance can lead to failure in running an organization (Alhassan et al., 2018). Thus, data governance is critical to improving and maintaining the quality and use of data in organizations (Otto, 2011).

The government is an organization that produces data periodically. This data is hoped to add value to decision-making (Islami, 2021). Satu Data Indonesia (SDI) exists as a government data governance policy contained in Presidential Regulation Number 39 of

2019 (SDI, 2021). This regulation provides implementation references and guidelines for Central and Regional Institutions in implementing data governance.

While there are great benefits if successful, data governance is still fraught with challenges. Both from an organizational, technical, and user point of view (local government). Implementation of SDI, consisting of 1) Data Planning; 2) Data Collection; 3) Data Validation; and 4) Data Dissemination, is still experiencing various challenges and problems (Islami, 2021). In the Data Planning process, problems were found, namely that priority data had not yet been established and data lists were unavailable. There was no mechanism for implementing and supervising action plans (Patra, 2020). Then in Data Collection, there is non-standardized and overlapping data (Retnowati, 2018), as well as sectoral egos which cause data asymmetry. It differs from Data Validation, where there are still many different formats and metadata in each Ministry/Agency and local government (Wicaksono et al., 2018). Data Dissemination is also lacking regarding the readiness of digital infrastructure (Bayu, 2020a) and the lack of integration between data portals. It shows that governance is still a problem in most organizations. As is well known, the overall regional-level SDI readiness score is 36.26%. Additionally, the readiness score of the 8 aspects assessed was still below 50% (Bappenas, 2023).

Until now, many studies have discussed data governance's challenges and critical success factors. It started from (Sayogo & Yuli, 2018) research identifying challenges and local government-level CSFs. However, this condition was before the passing of Presidential Regulation 39 of 2019. Further research by (Alhassan et al., 2019) mentions human resource readiness as one of the keys to success. It's just that this research does not focus on government data governance. The latest research from (Islami, 2021) presents a list of challenges and CSFs of SDI implementation from the point of view of the components of SDI implementation. However, an in-depth study of the implementation of SDI at the regional level has not yet been carried out. In contrast, the implementation of SDI at the central and regional levels has its own characteristics in terms of infrastructure, competence, and finance.

Based on the SDI readiness score, the implementation of SDI at the regional level has not been successful. Meanwhile, various potential challenges may arise in its implementation. Also, as stated by (Alhassan et al., 2019) in their research, understanding the keys to successful data governance encourages more successful implementation of data governance. Therefore, this study aims to identify problems that impede success and critical success factors as proposed solutions in implementing SDI at the regional level.

2. RESEARCH METHOD

2.1 Method

This research uses case studies to examine phenomena, issues, and problems related to implementing Satu Data Indonesia (SDI) at the regional level. Then from the aspect of data governance, we will look at the problems that arise by linking case analysis with existing research and will have implications for the success of SDI implementation. A literature study was conducted to look for previously proposed challenges, problems, and solutions related to data governance research. Then conducted Focus group discussions, observations, and interviews to discuss the challenges and problems that have so far been obtained from the implementation of SDI at the local government level. Data collection used interviews with Data Steward of Madiun Regency, namely the Communications and Informatics Service in the Statistics sector. The results of the interviews will be transcribed to find keywords from collecting data through observation and interviews. The transcription process allows us to convert the recorded interview into text that can be read and deeply understand the contents of the conversation. In the analysis, the keywords appearing in the transcript are the main focus, because they

reflect topics and issues relevant to the research. Then the keywords that appear are grouped to enable the researcher to find significance from the data collected through interviews conducted and clarified by the conditions seen from the observations. As a theoretical lens, the resulting construct is compared with previous studies.

2.2 Description of the Case

The Madiun Regency Government is one of the regions that started implementing Satu Data Indonesia at the end of 2019. The initial initiation by drafting the Madiun district SDI regulation is the right action to have legal protection as a derivative of the Presidential Regulation Number 39 of 2019, which regulates SDI in Madiun Regency. In 2021, for this initiative, the Madiun Regency Government received an award from the Badan Pusat Statistik (BPS) for East Java Province as ranking first in implementing Satu Data Indonesia for the establishment of a Mayor Regulation regarding Satu Data Indonesia in the region (Madiun, 2021). The initiative does not end with SDI regulations. The next step taken by Madiun Regency is to identify a list of data that will be collected in 2022. The essential data for compiling the list is from the Regional Medium-Term Development Plan (RPJMD) and the District Head's Directives. In addition, purchasing list Data Producer data complements standard data and metadata to comply with SDI principles. With a consultant from Surabaya and Data Coach, Madiun Regency conducted a workshop on preparing Metadata statistics to equip and improve the competence of Data Producers. On November 10, 2022, Madiun Regency launched the Madiun Regency Satu Data Indonesia Portal as a media for disseminating data to the public (Antara, 2022). The portal, accessed at <https://data.madiunkab.go.id>, is the commitment of the Madiun Regency as an essential basis for making policies. The portal has also been integrated with the central SDI portal and the East Java Province SDI portal to fulfill data interoperability. Until now, portal development is still being carried out by looking at evaluations and increasingly complex data conditions.

3. RESULTS AND DISCUSSIONS

3.1 Readiness to implement SDI at the Local Government

Initiation of the implementation of SDI at the Madiun Regency Regional Level began with the drafting of the SDI regent's regulation at the end of 2019 to 2020. This initial step was immensely appreciated and appropriate. Assistance in the preparation of metadata and data standards is a follow-up initiative. The development of the SDI portal has been carried out from 2022 until now. The latest initiative is the preparation of an SDI action plan.

Based on all the SDI program initiatives implemented, the Madiun Regency Government and other regions in the East Java Provincial Government have an SDI readiness score of 45.60%. Regulation is the aspect that has the highest readiness score of 70%. It is following the initiative carried out by the Madiun Regency Government, namely the availability of a Regent's Regulation on SDI. Furthermore, institutional and management and utilization have a readiness score of 60%. Evidence of this achievement is based on institutional readiness in the form of an SDI forum. The next aspects are coordination, technology, and performance & conformance, with 50%, 46.67%, and 35% readiness scores. Meanwhile, financial and HR both have a readiness score of 20%.

3.2 Problems in the Implementation of SDI at the Local Government

The results of the regional-level SDI readiness scores show that the implementation of SDI is still unsuccessful. As stated by several previous researchers, various obstacles are still obstacles to identifying essential problems to become future lessons. Adopting the SDI readiness aspect, SDI implementation problems were identified. The aspects used to identify problems include regulation, institutional,

performance and conformance, management and utilization, technology, human resources, finance, and collaboration. Identification of problems in each of these aspects is done by mapping problems inherent in each component (Figure 1).

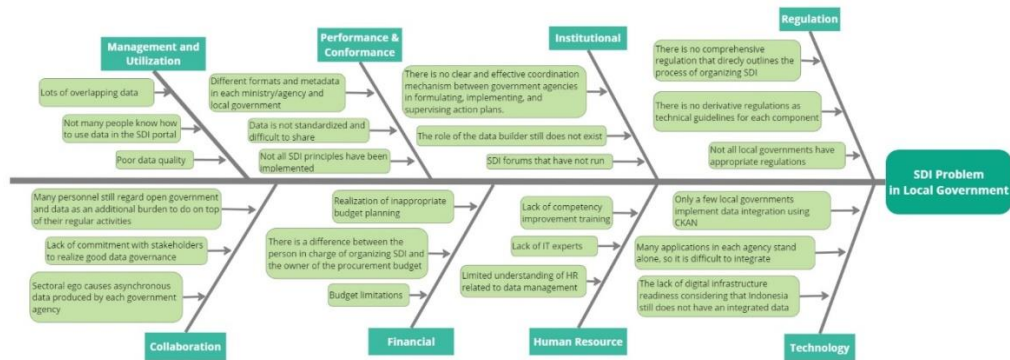


Figure 1. SDI Problem in Local Government

The regulation is the main aspect of the readiness for SDI implementation. As stated by (Alhassan et al., 2019; Sayogo & Yuli, 2018), the policy is a category of various challenges in SDI implementation. Not only that, but it is known that regulation is the primary basis for the government to execute an initiative. In the Madiun District Government context, the regent regulation as a derivative of Presidential Regulation Number 39 of 2019 already has. However, readiness from a regulation standpoint is not fully resolved. The unavailability of technical guidance on executing each SDI implementation component is a problem. As a result, local governments do not know what to do (OGP, 2020). Also, the technical instructions available are general and difficult to translate. Its implementation at the central level is still tiny, so the government at the regional level does not yet have examples of its implementation.

The next aspect is institutional. Currently, an SDI forum has been formed in the Madiun District Government. SDI organizers are members of it. The duties and responsibilities of each role are defined in the regent regulations. However, currently there is no coordination mechanism in this forum. The SDI forum has not yet defined the action plan for implementing SDI. The purpose of implementing SDI has not been adequately conveyed to all elements of government. Not all SDI organizers carry out their roles and contributions. The result is that the SDI forum's performance and the SDI organizers' respective roles are still not optimal. This is in line with the results of research (Sayogo & Yuli, 2018), where one of the challenges from an organizational perspective is that not all elements in the government have the same understanding of the objectives of implementing SDI. The connection with the role of SDI organizers who have not been optimally implemented is also in line with the results of (Alhassan et al., 2019; Sayogo & Yuli, 2018) research. Both of them revealed that the duties and responsibilities as SDI organizers were only additional tasks from the regular activities carried out. In addition, the leadership has said that data is the nation's new asset. The reason his research reveals the opposite. However, at the staff level, the importance of data in development planning and decision-making is still reluctant to be realized. In the aspect of data governance, the main problem is the data itself. One of them is a non-standard data format. Even though the SDI principle is currently available, the government has difficulty translating it into practice. At the central level, directives on implementing metadata and data standards have not yet been implemented. Not all data lists published on the SDI portal are equipped with metadata and data standards. The data coach has a responsible role (Mawanda, 2020).

The Performance and Conformance SDI, which consists of four process stages, has been carried out by Madiun Regency. They are starting from data planning which identifies data lists as determinants of data to be collected the following year. In this case, a list of data and central priority data has not yet been established as a reference in determining the list of data in the regions. There is no mechanism for implementing and supervising action plans similar to what was presented (Patra, 2020). Then data collection found a lot of non-standard and overlapping data and the presence of sectoral egos, which caused data to be asynchronous. It differs from Data Validation, in line with research from (Wicaksono et al., 2018), which found many different formats and metadata. When examined by Data Steward, the SDI principles are still not fully implemented. Data Dissemination is also lacking regarding the readiness of digital infrastructure, which is still inadequate.

Management and utilization are one aspects with the second highest score in readiness. Nevertheless, there are still some problems in this aspect. Practically, there are three problems, including lots of overlapping data (Nugroho, 2017), public ignorance regarding the existence of SDI portals, and poor data quality. The actual form of this problem is the phenomenon of the data source. The lack of clarity as to who is the Data Producer results in data overlap. An agency produces data. But other agencies also produce the same data but with different content and format. The relation to low utilization of data is caused by the quality of the data itself, which is also still low. Massive dissemination of functional information from the one data portal has not been appropriately conveyed to all parties.

It cannot be denied that even though the technology is a support, if the infrastructure is not prepared, it will also impact the running of data administration. The current condition is that the score for SDI readiness in the regions is 37.78%, still below the target, not even half. In fact, to fulfill data dissemination with an easily accessible data-sharing system, open data technology is needed with a portal integrated with the <https://data.go.id> portal. Madiun Regency is also experiencing difficulties in preparing the required infrastructure, like a server with certain specifications to meet stored data needs. It is supported by research (Bayu, 2020b) which explains a lack of digital infrastructure readiness considering that Indonesia still does not have an integrated data center. Data in the regions is still tangled, with each regional device having many applications. It is difficult to integrate because no standard format is regulated as a requirement for data interoperability. There are several interoperability or data integration options, one of which is using CKAN. Few people know about CKAN technology, an open-source portal platform for storing and disseminating open data.

The Human Resources aspect is the most important for the success of SDI implementation. But still low in fulfillment of readiness. In realizing competent data organizers, it must be balanced by human resources with adequate digital talent. In this case, the regions cannot guarantee the sufficient number and capacity of competent human resources (such as functional positions for computer administrators and statistics). Research from (Bayu, 2020a) is the same as what was found in the field: the lack of training to improve data processing competence also contributes to the lack of understanding of data among local government employees.

Problems related to finance related to allocating funds for the SDI program. Not because no funds are available but because the allocation is improper. The absence of an SDI action plan is the cause. Regions often allocate funds that are not within the planned program's scope.

The success of a goal can be realized with the commitment of all stakeholders involved. It is the same as implementing Satu Data Indonesia at the regional level, with organizers from Data Coach, Data Steward, Data Custodian, and Data Producer. But in fact, the sectoral ego is still carried out by each regional apparatus with the data they have. It is what makes data management not optimal and there is collaboration in it. As

is the case in Madiun District, a few Data Producers still actively collect data according to the agreed data list. It is probably because many employees still perceive the SDI program as an additional burden that must be carried out outside their regular activities.

3.3 Proposed Solutions

Various identified problems require proposed solutions for completion. Identification was carried out through a review of previous literature with adjustments to the regional context. Following the number of aspects of SDI readiness, 8 strategies for implementing SDI are identified as solutions to various problems (Table 1).

Table 1. The Proposed Solutions

Aspect	Problem	Strategy
Regulation	There are no clear guidelines that regulate easily how to organize SDI There are no derivative regulations as technical guidelines for each component Not all local governments have appropriate regulations	Strengthening the SDI implementation technical guideline policy
Institutional	There is no clear and effective coordination mechanism between government agencies in the process of formulating, implementing, and supervising action plans The role of the data builder still does not exist SDI forums that have not run optimally	Increasing the commitment of all stakeholders to carry out their roles actively
Performance & Conformance	Different formats and metadata in each ministry/agency and local government Data is not standardized and difficult to share Not all SDI principles have been implemented Different formats and metadata in each ministry/agency and local government	Formulating clear data process guidelines and procedures
Management & Utilization	Lots of overlapping data Not many people know how to use data in the SDI portal Poor data quality	Increasing awareness of data management and utilization
Technology	The lack of digital infrastructure readiness considering that Indonesia still does not have an integrated data center There are many applications in each agency that stand alone, so it is difficult to integrate At least the Regional Governments have implemented data integration using CKAN	Facilitating adequate infrastructure and technology
Human Resources (HR)	Limited understanding of HR related to data management Lack of IT experts Lack of competency improvement training	Developing employee data competencies
Financial	Budget limitations There is a difference between the person in charge of organizing SDI and the owner of the procurement budget Realization of inappropriate budget planning	Optimizing budget allocations and using them according to performance and targets
Collaboration	Sectoral ego causes asynchronous data produced by each government agency Lack of commitment with stakeholders to realize good data governance Many personnel still regard open government and data as an additional burden to do on top of their regular activities	Optimizing good collaboration between stakeholders

The first strategy is strengthening the SDI implementation of technical guideline policies. Even though the readiness aspect of the regulation has the highest score, various improvements are still needed. This refers to the role of regulation in implementing an initiative. Various problems refer to the unavailability of derivative

regulations from SDI strategic level regulations. Therefore, strengthening the SDI implementation of technical guideline policies is identified as a proposed strategy. This is in line with the results of research conducted (Sayogo & Yuli, 2018) that derivative regulations in the form of technical guidelines are needed at the local level of government. Not only that, the contents of the regulations, which become the legal protection, need to be disseminated to all elements of the organization. So, the form of policy strengthening is compiling derivative regulations and socialization to raise awareness of current and future regulations.

The second strategy is for the readiness aspect with the second highest readiness score, namely institutional. The proposed strategy is the increasing the commitment of all stakeholders to actively carry out their roles. Current conditions show that the SDI forum formed is not enough. The availability of a list of duties and responsibilities for each role has not been accompanied by awareness to carry it out. Therefore, it takes commitment from all stakeholders to carry out their roles actively. As stated (Sayogo & Yuli, 2018) in his research, that commitment is the basis for forming motivation and encouragement. This commitment must start from top management, especially in the context of government, where the organizational culture is very bureaucratic.

Furthermore, all elements up to the operational level must have the same commitment. Ownership of this commitment will solve the tasks and responsibilities of each role not being carried out. This commitment needs to be maintained continuously, along with the duties and responsibilities. Explanation of this must be done periodically. The contribution of each role will support the success of the implementation of SDI as a whole. This is in line with the results of (Alhassan et al., 2019) research that clarity of responsibility with the support of commitment positively impacts the success of data governance.

The third strategy is increasing awareness of data management and utilization. SDI is a data governance policy that aims to produce quality data that is easy to use. This can only be realized through good data management and optimal data utilization. Awareness on the part of organizers and users of data production and consumption is still low. Therefore the awareness of both parties must be increased as the research results by (Sayogo & Yuli, 2018) showed that the desire to contribute actively is based on an awareness of the importance of the data itself.

The fourth strategy is related to the collaboration aspect. As is well known, the SDI readiness score in this aspect is 50%. This is shown by several problems, including sectoral ego, low commitment, and employees' mindset. The result is that the execution of new responsibilities is carried out after the main task is completed (Steward, 2020). This condition gave rise to a strategic initiative: Increased collaboration between stakeholders. This is in line with the results of research conducted by (Sayogo & Yuli, 2018). The researchers revealed that collaboration is one of the keys to successful data management. Therefore, seeing that collaboration readiness is still 50%, a strategy is needed to increase the collaboration of all stakeholders.

The fifth strategy relates to technology. Based on a readiness score of 46.67%, facilitating adequate infrastructure and technology is proposed as a strategy. Although not the main aspect, the availability of information technology must be ensured. Given the goal of SDI is data dissemination. This means that the media is needed to disseminate it. If it is unavailable, the data will only be stored and not utilized by data users. This strategy is in line with the results of research from (Alhassan et al., 2019; Sayogo & Yuli, 2018) that owning the right technology infrastructure is the key to successfully implementing data governance. In addition, the benefits of technology can be realized through governance. As stated by (Alhassan et al., 2019), alignment between data governance and IT governance impacts the successful implementation of data governance programs.

The sixth strategy relates to the performance and conformance aspect. Even though the main regulation, namely Presidential Regulation Number 39 of 2019, has explained the implementation of SDI, its implementation is still experiencing problems. Technical instructions on how to execute each stage are not yet available. Meanwhile, the implementation of SDI at the central level is still progressing. As a result, the implementation of SDI at the regional level is quite disorganized. The interpretation of each makes a difference. Even though the goal is to produce one data for all. Therefore, a strategy is proposed, namely guidelines on clear data processes and procedures. This aligns with the research results by (Alhassan et al., 2019; Wicaksono et al., 2018). Clear ownership of data governance procedures and processes will create quality data. This strategy will make it easier for all parties to organize SDI in a standardized manner (Abraham et al., 2019). Whoever and wherever SDI will be held in the same way and approach.

The strategy related to the aspect of human resources is Developing employee data competencies. This aspect is one of the aspects with the lowest readiness score. As stated by (Alhassan et al., 2019; Sayogo & Yuli, 2018), human resources are the most important non-technical aspect. Preparedness from other aspects will be useless if competent human resources do not support it. Meanwhile, conditions in the regions show that experts in the field of SDI, such as statistical aspects, are still limited. Various competency improvement activities are also rarely carried out. Apart from skills, basic knowledge and awareness of governance processes and data management is also lacking. Therefore, increasing the competence of human resources is crucial.

The final strategy relates to the financing aspect. Optimizing budget is allocations and using them according to performance and targets proposed as a strategy. This strategy is proposed to increase its readiness. This is because the readiness score on this aspect has the lowest score, which is 20%. The financial aspect influences the success of SDI implementation indirectly. However, the preparation of all other aspects depends on the availability of funds. The right allocation of costs to the right program is important. This is based on the results of research conducted (Sayogo & Yuli, 2018) that finance is one of the challenges in implementing data governance. This cost aspect includes the availability of costs and the accuracy of their allocation. These financial resources are needed to initiate and maintain collaboration for various SDI programs.

4. CONCLUSION

This research uncovered various problems from the unsuccessful implementation of SDI at the regional level. An indication of the failure of SDI can be seen from the SDI readiness score. The eight aspects of readiness include regulation, institutional, performance and conformance, management and utilization, technology, human resources, finance, and collaboration. Based on all the SDI program initiatives implemented, the Madiun Regency Government and other regions in the East Java Provincial Government have an SDI readiness score of 45.60%.

Based on this readiness, 24 problems related to the implementation of SDI at the regional level were identified. A total of 3 problems in each aspect of readiness. On the regulation aspect, the problem is closely related to the unavailability of derivative regulations governing the technical implementation of SDI. In the aspect of the institutional, the performance of the SDI forum is not yet optimal, the commitment is not evenly distributed, and the awareness of the importance of organizing SDI is not shared by all stakeholders, which is a problem. Aspects of technology, finance, management, and data utilization also experience various problems. HR competence is the main obstacle. Likewise, financial availability in implementing the SDI program is still not optimal. Not unavailable, but inaccurate allocation for the right activities.

As proposed solutions, 8 strategies were identified to realize the successful implementation of SDI. The eight strategies are mapped with certainty with the eight aspects of SDI readiness. (Alhassan et al., 2019) argue that understanding the keys to successful data governance encourages more successful implementation of data governance. Our results demonstrate the challenges or problems conducting implementing SDI at the regional level. These contributions enhance our understanding of the complexities and dimensions involved in SDI implementation. The practical contributions lie in the proposed strategies, which provide actionable recommendations to address the identified problems and improve SDI implementation. These strategies can guide policymakers and practitioners in real-world settings, enabling them to effectively enhance data governance, promote stakeholder collaboration, optimize resource allocation, and achieve successful SDI implementation at the regional level.

Even though this research has covered the shortcomings of previous research that examined the challenges of implementing SDI in general, this study still has limitations. The results of identified problems and strategies are still based on respondents and limited case studies. The conceptual framework for mapping aspects of preparedness, problems, and strategies needs to be further validated using respondents and larger case studies. Furthermore, as a recommendation for further research, the solution of our proposed strategy must be validated by implementing it on local government objects. You can go through action research to see the success of each scenario created. So that it can be valuable and proven to bring success in implementing SDI in the regions.

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