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Assessing the Implementation of One Data Indonesia and Digital Health Agenda within the Decentralization Era

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Abstract
This study critically examines the implementation of One Data Indonesia in the health sector, with a particular focus on the SATUSEHAT platform, within Indonesia's decentralized governance framework. While One Data Indonesia has been promoted as a cornerstone of evidence-based policymaking and digital health transformation, its implementation in underdeveloped and fiscally constrained regions remains uneven. Good data governance is vital for effective healthcare delivery as it enables informed decision-making and enhances accountability. Without proper data governance, timely and accurate information dissemination becomes challenging, hindering the design, monitoring, and evaluation of effective policies. This necessitates addressing various aspects of data governance in health, such as data fragmentation in healthcare facilities to central institutions. This study uses qualitative methods with a case approach, including data collection techniques and secondary documents. This research finds that local governments face numerous challenges in aligning with national policies, including limited regional fiscal capacity, administrative constraints, and human resource shortages. They often rely heavily on central government transfers. Additionally, the capacity of local agencies in data management still needs to be improved. In essence, the narrative underscores that good data governance is a collective endeavor, requiring the active and informed participation of diverse stakeholders. This study contributes to the literature by providing empirically grounded insights into how decentralization conditions digital health data governance in developing countries.

Keywords: Decentralization system; Digital health transformation; Health data governance; One Data Indonesia; SATUSEHAT.

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INTRODUCTION

Data governance has become a critical foundation for contemporary public decision, particularly in the health sector where timely, accurate and interoperable data are essential for policy design, crisis response and accountability. In Indonesia, long-standing problems of data fragmentation, sectoral ego, and inconsistent standards have undermined the effectiveness of public health policymaking, especially during the COVID-19 Pandemic. In response, the government introduced One Data Indonesia through Presidential Regulation No. 39 of 2019, aiming to standardize data, strengthen interoperability, and improve coordination across government levels. This article aims to assess the extent to which One Data Indonesia has addressed long-standing data fragmentation and governance challenges in Indonesia's health sector.

Good data governance is a crucial component of delivering good public policies because data can help make appropriate decisions and improve accountability. Without good data governance, it is not possible to give accurate information in manners time, while it is also unfeasible to design, monitor, and evaluate effective policies. In getting good quality data, it is essential to create adequate governance in order to minimise data inconsistency, manage data changes, and data security. Thus, many aspects of data governance should be determined, such as regulations, human resources, budget tagging, and so on (Stott, 2022; OECD, 2022).

In the intricate web of sectors demanding a unified data policy, health affairs stand out as a critical domain. The necessity for a singular data policy in this realm is underscored by its direct correlation to rational and scientific decision-making. Particularly evident in times of crisis, such as the tumultuous landscape of the Covid pandemic, a cohesive data policy becomes indispensable. It acts as the linchpin, facilitating the synthesis of pertinent information crucial for addressing public health issues. In essence, the implementation of a comprehensive data policy within the health affairs sector becomes not just a strategic choice but a vital imperative, ensuring a well-informed and coordinated approach in the face of complex challenges.

In general, data governance regulations in Indonesia are scattered and unharmonized. Thus, to solve the complexity of data governance regulations, the government started to drive a breakthrough regulation via Presidential Regulation number 39/2019 on One Data Indonesia. This regulation sets several foundation principles that ensure data standards, metadata, data interoperability, and reference code in order to bolster better data governance in Indonesia. Those principles serve as guidance and reference for the implementation of data governance from central government to local governments in order to facilitate better data-sharing mechanisms in public sector institutions.

The prospect of implementing a unified data policy in health governance in Indonesia holds profound implications

for the entire healthcare landscape of the nation. Such a policy, designed to streamline and harmonize data practices, is poised to catalyze transformative changes. At its core, this initiative signifies a commitment to efficiency, accuracy, and coherence in managing health-related information. By fostering a consolidated approach, the policy aims to enhance decision-making processes, promoting a more nuanced understanding of public health dynamics. The implications extend beyond mere administrative convenience. A singular data policy is anticipated to fortify the foundations of health governance, providing a structured framework for data collection, analysis, and utilization. This, in turn, has the potential to elevate the responsiveness of the healthcare system, especially crucial in times of health crises. As Indonesia grapples with diverse health challenges, ranging from infectious diseases to broader public health concerns, the implementation of a unified data policy becomes a strategic cornerstone in fortifying the nation's healthcare resilience.

Moreover, this policy isn't just a technical alignment; it embodies a commitment to transparency and accountability. It sets the stage for improved monitoring and evaluation mechanisms, ensuring that health governance in Indonesia becomes a model of effectiveness and responsiveness. By fostering collaboration between different stakeholders, from healthcare providers to policymakers, a unified data policy lays the groundwork for a holistic and interconnected healthcare ecosystem. In essence, the implications of adopting a singular data policy in health governance in Indonesia resonate across the spectrum of healthcare. They signal a shift towards a more integrated, responsive, and accountable system, poised to tackle current and future health challenges with precision and efficacy.

However, good governance happens when the policies can be implemented by all stakeholders, not only by central governments but also by local governments. As mentioned by Vitalisova et.al (2021), local governance as a key to local development. Local governments play an essential role as policy champions in order to strengthen the implementation of One Data Indonesia. Nevertheless, local governments in particular have faced several problems in complying with national policies such as the lack of regional fiscal capacity, limited administrative capacity, limited human resources, and other limitations. Most of them are highly dependent on central government transfers (Talitha, Firman, & Hudalah, 2020). On the other hand, the capacity of human resources in data management is also still lacking, especially in local agencies (Purwanto, Janssen, & Zuiderwijk-Van Eijk, 2017) (Bayu, 2020).

Navigating the implementation of a singular data policy in Indonesia poses a distinctive challenge given the backdrop of a decentralized government system. This complexity is particularly pronounced in the realm of health, where significant autonomy is vested in local governments. The interplay between the imperative for a unified data policy and the decentralized governance structure creates a narrative rich with intricacies.

In a nation characterized by diverse regions and cultures, the decentralization of health matters to local governments reflects a commitment to tailoring healthcare strategies to the unique needs of individual communities. However, this decentralized approach brings forth a nuanced dynamic when it comes to crafting a unified data policy. The challenge lies in balancing the imperative for standardized data practices with the need to accommodate local variations and priorities.

The implementation of a one-data policy in the health sector must be a delicate orchestration, acknowledging the autonomy of local governments while fostering a cohesive national health data framework. It necessitates a collaborative dialogue between the central and local authorities, recognizing the importance of aligning diverse perspectives to achieve a harmonious and effective data policy.

The narrative unfolds against the backdrop of the nation's commitment to achieving not only efficiency but also inclusivity in healthcare data management. As Indonesia grapples with health challenges ranging from infectious diseases to broader public health concerns, the narrative emphasizes the importance of a nuanced, context-aware approach to data governance. The one data policy, while aspiring to bring about standardization, should be flexible enough to accommodate the diverse healthcare landscapes that exist within the decentralized governance structure.

In essence, the story of implementing a one-data policy in Indonesia's health sector is one of striking a delicate balance between centralization and decentralization, standardization and flexibility. It's a narrative that underscores the nation's commitment to unity in diversity, even in the intricate realm of healthcare data governance.

In navigating the landscape of data policy in Indonesia, a complex interplay emerges with the backdrop of a decentralized government system. The challenge is particularly pronounced given the autonomy bestowed upon local governments, specifically in matters pertaining to health. The implementation of a unified data policy becomes a delicate balancing act, where the imperative for cohesive national health data must harmonize with the regional autonomy granted to local authorities.

Indonesia's decentralization, with its roots in the post-Suharto era reforms, has empowered local governments with significant autonomy, including decision-making authority over health-related issues. This decentralization is reflected in Law No. 23 of 2014 concerning Local Government, which delineates the scope of local government authority, encompassing crucial aspects of public health.

The complexities inherent in this decentralized governance model pose intricate challenges for a singular data policy. While the national perspective necessitates standardized data practices for effective policymaking and public health management, regional autonomy mandates a flexible approach that accommodates local variations in healthcare needs, priorities, and strategies.

This tension between centralization and decentralization is not unique to Indonesia, and scholarly discourse on decentralized governance and its

implications for health systems is well-documented. Researchers such as Bossert, T. (1998) have explored the dynamics of decentralization in health systems, emphasizing the need for a nuanced understanding of how central and local authorities can collaborate effectively.

As Indonesia endeavours to navigate this intricate terrain, a comprehensive approach to the one data policy must consider not only the technical aspects of data integration but also the socio-political dimensions of decentralized governance. It necessitates a delicate calibration that respects local autonomy while ensuring a cohesive and effective national health data strategy.

The concept of governance in a decentralized system is a dynamic interplay of decision-making, authority distribution, and accountability. Decentralization, as a governance model, involves the transfer of authority and responsibilities from central to local levels. This shift brings about a multifaceted approach to governance, impacting various sectors, including healthcare, education, and public administration.

Decentralized governance is explored by scholars such as Bardhan and Mookherjee (2006), who delve into the economic and political implications of decentralization. Their work, "Decentralization and Accountability in Infrastructure Delivery in Developing Countries," published in The Economic Journal, provides insights into how decentralization affects service delivery and accountability.

In the realm of public health governance, Saltman and Bankauskaite (2006) offer a comprehensive examination in their book "Decentralization in Health Care." This source explores the challenges and benefits of decentralized health systems, shedding light on how governance structures influence healthcare delivery. Moreover, Oates' fiscal federalism theory (Oates, 1999) is foundational in understanding the economic aspects of decentralized governance. His seminal work, "Fiscal Federalism" published in the Journal of Economic Literature, contributes to the understanding of how fiscal relationships between different levels of government impact governance outcomes. As countries around the world grapple with the complexities of decentralized governance, these scholarly works provide valuable perspectives. They contribute to a nuanced understanding of the intricate dynamics, emphasizing the need for effective decision-making, accountability mechanisms, and collaboration between central and local authorities in a decentralized system.

Policy implementation in a decentralized system is a complex and multifaceted process that involves the orchestration of policies across various levels of government. Scholars have extensively examined the challenges and dynamics associated with implementing policies in decentralized governance models. One seminal work in this field is the research by Grindle (2007) titled "Good Enough Governance Revisited," which discusses the challenges of governance and policy implementation in decentralized settings. This source, published in the Development Policy Review, provides insights into the complexities of ensuring effective policy

implementation when decision-making authority is dispersed.

Similarly, Osborne (2010) explores the nuances of public policy implementation in decentralized systems in the book "The New Public Governance? Emerging Perspectives on the Theory and Practice of Public Governance." This source offers a comprehensive analysis of the shifting landscape of public governance and its impact on policy implementation across various sectors.

Moreover, the article by Rodrik (2008) titled "Second-Best Institutions," published in the American Economic Review, contributes to the understanding of the challenges associated with implementing policies in imperfect institutional settings. Rodrik's work is relevant for analyzing how decentralized systems, often characterized by diverse institutions, navigate policy implementation challenges.

As countries continue to adopt decentralized governance structures, the insights provided by these scholarly works contribute to a more nuanced understanding of the intricacies involved in policy implementation. They highlight the need for adaptive strategies, effective coordination, and a consideration of local contexts to ensure successful policy outcomes in decentralized systems. The concept of one-data governance in health affairs represents a strategic approach to unify and streamline data management in the healthcare sector. As nations grapple with the increasing complexity of healthcare data, scholars and researchers have explored the benefits and challenges of implementing a cohesive data governance framework.

Additionally, the study by Adler-Milstein et al. (2017) titled "Electronic Health Record Adoption In US Hospitals: The Emergence Of A Digital 'Advanced Use' Divide" sheds light on the dynamics of electronic health record (EHR) adoption, emphasizing the need for standardized governance to harness the full potential of health data. This research is published in the American Journal of Managed Care.

As the healthcare landscape continues to evolve, the adoption of one-data governance emerges as a pivotal strategy to address challenges related to data fragmentation and interoperability. These scholarly works contribute valuable insights into the theoretical foundations and practical implications of implementing a unified data governance framework in health affairs.

As such, this research would like to scrutinize further the relationship between the decentralization system and its effectiveness in fulfilling national policies, which in this context refers to One Data Indonesia, especially in underdeveloped areas. This research used the theory of public policy implementation introduced by Merilee S. Grindle, to see the factors affecting the implementation of One Data Indonesia. This theory examined the policy content and surrounding context relating to agents who implement a certain policy formulated by the central government.

The research gap addressed in this study lies in the lack of empirically grounded analysis on how local governments experience, interpret, and implement of Satu Data Indonesia, in the health sector, and how decentralization shapes both constraints and

opportunities. By focusing on underdeveloped regions and drawing on qualitative evidence, this study advances the literature on digital health governance and decentralization in developing countries. The central research question is: how does Indonesia's decentralized governance system affect the implementation of One Data Indonesia and the digital health agenda at the local level?

RESEARCH METHOD

This research employs qualitative methods with a literature review regarding policy issues to capture the complexity of One Data Health Policy in Indonesia. Qualitative method is used because the research aims to seek the understanding processes, institutional interactions, and actor perception rather than to measure outcomes quantitatively (Sugiono, 2022). The case-study design is used for in-depth analysis of policy implementation within its real-world context (Creswell, 2013).

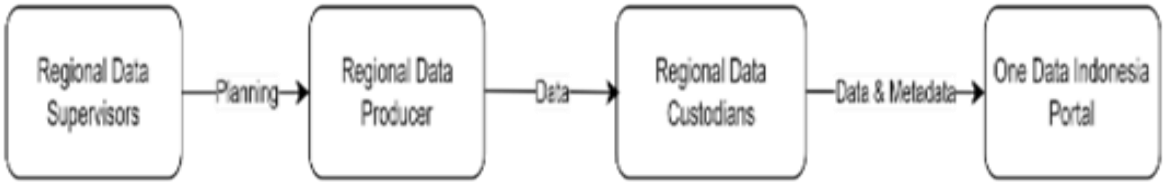
Data were collected between 2022 and 2-24 from three main souces. First, policy and regulatory documents were analyzed, including Presidential Regulation No 39/2019, minister of Health Regulation No 18/2022, SPBE regulations and official government reports. Second, secondary data from research institutions and development. The secondary data obtained from Presidential Regulation and other reports regarding the One Data Health policy in Indonesia. The research took time from 2022-2024. Furthermore, data triangulation would be used in this research to validate data and information from informants and secondary data sources. Meanwhile, data analysis techniques would use three activities such as data reduction, data display, and findings and conclusions.

RESULTS AND DISCUSSION

A to Z, One-data Policy SATUSEHAT

This section will comprehensively discuss national and regional regulations pertaining to the governance of health data in Indonesia. The One Data Indonesia Policy, as outlined in Presidential Regulation 39/2019, delineates a structured framework for the effective management of data at the regional and local government levels.

Figure 1. The parties involved in One Data Policy



Source: Obtained from Presidential Regulation Number 39 of 2019 regarding One Data Indonesia, 2024

Regional Data Supervisors, as mandated by Article 20, are responsible for providing recommendations in planning data collection and overseeing One Data Indonesia in their respective regions. Concurrently, Article 21 designates Regional Data Custodians as entities responsible for ensuring the

compliance of data submitted by regional data producers. These data custodians take on additional responsibility of sharing the verified data and metadata through the One Data Indonesia Portal. These custodians also actively collaborate with Regional Data Supervisors to enhance the efficacy of data governance. Regional Data Custodians are typically agencies within the regional government and are often managed by the Regional Development Planning Agency (Bappeda) as Chairperson of the One Data Forum Indonesia at the Regional Level. Finally, Article 22 of the Presidential Regulation underscores the role of Regional Data Producers, emphasizing their responsibility to generate accurate and relevant data, subsequently submitting it to the Regional Data Custodians. Together, these interconnected roles and responsibilities establish a comprehensive and collaborative approach to regional data management under the overarching framework of the One Data Indonesia Policy.

The most substantive stakeholder holding a pivotal role is the Ministry of Health. As a mandate of Presidential Regulation Number 39 of Ministerial Regulation Number 18 of 2022. This regulation specifically addresses the implementation of a single health data system through health information systems which is later known as SATUSEHAT.

As outlined in Article 1, entities producing health data encompass any operational divisions within the Ministry of Health responsible for generating health data in alignment with the specified data list, priority health data, and/or as designated by the Minister. Health Data Custodians (Walidata Kesehatan) is a functional unit within the Ministry of Health that carries out activities related to the collection, examination, and management of data provided by Health Data Producers. They disseminate data and are designated as the manager of the national Health Information System. Article 19 emphasizes that the Health Data Custodians are inherently centralized, with regional units serving in a supportive capacity.

In the local government, there are health facilities such as hospitals under the ministry or regional health offices. This creates disparities and challenges in integrating data between the central and regional levels. Article 11 of this Ministerial Regulation details that health offices and community healthcare centers in the regions are obliged to provide updates on the health profile of their areas at least once a year. Through the ministerial regulation, discussions arise that, instead of strengthening the support for the governance of health data from the regions to the central government and vice versa, the Ministry of Health is adding "obligations" to community health centers and health offices, which may not have been equipped with the necessary technical capabilities.

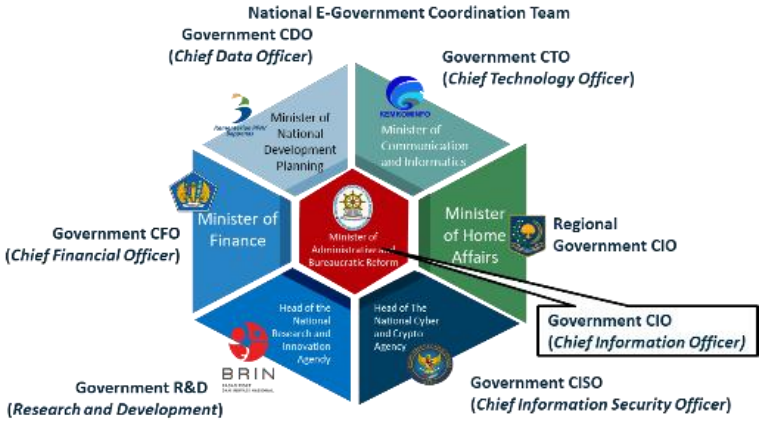
The integration efforts undertaken by the Ministry of Health, as stipulated in Ministerial Regulation 18/2022 need to be supported by other stakeholders in the central government who holistically perform their core tasks and functions. Things equally pressing are that all key actors from the ministries must play a role in supporting local government in

underdeveloped areas to strengthen their ability to understand the blueprint of Indonesian Development, filling in their existing data architecture, mapping the relevant actors according to regulations, consolidating data, and then sharing the data on the One Data Indonesia Portal. Ministry of National Development Planning (Bappenas) is the main actor in One Data Indonesia as Chief Data Officer (CDO), responsible for data management and governance. Bappenas provides assistance to local governments in collaboration with other ministries primarily for inputting data in the One Data Indonesia Portal and utilizing the Government Service Linking System (SPLP).

The Chief Data Officer plays a pivotal role in the effective execution of One Data Indonesia, with a range of duties aimed at ensuring seamless coordination and implementation. Firstly, the officer is tasked with the coordination and establishment of policies pertaining to One Data Indonesia. This involves crafting strategic guidelines to govern the initiative. Additionally, the officer takes charge of coordinating the actual implementation of One Data Indonesia, overseeing its practical execution at both central and regional levels.

A crucial aspect of the role involves continuous monitoring and evaluation of the initiative's implementation to identify areas of success and areas that may require refinement. The Chief Data Officer is also responsible for actively coordinating the resolution of problems and obstacles encountered during the implementation of One Data Indonesia, demonstrating a commitment to overcoming challenges. Lastly, the officer submits comprehensive reports on the implementation of One Data Indonesia, providing insights and updates to the President at both central and regional levels, thereby ensuring transparency and accountability in the initiative's progress. Through these multifaceted responsibilities, the Chief Data Officer contributes significantly to the success and efficacy of One Data Indonesia. At the regional level, Bappeda acts as the Coordinator of the One Data Forum at the regional level.

Figure 2. The Ministries Involved in the E-Government System



Source: Obtained from Presidential Regulation Number 95 of 2018, 2024

The Ministry of Communication and Informatics as the chief technology officer (CTO) organises the Government Service Linking System (SPLP) infrastructure to facilitate data sharing. To ensure the seamless interoperability of data, the Ministry of Communications and Informatics formulates guidelines outlined in Minister of Communications and Informatics Regulation No. 1 of 2023 on Data Interoperability in the Implementation of e-government and One Data Indonesia. The Minister of Communications and Informatics is also a member of the One Data Indonesia Steering Committee.

In the context of One Data Indonesia, the Minister of Home Affairs also performs an essential role in managing data at the regional level, particularly in coordinating with local governments. The Ministry of Home Affairs is also responsible for ensuring the implementation of the division of government affairs in the health sector. Law Number 23 of 2014 concerning Local Government regulates the division of central government affairs, provincial government affairs, and district/city government affairs, including the health sector. Local governments have limited authority in the realm of human resources in the health sector, focusing on planning, development, and issuing permits for healthcare professionals like doctors, nurses, and midwives. Therefore, when Ministerial Regulation Number 18 of 2022 mandates health offices and community healthcare centers to provide updates on the health profile at least once a year, the Ministry of Home Affairs has the authority to ensure, supervise, and evaluate the planning and development of health human resources at the regional level.

Other members of the One Data Indonesia Steering Committee at the central government are the Minister of Administrative and Bureaucratic Reform, the Head of BPS (central statistical data supervisor), the Head of BIG (central geospatial data supervisor), and the Minister of Finance. For regional-level statistical data, the fosterer of regional-level statistical data is the vertical agency of BPS. For Geospatial Data at the regional level, the Geospatial Data Trustee at the regional level is one of the Regional Agencies assigned as the Regional Government Network Node Manager in the National Geospatial Information Network.

Building upon the preceding discussion, despite the enhanced regulation of health data governance under One Data Indonesia and SATUSEHAT, there remains an imperative to scrutinize the implementation guidelines in light of additional regulations. This critical examination becomes especially vital in comprehending the delineation of responsibilities between central agencies and local governments. It underscores the necessity for a comprehensive evaluation to ensure seamless coordination and alignment with various regulatory frameworks, thereby optimizing the effectiveness of health data management practices.

The Challenges in One Data Indonesia Within the Decentralized Governance Framework.

Except for the prosperous and independent regions of Jakarta and East Java in Indonesia, most local governments rely heavily on intergovernmental transfers ((Talitha et al., 2020); (Sudhipongpracha & Wongpredee, 2017)). Furthermore, local governments typically employ these transfers for public officials' salaries and wages. The reformation of health funding transformation will receive the majority of the 2023 budget allocated for healthcare system transformation. On the other hand, the budget allocated for the transformation of health technology, which includes efforts in digital health, is a significantly lesser amount, coming to approximately 0.54 trillion Indonesian Rupiah (CISDI, 2023). As a point of comparison, the Ministry of Communication and Information Technology (Kemenkominfo) has stated that, by 2024, approximately 104 trillion Indonesian Rupiah will be needed to propel digital transformation throughout all industries, with a sizeable portion of the money designated for strengthening cyberinfrastructure (CISDI, 2023). It's important to remark that the requirements specified by the Ministry of Communication and Information Technology do not suit with the financial options available for digital transformation in the health sector.

The implementation of the One Data Policy in certain areas may face challenges due to several factors. Limited infrastructure, inadequate capacity at the local level, and socio-economic complexities may impede the successful implementation of data-driven policies in these areas (Soegiono, Agie Nugroho, 2018). Insufficient technological resources at the local level may constrain the ability to leverage data for informed decision-making. Furthermore, as of February 2023, data from Indonesia's Ministry of Health (Badan Penelitian dan Pengembangan Kesehatan, 2019) indicates that 743 Puskesmas, or community health centers, or roughly 7.16% of all Puskesmas, lacked internet connection. Additionally, according to data from the 2019 Health Facility Research (Rifaskes), 2,296 Puskesmas have electrical capacities that are below 2,200VA, and an astounding 25.9% of Puskesmas, or 2,497, lack even electric generators. When the data is broken down by region, it becomes clear that there are still gaps, with the majority of basic healthcare institutions in eastern Indonesia having inadequate internet access and electricity access.

In Indonesia, data expertise (the capacity of government data management staff, notably in data analysis and usage) is insufficient, particularly in local government agencies (Bayu, 2020; Purwanto et al., 2017).

The Ministry of Health's Senior Advisor for Health Technology and Chief Digital Transformation Officer, Setiaji, acknowledged that a number of healthcare facilities remain unable to integrate with the SATUSEHAT Platform. Findings from socialisation activities and pilot integration across regions indicate several key constraints, including inadequate internet connectivity, limited human resource capacity and understanding of the platform, and the need for a shift in budgeting practices

from conventional approaches toward digitalization (Liputan6, 2023). Local administrators may lack the necessary skills and knowledge to effectively manage data and access digital tools. This capacity gap can impede the development and execution of the regulations and strategies that require an understanding of data and metadata analytics and interpretation.

There are several issues with the implementation of e-government including the lack of integrated governance in local government, the lack of optimal implementation of integrated e-gov services, and the low number of staff with ICT skills (Koniyo, Giriantari, Sudarma, & Wirastuti, 2021). Moreover, socio-economic complexities in these areas contribute to the challenges. Factors such as varying levels of education, access to technology, and economic disparities can affect the overall readiness of the community to embrace and utilize data-driven policies.

The reference codes for central and regional planning data are different, making it challenging to integrate development data both vertically (across levels) and horizontally across processes. There is a need for data governance alignment between the central and regional levels, as well as harmonization of reference codes. Harmonizing reference codes is a critical step towards achieving a cohesive data ecosystem. This entails creating a unified framework that facilitates interoperability and consistent interpretation of data across different levels of governance. Such harmonization is essential for breaking down silos and enabling a more comprehensive understanding of development data, fostering collaboration between central and regional entities. It is also essential to appoint a regional data steward to utilize the available One Data Indonesia Portal at the National Data Center. Data integration should be carried out through the Government Service Linking System (SPLP) API Proxy Service mechanism. Further problems arise when the local governments could not acquire data from health institutions, for example, the Office of Health (Aryanto et al., 2021).

The lack clarity between data and information has caused misconceptions in regional governments that are willing to participate in the initiative. For instance, the local officials of Pontianak and Mojokerto city governments could not distinguish the difference between the data and information (Soegiono, 2018). There is no formal structure to ensure coordination from a central government perspective. The Indonesian government does not have an incentive system to local governments (OECD, 2016).

The Potential and Barrier of One Data: is it Good or Broken Since the Beginning?

A strong commitment from local leaders is essential. National government agencies' proactive involvement strengthens local commitment. The key aspect that can drive the success of implementing One Data Indonesia is the empowerment of good data governance. People in underdeveloped areas need to strengthen their ability to understand the blueprint of Indonesian Development, fill in their existing data architecture, map the relevant actors according to regulations, consolidate data, and then share the data on the One Data Indonesia

Portal. Develop and implement a capacity-building program for local government (both elected and career civil officials) so that they not only own the data management process but also act as policy champions.

Aside from investing heavily in ICT infrastructure development, proper data management demands long-term funding for its upkeep. According to Benison (2016) producing high-quality open data requires a significant expenditure in the long run, which is divided into four categories: setup and technical costs, administrative and governance costs, skills development and community involvement costs, and sustainability costs. In other words, the government's open data effort demands significant expenditure and considerable multi-stakeholder participation, while the benefits have not been clearly recognized. Synergy is required between the Ministry of Communication and Informatics and other relevant stakeholders in order to realize the 2023 Information and Communication Technology Infrastructure Budget, particularly in terms of the equitable distribution of digital technology networks, aligning with the overarching concept of SATUSEHAT. SATUSEHAT embodies the idea of working together as one unified entity, transcending organizational boundaries for the collective advancement of digital health.

The synergy in the ICT infrastructure budget, it is also necessary to establish a coordination mechanism between stakeholders, as stated in (Patra & OGP, 2020) there is no clear and effective determination of the coordination mechanism between government institutions in the process of preparing, implementing, and monitoring action plans, because by using the same principles or mechanisms the government can maximize and analyze the availability of data in each public institution. Furthermore, there is no derivative regulation on SDI, which requires each Ministry/Institution to issue derivative rules from Presidential Regulation No.39. The second difficulty, in Wicaksono's opinion, is the various formats and metadata found in every ministry, agency, and local government (Wicaksono, Rusdianto, & Hendra Brata, 2018). The government finds it challenging to get data as a result, particularly during the data verification phase. When such circumstances arise, it is impossible to isolate the role that ego-sectoral issues play in government agency coordination and bureaucratic issues (Islami, 2021).

Decentralization emerges as a catalyst for empowering local governments with the pivotal authority to oversee the regular and up-to-date collection of data. This newfound autonomy not only places the responsibility for data management in the hands of local leaders but also grants them the capability to tailor data generation to the unique linguistic fabric of their communities. By harnessing the potential to present data in local languages, these leaders unlock a transformative tool for maximizing the impact of data-driven policies in areas that have long been marginalized and underprivileged. With decentralization, local governments have the authority to make sure that data governance is tailored to the specific needs and context

and culture of the regions which is highly suitable for Indonesia, known for its multiculturalism and to preservation of each distinctiveness of region.

The ability to ensure regular and timely data collection signifies a shift in governance dynamics, placing decision-making authority directly in the hands of those intimately familiar with the nuances and challenges of their communities. This localized approach not only enhances the accuracy and relevance of the data but also fosters a sense of ownership and responsiveness in addressing the specific needs of underprivileged areas.

Moreover, the power to generate data in local languages is a testament to the inclusivity of decentralized governance. It acknowledges the diverse linguistic landscape within regions, recognizing that effective communication is inherently linked to language accessibility. By breaking down language barriers, local governments pave the way for more widespread understanding and engagement, ensuring that data-driven policies are not only informed by local insights but are also effectively communicated to the communities they aim to uplift.

In essence, decentralization transforms local governments into champions of data sovereignty and linguistic inclusivity. It positions them as architects of policies that are not only rooted in accurate, up-to-date information but are also tailored to resonate with the diverse voices of underprivileged areas. This narrative encapsulates a vision where decentralized data governance becomes a powerful instrument for positive change, fostering a more responsive, inclusive, and impactful approach to policymaking in the local context.

The concept of good data governance transcends a mere administrative framework; it encapsulates a paradigm of collaborative governance involving a multitude of stakeholders. At its core is the notion that effective data governance necessitates the active participation of various actors, creating a web of engagement that spans beyond traditional bureaucratic lines. This collaborative governance approach is particularly exemplified by the active involvement of multiple stakeholders, each playing a crucial role in shaping and executing data governance practices.

The concept of SATUSEHAT holds significant relevance and potential impact as One Data Indonesia initiatives in health sector, especially when applied to local regions in Indonesia. SATUSEHAT, emphasizing unity and collaboration, becomes a powerful guiding principle in addressing the unique challenges and opportunities present in diverse localities. By fostering synergy among various stakeholders, including central and local governments, communities, and relevant agencies, SATUSEHAT signifies a commitment to unity, collaboration, and inclusivity (Satusehat.com, 2025).

Local leaders emerge as linchpins in this intricate web of collaborative governance. They shoulder the responsibility of not only understanding but also championing the principles of data governance within their jurisdictions. A key facet of their role is ensuring that the human resources under their purview are not merely functionaries but adept participants in the data governance ecosystem. The

multifaceted responsibilities assigned to these individuals, including serving as data supervisors, producers, and custodians, underscore the comprehensive nature of their engagement.

The reference to the national SPBE (*Sistem Perencanaan Pembangunan Berbasis Elektronik*- Electronic-Based Development Planning System) or e-government system architecture blueprint adds a layer of complexity and coherence to this narrative. It suggests that local leaders are not operating in isolation but are intricately linked to a broader national framework. The SPBE architecture blueprint serves as a guiding document, delineating the principles and structures that should govern data practices at the national level. In this context, local leaders become not just implementers but vital contributors to the larger national vision of data governance.

In essence, the narrative underscores that good data governance is a collective endeavor, requiring the active and informed participation of diverse stakeholders. It positions local leaders as instrumental in translating the principles of governance into actionable strategies within their spheres of influence. This collaborative governance model, anchored in the national blueprint, signifies a holistic and coordinated approach to managing data resources, ensuring their integrity, security, and effective utilization for the benefit of the larger community.

Ensuring the sustainable success of the One Data Indonesia initiative requires a comprehensive and collaborative effort from key government bodies. The National e-Government Coordination Team and the One Data Indonesia Steering Committee play pivotal roles in this endeavor. It is imperative that their assistance efforts directed towards local governments are not only impactful in the short term but are designed with long-term sustainability in mind. This involves fostering a culture of ongoing support, capacity building, and continuous improvement to empower local governments to effectively implement and maintain data governance practices.

For the initiative to flourish at the regional level, the Ministry of Finance and the Ministry of National Development Planning must take proactive measures to promote long-term funding mechanisms. A sustained financial commitment is essential to provide local governments with the resources necessary for the successful implementation of One Data Indonesia. This includes investing in technology infrastructure, training programs, and other critical components that contribute to the longevity and effectiveness of the initiative.

Human resource management stands as a linchpin in achieving the targets of One Data Indonesia. The Ministry of Home Affairs and the Ministry of Administrative and Bureaucratic Reform must collaborate to bolster the capabilities of local government personnel. This involves strategic planning, training initiatives, and the establishment of supportive frameworks to ensure that the human resources at the regional level are equipped to meet the objectives set forth by the initiative.

The Ministry of Communication and Informatics holds a crucial

responsibility in guaranteeing the accessibility and sufficiency of infrastructure. By providing robust and readily available infrastructure, the Ministry can alleviate the burden on local governments, sparing them from the need to build their own facilities for storing, sharing, and interoperating data. This not only streamlines the implementation process but also ensures a standardized and efficient data infrastructure across regions.

The success of One Data Indonesia hinges on a coordinated, sustainable, and supportive approach from various government entities. By focusing on long-term funding, human resource empowerment, and infrastructure accessibility, these recommendations aim to fortify the foundation of the initiative, propelling it toward enduring success and nationwide impact.

CONCLUSIONS

The effectiveness of One Data Indonesia in the health sector is shaped less by regulatory ambition than by implementation capacity, which limits the transformative potential of SATUSEHAT Indonesia. To address this issue, the government should strengthen incentive mechanisms, provide sustained fiscal and technical support to underdeveloped regions and institutionalize collaborative coordination between central and local governments.

Future research should combine qualitative insights with comparative quantitative analysis across regions to further assess the impact of SATUSEHAT on health outcomes. By situating digital health data governance within the empirical context of decentralization, this study contributes to academic debate and encourages practical policy reform.

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