

Policy Learning in The Implementation of The One Map Policy Period of 2016-2024

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Abstract

Purpose: This study analyzes the implementation of the One Map Policy (OMP) in Indonesia between 2016 and 2024 from the perspective of policy learning theory. This study aims to identify how learning from past experiences, evaluations, and interactions between actors influences changes in OMP regulations and governance from 2016 to 2024.

Methodology: This study used a qualitative descriptive method with a document review. Data were collected from laws and regulations related to the OMP, government reports, academic writings and official institutional publications. The data were analyzed descriptively using Howlett's policy learning framework to map the dynamics of policy change.

Results: The study finds that OMP implementation embodies three distinct, interconnected dimensions of policy learning: technical, socio-political, and institutional. These learning processes have led to regulatory revisions (from Presidential Regulation No. 9/2016 to No. 23/2021), enhanced cross-agency coordination, and strengthened national spatial data infrastructure and transparency.

Conclusions: The findings demonstrate that the One Map Policy is not merely a technocratic project but also a dynamic policy learning process. This multidimensional learning strengthens national spatial data governance, promotes inclusivity and transparency, and provides valuable lessons for policy learning in developing countries.

Limitations: The study's reliance on secondary sources and a single theoretical framework may constrain the scope of perspectives and broader applicability of its findings.

Contributions: This study enriches the literature on policy learning with evidence from Indonesia and provides lessons for strengthening inclusive, data-driven, and sustainable spatial governance.

Keywords: *One Map Policy, Policy Implementation, Policy Learning*

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1. Introduction

Geospatial information is crucial for development planning, resource management, and effective governance. Accurate and integrated spatial data are essential for decision-making processes that support investment, conflict resolution, and sustainable development (Ulfiah, Koto, & Ningsih, 2024). However, in Indonesia, the management of geospatial data has long been fragmented, with numerous ministries and local governments producing maps based on their sectoral mandates. This fragmentation has resulted in overlapping claims, inconsistencies in spatial planning, and frequent land use conflicts that harm communities and investors alike, which have long been major obstacles to national development (Marthalina, 2018).

The lack of a unified standard for Thematic Geospatial Information (IGT) structure and format further complicated this issue noted by Shahab (2016) and Marthalina (2018). Fragmentation culminated in a

notable incident in 2010, where discrepancies exceeding 30 million hectares were discovered between forest cover maps produced by the Ministry of Environment and Forestry and the Ministry of Agriculture, exposing the urgent need for standardized and authoritative geospatial governance ([Bretz, 2017](#)). Recognizing this failure in spatial data coordination, the government enacted Law No. 4 of 2011 on Geospatial Information as the legal basis for strengthening the national spatial data policy and as the initial foundation for the One Map Policy (OMP). The OMP mandates a single base map as a common reference for all sector maps ([Wibowo & Giessen, 2015](#)).

However, this initial implementation still faced major challenges, including weak cross-sectoral integration mechanisms and insufficient institutional robustness due to persistent sectoral egos and the lack of a unified framework due to the lack of an effective cross-sectoral data integration mechanism ([Kurniawan, 2024](#); [Silviana, 2019](#)). To enforce the OMP, the government formally established it through Presidential Regulation No. 9 of 2016 concerning the Acceleration of the Implementation of the One Map Policy at a Map Accuracy Level of 1:50,000. The initial concept of this policy was to ensure that all geospatial information produced by various sectors adheres to a single geospatial reference, standard, database, and geoportal, all based on a 1:50,000 map scale.

The implementation process of Presidential Regulation No. 9 of 2016 is carried out through three stages: compilation, integration, and synchronization, supported by the development of the OMP Geoportal in 2018 as a centralized platform for data access and exchanges ([Silviana, 2019](#)). Despite these advancements, several evaluations have highlighted persistent obstacles, such as weak inter-agency coordination, resistance to data sharing from sectoral institutions, and limited transparency in access for non-government actors ([Yudono, Dewi, & Darmawan, 2020](#)). These persistent issues suggest that the OMP is not merely a technical project but an ongoing, iterative reform that requires political negotiation, institutional adaptation, and continuous learning.

Previous studies on the OMP have primarily focused on its technical aspects, such as standardization ([Marthalina, 2018](#)) and infrastructure development, or institutional barriers such as mandate alignment ([Wibowo & Giessen, 2015](#)). While these studies provide valuable insights into the technical and institutional barriers of the OMP, they do not address the issue of OMP adoption in developing countries. Crucially, most extant research frames OMP implementation as a technocratic project. What remains underexplored is how the OMP represents a dynamic process of policy learning in which the government actively adapts its strategies, instruments, and institutional arrangements based on evaluation and feedback. In public policy, policy learning is defined as the adjustment of policy goals and instruments, informed by evidence and feedback ([Hall, 2011](#)). [Howlett, Mukherjee, and Koppenjan \(2017\)](#) further distinguish three dimensions of this learning: cognitive/technical, socio-political, and institutional, a framework particularly relevant for analyzing complex, multi-sectoral reforms like the OMP.

This study addresses this gap by analyzing the implementation of the OMP between 2016 and 2024 through the lens of policy learning. It is guided by two questions: (1) Why has policy learning taken place in the implementation of the One Map Policy, and (2) How has the learning process unfolded to shape regulatory and institutional changes? Using a qualitative approach and drawing on [Howlett et al.'s \(2017\)](#) framework, this study analyzes the forms of learning of the actors involved and their impact on national geospatial governance. In doing so, this research contributes theoretically by advancing the understanding of policy learning in the complex Indonesian context and practically by offering policy lessons for strengthening inter-agency coordination, institutional capacity, and inclusive access to geospatial data.

2. Literature Review

2.1 Policy Learning

Policy learning can be defined as the adjustment of understanding and beliefs related to public policy ([Dunlop & Radaelli, 2018](#)). Meanwhile, Hugh Heclo as cited in [Dunlop and Radaelli \(2018\)](#), also highlights that policy learning cannot be separated from political power and how actors deal with uncertainty in the decision-making process. Political learning brings about changes in social policy and

new policy innovations and introduces social learning as a change in behavior that results from experience. Meanwhile, according to [Sandfort and Moulton \(2014\)](#), policy learning is conceptualized as activities between different advocacy groups (Advocacy Coalition Framework) that discuss a policy issue.

The policy learning process generally arises from policy failure, which can explain how policies and governance change. This learning process contributes to better policy changes in the future. Additionally, this approach helps us understand the differences between designed policies, actions taken, and outcomes achieved ([Hall, 2011](#)). One of the complexities in studying policy learning is that it occurs within a policy process. The policy process consists of politically involved individuals, known as policy actors, who interact to influence government decisions regarding issues that are currently being discussed ([Moyson, Scholten, & Weible, 2017](#)).

[Howlett et al. \(2017\)](#) classify 3 types of policy learning: cognitive/technical, social political, and institutional. Cognitive or technical learning is instrumental learning that focuses on understanding policy issues, the assumptions of the cause-and-effect relationships involved, and the advantages and disadvantages of various proposed solutions. Social or political learning is a learning process in which policy actors understand how to interact, collaborate, and negotiate within the context of policy networks and develop strategies to build relationships, reach compromises, and influence other actors to achieve common goals. Institutional learning focuses on the formation and strengthening of long-term shared arrangements, such as procedures, rules, norms, values, and beliefs among policy actors. The goal of this learning is to reduce risks and costs in interactions, as well as to support more stable and efficient negotiation and collaboration processes in the policy system.

Policy learning is a critical mechanism for encouraging policy change. However, change is not automatic. [Plümer \(2024\)](#) argues that successful change requires a combination of three mechanisms: a change in thinking (cognitive), a change in behavior (action-oriented), and a change in interaction (social). The resulting policy change can be observed across three levels: shifts in fundamental policy beliefs, changes in strategic policy preferences, and concrete policy output (e.g., new regulations or policy revisions). This multidimensional framework is particularly relevant for analyzing the OMP, given its governance structure involving multiple institutions and stakeholders with overlapping mandates ([Bretz, 2017](#); [Faxon, Goldstein, Fisher, & Hunt, 2022](#)), which necessitates ongoing technical and political adaptation. Applying [Howlett et al. \(2017\)](#) multidimensional framework, cognitive/technical, socio-political, and institutional learning offer a useful lens to examine how these adjustments take shape within Indonesia's spatial governance reforms.

2.2 Spatial Data Governance and One Map Policy in Indonesia

The OMP was established to resolve Indonesia's long-standing problems of fragmented geospatial information and overlapping sectoral maps, aiming to provide a single, evidence-based spatial reference. While OMP has attracted substantial scholarly attention, the existing body of work primarily falls into three categories, with studies examining various aspects of its implementation, ranging from technical challenges to institutional coordination and digital infrastructure. The following section reviews this body of work, highlighting key contributions and pointing out the limitations that this study aims to address.

A significant portion of the literature documents the necessity of cross-sectoral harmonization and data standardization and the persistent challenges posed by institutional and legal barriers. [Setyowati et al. \(2018\)](#) show that its success depends on cross-sectoral harmonization and local actor involvement, as illustrated by the ESDM One Map Indonesia platform, which enables stakeholder interaction but remains constrained by legal and institutional barriers. Similarly, [Pakpahan, Ramadani, Pradana, Supriyanto, and Mardiyono \(2019\)](#) observed that while the ESDM has begun standardizing and integrating geospatial data in the energy and mining sector, coordination gaps, limited data utilization, and discrepancies between national regulations and sectoral practices persist.

[Siswanto and Hamidah \(2019\)](#) document how the internalization of OMP standards in the Ministry of Transportation improved the quality of thematic maps, yet underline the continuing need for uniform data standards across institutions. [Andréfouët, Paul, and Farhan \(2022\)](#) further emphasized that consistent data, advanced technology, and integrated approaches are critical to achieving the full potential of the OMP. Studies have highlighted coordination gaps, limited data utilization, discrepancies between national and sectoral practices, and the continuous need for uniform standards. This study confirms that achieving OMP's potential of OMPs requires consistent data, advanced technology, and integrated approaches. Collectively, these studies comprehensively document the technical and administrative obstacles of OMP. However, their dominant focus on output and administrative performance inhibits an analytical understanding of how institutions learn and adapt to these recurring failures.

Beyond technical issues, scholars have examined the OMP through the lens of land governance and identified socio-political complexities. [Bretz \(2017\)](#) identifies overlapping mandates and limited public access to spatial data as persistent barriers, while [Wibowo and Giessen \(2015\)](#) show how sectoral conflicts and divergent mapping standards risk turning the OMP into a symbolic rather than transformative policy. [Silviana \(2019\)](#) highlights the continuing problems of cadastral integration, such as overlapping ownership claims and duplicative evidence, while [Nurwadjedi Nurwadjedi \(2020\)](#) points to the lack of openness in thematic land-use data that slows conflict resolution and undermines inter-sectoral synchronization. [Nuhidayah, Davies, and Alam \(2020\)](#) add that contestations over land ownership, uncertainty over customary land, and administrative bottlenecks remain major obstacles at both the national and subnational levels.

Research highlights overlapping mandates, limited public access, continuing cadastral integration problems, and administrative bottlenecks related to land contestation, customary land uncertainty, and duplicative ownership claims. These studies effectively reveal the intricate socio-political dimensions of Indonesia's spatial governance. However, they tend to frame the OMP as a response to land conflicts rather than as a process of policy learning and adaptation designed to address the underlying political and institutional roots of these issues. The third cluster underscores the OMP's contribution to spatial planning, legal certainty, and digital infrastructure development.

These studies emphasize the strategic function of the policy in preventing overlaps, accelerating development, and strengthening policymaking through its foundational principles. [Palengkahu \(2023\)](#) stressed the importance of synchronized maps to prevent land-use overlaps, avoid conflicts of interest, and accelerate regional development and infrastructure programs. [Palengkahu \(2023\)](#), based on a case study in Bogor, revealed that the policy's implementation is hampered by unclear objectives, weak leadership support, limited coordination, and low policy awareness, pointing to the need for comprehensive improvement strategies.

From a governance perspective, [Wijoyo, Prihatiningtyas, Wahyuni, Putri, and Noventry \(2025\)](#) highlight the strategic function of geospatial information for policymaking, showing how the OMP strengthens integration through the principles of one reference, one standard, one database, and one geoportal. [Abdullah et al. \(2019\)](#) and [Marthalina \(2018\)](#) further document the policy's achievements between 2016 and 2020, including the compilation of thematic maps and the launch of the national geoportal, while also noting persistent gaps in synchronization, human resources, and budget allocation across institutions. In terms of legal certainty, [Sanjaya \(2023\)](#) found that the OMP improves land registration through updated cadastral data, while [Hasyim, Subagio, and Darmawan \(2016\)](#) underline its role in enhancing spatial planning despite ongoing limitations in geospatial data availability.

More recently, [Wahyuningsih \(2024\)](#) observed that the implementation of the OMP under Presidential Regulation No. 23/2021 continues to face regulatory, technical, and capacity-related challenges. While this literature confirms the OMP's positive objectives and documents its initial success, it generally fails to explain the adaptive mechanisms and policy learning that drive continuous refinement, such as repeated regulatory revisions, limiting insight into how governments adjust to implementation gaps. Apart from institutional and land governance perspectives, the OMP's effectiveness is also closely

linked to the development of its digital infrastructure, particularly geoportals and Spatial Data Infrastructure (SDIs). [Sahroni, Saleh, and Wijanarto \(2017\)](#) found that despite a decade of NSDI development, effectiveness remained low because of persistent institutional, technological, and user-access barriers, particularly in the operation of the Ina-Geoportal.

Similarly, [Putra, Sekimoto, and Shibasaki \(2019\)](#) highlighted the limited availability of detailed geospatial data and the lack of coordination across agencies in the early stages of NSDI development, with the duplication of data continuing to pose challenges. [Vancauwenberghe, Valečkaitė, Van Loenen, and Donker \(2018\)](#) expanded the discussion by stressing the importance of involving non-government actors in SDI governance, noting that meaningful participation requires clear mechanisms and indicators for engagement. [Mustofa and Wahyuni \(2020\)](#) observed that the establishment of the INA-Geoportal and the National Geospatial Information Network ([Gautam et al.](#)) marked an important milestone in Indonesia's SDI development, offering features for spatial analysis and data sharing, although still dependent on institutional and technical capacities. At a more local scale, [Roziqin, Zahro, and Yudono \(2023\)](#) showed that while geoportals have supported spatial data availability in Gresik Regency, challenges remain in terms of institutional capacity, human resources, and technological infrastructure. Overall, the literature highlights the critical role of digital infrastructure in advancing the OMP, yet remains focused on system performance rather than their function as arenas for policy learning and institutional adaptation.

2.3 Research Differentiation

The reviewed scholarship has effectively enriched our understanding of the OMP from the perspectives of technical integration, institutional coordination, and land governance. Collectively, however, these studies overwhelmingly assess OMP's effectiveness of OMPs in terms of outputs, standardization, and administrative performance. A significant research gap lies in understanding the OMP as an evolving policy process in which actors learn from recurrent obstacles, negotiate competing interests, and adapt institutional arrangements over time. This gap is critical because the OMP has undergone not only technical adjustments but also major regulatory reforms and organizational restructuring, all of which are direct reflections of policy learning.

To address this, the present study applies [Howlett et al. \(2017\)](#) multidimensional policy learning framework (encompassing cognitive/technical, socio-political, and institutional learning) to analyze OMP implementation between 2016 and 2024. By doing so, this study extends the literature beyond technocratic and administrative assessments, offering a deeper, theory-driven account of the adaptive dynamics that shape Indonesia's geospatial governance.

3. Methodology

This study uses a qualitative method with a descriptive research type because it explains in detail an event or phenomenon related to the implementation of the OMP in Indonesia. The document study method was used to obtain the data for this research. Data collection in a qualitative approach can be carried out through various methods, such as direct observation, interviews, document review, and the use of audiovisual material in a digital format ([Creswell, 2016](#)). The analytical framework used refers to the classification of policy learning by [Howlett et al. \(2017\)](#), who distinguish between cognitive/technical, social/political, and institutional learning. This framework serves as a structural guide for interpreting the policy changes observed between 2016 and 2024.

The data sources analyzed in this study consisted of primary and secondary documents relevant to the OMP's evolution and implementation between 2016 and 2024. The following criteria were applied for document selection to ensure reliability and relevance.

1. Timeframe: Documents must be published between 2011 (as the foundation of Law No. 4/2011) and 2024
2. Relevance: Documents must explicitly discuss the OMP, its predecessor policies, or its implementation challenges and outcomes
3. Authority: Priority was given to authoritative sources (regulatory documents) and official sources (government reports/publications).

The data sources include primary Regulatory Documents: Laws and regulations supporting the OMP, specifically Law No. 4 of 2011, Presidential Regulation No. 9 of 2016, Presidential Regulation No. 23 of 2021, and their subsidiary ministerial or agency regulations. Official reports and publications, such as reports on the implementation of OMP activities from relevant agencies (e.g., Coordinating Ministry of Economic Affairs, BIG), official institutional publications, and government evaluation reports. Academic and Scientific Documents: Scientific articles, theses, dissertations, and book chapters that analyze OMP implementation, challenges, and policy dynamics. Data analysis was conducted descriptively by reducing the data, presenting the data, and drawing conclusions on how the events, as outlined in the research question, could occur. The analytical framework used refers to the classification of policy learning by [Howlett et al. \(2017\)](#), namely cognitive/technical, social/political, and institutional.

4. Results and Discussions

After navigating various implementation dynamics since its announcement in 2016 (Presidential Regulation No. 9 of 2016), the implementation of the OMP clearly demonstrates that the government is not merely responding to technical challenges but also gradually undergoing a gradual, multidimensional policy learning process. Referring to [Howlett et al. \(2017\)](#) classification, this learning manifests cognitively/technically, socially/politically, and institutionally. These three forms of learning are deeply interrelated, collectively shaping the direction and adaptation of the OMP from its initial planning to its current strategic utilization in the national development. However, as emphasized by [Plümer \(2024\)](#), effective policy change requires more than just learning; it demands a comprehensive transformation in how stakeholders think, act, and interact. This synergy between the cognitive, behavioral, and social dimensions is what ultimately leads to tangible changes in policy beliefs, preferences, or outcomes. The following section analyses the policy learning process in the OMP's implementation based on Howlett's three main categories, detailing how these forms of learning have contributed to the fundamental transformation of geospatial governance in Indonesia.

4.1 Cognitive Learning

At the beginning of its formulation, the OMP was primarily positioned as a spatial data consolidation policy aimed at unifying various sectoral maps to reduce land conflicts and support climate change mitigation efforts ([Bretz, 2017](#); [Marthalina, 2018](#); [Silviana, 2019](#); [Wibowo & Giessen, 2015](#)). The initial catalyst was the glaring inconsistency of spatial data in the forestry sector, which policy actors quickly recognized as a systemic, cross-sectoral problem requiring coordinated national standardization of data. During its implementation, the OMP underwent a significant cognitive shift, marked by a rebranding to 'One Map, One Data.' This reflects an expansion of the policy's function from its original technical-administrative nature to a more strategic role ([Faxon et al., 2022](#)).

Policymakers began realizing that spatial data were not only relevant to the environmental sector but also held critical value for cross-sectoral development planning, requiring the integration of both spatial and non-spatial data ([Wibowo & Giessen, 2015](#)). This deeper cognitive learning stemmed from the critical finding that much of the existing data were non-standardized and difficult to integrate due to inconsistent internal formats, scales, and metadata structures used by various Ministries, Agencies, and Local Governments (M/L/LG) ([Harini, 2021](#)).

In the context of OMP implementation, cognitive learning is reflected in the process of identifying and adjusting to technical challenges, such as map scale harmonization, metadata standardization, and interoperability of information systems between institutions. In the early stages of implementation, several M/L/LGs faced obstacles in compiling and integrating thematic maps with different formats, scales, and metadata structures. Each ministry/agency and local government generally uses inconsistent references and standards for map creation ([Shahab, 2016](#)). The absence of synchronization mechanisms across institutions initially made it difficult to agree on a common data reference ([Yudono et al., 2020](#)). However, the coordination mechanisms facilitated by the OMP team fostered a collective learning process that encouraged the formation of a common understanding of the importance of national spatial data standardization.

The thematic maps compiled by the central and regional governments have not been fully standardized; therefore, they are not yet ready to be used to support various spatial-based policies/programs. As recorded in the 2016-2020 OMP implementation report One Map Policy Acceleration Team, 2020, in facing these challenges, the OMP acceleration team facilitated ministries/institutions to correct and verify these thematic maps against the base map (integration) through technical guidance activities. As a result, the target of compiling and integrating 85 Thematic Geospatial Information (IGT) in the implementation of the OMP was achieved in 2018, following the action plan completion target outlined in Presidential Regulation No. 9 of 2016.

The process of compiling, integrating, and updating the IGT took place gradually and was coordinated by the Geospatial Information Agency (BIG) as the Chair of Task Force 1, which was responsible for coordinating the compilation and integration of the IGT. This facilitation not only strengthened data quality but also enhanced the technical capabilities of relevant agencies in managing and utilizing geospatial information. Additionally, as noted in the 2022 OMP implementation report One Map Policy Acceleration Team, 2020, the need for spatial data standardization was formalized through the development of Standards, Procedures, and Criteria (SPC) by government agencies during the compilation phase. To ensure the quality of the IGT OMP data that has been compiled and integrated per OMP standards, the OMP Secretariat Team has also developed a Mechanism and Work Procedure for IGT Creation, Compilation, and Integration, which was established through the issuance of Geospatial Information Agency Regulation No. 3 of 2022.

The development of this mechanism aims to provide more measurable guidelines for the central and local governments in the process of meeting compilation and integration standards in the implementation of OMP. Geospatial Information Agency Regulation (PERBIG) No. 3 of 2022 stipulates the standards that must be met by data custodians or ministries/agencies and local governments with authority over IGTs for which a responsible party has been designated. Additionally, the Geoportal Policy Guidebook Catalogue explains that the OMP Geoportal uses the Hypertext Transfer Protocol service (HTTPS) as a secure computer network communication protocol that is widely used on the Internet. The OMP Geoportal also provides data authenticity guarantees for every downloaded dataset, where each downloaded dataset is accompanied by a certificate that can be used to verify the data quality.

Another aspect of technical learning in the implementation of OMP can be seen through efforts to develop and improve the Ina-Geoportal and OMP Geoportal platforms, which represent an increase in the technical capacity of institutions in the integrated and sustainable management and utilization of geospatial information. Since the launch of the OMP Geoportal in 2018, this platform has continued to be developed for use as a decision-making tool by policy actors. Not only does it function as a geoportal for downloading standardized OMP thematic data products, but this geoportal has also been enhanced with various features that can be utilized by the users. According to the OMP Geoportal manual written by BIG, the available features include spatial analysis tools such as overlays, intersections, and buffers. With these features, users of the OMP Geoportal can perform spatial analysis on Thematic Geospatial Information (IGT) that has been integrated into the platform.

In addition to providing various features that can be accessed by OMP Geoportal users, this geoportal is continuously being developed to be integrated with the National Geospatial Information Network. The National Geospatial Information Network ([Gautam et al.](#)) is a system designed to facilitate the collaborative, structured, measurable, integrated, sustainable, and effective management of geospatial information (Presidential Regulation No. 27 of 2014). The primary function of the JIGN is to serve as a coordination mechanism and framework for the management of geospatial data at both the national and regional levels. Practically, this initiative aims to improve the effectiveness and efficiency of the process of collecting, accessing, and utilizing geospatial data to support the management of geospatial information both vertically (between levels of government) and horizontally (between sectors). Institutions tasked with the collection, maintenance, updating, exchange, and dissemination of basic data and thematic geospatial information are known as Network Nodes.

As of 2020, many JIGN nodes in ministries/agencies and local governments are still not ready to support the sharing of IG data resulting from OMP uploaded to the OMP Geoportal. Of the 19 government agencies involved in the implementation of the OMP based on Presidential Regulation No. 9 of 2016, eight have operational network nodes, 10 are not yet fully operational, and one has not yet become a network node. As for the situation in local governments (34 provinces), most network nodes are already connected to existing network nodes at BIG with varying statuses ([Nurwadjedi Nurwadjedi, 2020](#)). The unprepared status of JIGN is a challenge for ministries/agencies and local governments involved in the implementation of the OMP to share IG data. Suprajaka (2018), as cited in [Nurwadjedi \(2020\)](#), states that the implementation of strategic policies to strengthen the institutional network nodes of the National Geospatial Information Network ([Gautam et al.](#)) still faces various obstacles at the regional level.

One of the main obstacles is the absence of regulations specifically governing the establishment of Regional Technical Implementation Units (UPTD) responsible for geospatial data management. The existence of such regulations is considered important to strengthen the existence and operationalization of JIGN network nodes within the local government. A study conducted by the BIG Centre for Standardization and Institutional Development (PSKIG-BIG, 2018) shows that the availability of human resources (HR) in the field of geospatial information (GI) at the national level is limited in terms of quantity and distribution. Most of the available HR are concentrated in central and provincial government agencies, particularly on the island of Java, while agencies at the district/city level still face a shortage of competent personnel in this field. However, the availability of adequate GI HR in ministries/institutions as IGT data custodians is crucial to support spatial data management and promote open access to IGT status ([Nurwadjedi Nurwadjedi, 2020](#)). In line with this, [Indah and Hariyanti \(2018\)](#), through their research findings, recommend the importance of fulfilling competent human resources to enhance the effectiveness of implementing public information openness policies.

To align the management of the OMP Geoportal with the National Geospatial Information Network ([Gautam et al.](#)), the OMP Team undertook a series of institutional and technical efforts, including strengthening network nodes in ministries/agencies/institutions, developing data-sharing system interoperability, and increasing human resource capacity. In 2024, during the One Map Policy Summit, the OMP 2.0 geoportal was launched. This platform provides more comprehensive and accurate geospatial information that can be used as an effective tool for development planning, decision-making, and resolving land-overlap issues. In addition, the user interface design has been improved, which is expected to facilitate navigation and geospatial data searches. Based on the 2024 OMP implementation report (One Map Policy Acceleration Team, 2024), improvements to the OMP geoportal's functions and capacity include the addition of a data download feature for public access and the optimization of direct spatial analysis features, such as overlay analysis.

In addition, through regulations and technical guidelines, adjustments have been made to the access and integration mechanisms between regional and central portals so that geospatial information management can be run in an integrated and sustainable manner at all levels of government. With the launch of the OMP 2.0 geoportal, public access authority has been expanded through the revision of Presidential Decree No. 20 of 2018 to Presidential Decree No. 28 of 2023, which was issued to regulate access authority for sharing geospatial data and information through the National Geospatial Information Network to accelerate the implementation of the One Map Policy. Detailed provisions regarding such access authority are regulated by Geospatial Information Agency Regulation No. 3 of 2024 (PERBIG 3/2024).

As of 2024, 545 Geoportal OMP user accounts (88.18%) have been distributed, consisting of 43 accounts for ministries/agencies, 35 accounts for provinces, and 467 accounts for regencies/municipalities (Coordinating Ministry for Economic Affairs, 2024). This indicates that the OMP Geoportal 2.0 has evolved into a central data hub that facilitates data sharing across institutions, ensuring both accessibility and transparency. Open access to geospatial data for the public is expected to support national policy implementation and strengthen public participation in data-driven development.

4.2 Social Learning

The achievements resulting from the implementation of the OMP during the 2016–2019 period have made significant contributions to policymaking across various sectors. However, its implementation still faces several pressing needs and challenges that require further attention. According to [Bretz \(2017\)](#), since the OMP was initiated, resistance has emerged from various actors, including ministries, local governments, NGOs, and local communities. National oversight programs, such as the OMP, are likely to increase distrust among stakeholders toward the central government and may intensify conflicts between corporations and the Indonesian government. Furthermore, the map products generated by the OMP received limited public support. [Wibowo and Giessen \(2015\)](#) further argue that, in practice, the OMP has heightened tensions between institutions and triggered competition over authority and larger budget allocations. The synchronization process of various thematic geospatial data (IGT) can spark conflicts of interest, which in turn hampers the cross-sector integration of spatial data. This poses a serious challenge to the implementation of the OMP, which aims to promote data transparency and sustainable spatial planning.

Although technical learning plays an important role in improving geospatial data quality, OMP cannot be separated from the dynamics of inter-actor relationships, political interests, and the subsequent process. [Howlett et al. \(2017\)](#) explains that social or political learning refers to the process by which actors in a policy network learn how to operate in a collaborative setting and negotiate effectively is thus crucial. In OMP, this learning is reflected in the adaptation to coordination challenges, conflicts of interest, and the alignment of norms surrounding data management, often catalyzed by initial resistance from sectoral interests and the public.

The initial design, which aimed to consolidate data and involved 19 M/A and 34 provincial governments, severely limited community involvement and transparency ([Wibowo & Giessen, 2015](#)). However, community involvement in the OMP's implementation remains limited. Even in Presidential Decree No. 20 of 2018 on Access Authority for Sharing Geospatial Data and Information Through the National Geospatial Information Network in Accelerating the Implementation of the One Map Policy, there is no mention of data access authority for the community. The implementation of the One Map Policy (OMP) ideally requires synergy between the government, community, and non-governmental organizations. This gap has prompted a strong push for spatial justice from non-state actors. Civil society groups and Indigenous communities did not perceive the OMP as merely a technical project but as a political space to fight for the recognition of customary territories. The need to formally recognize participatory maps and customary forest areas reflects a significant social learning effort, where the state began to open space for negotiation and recognition of non-state actors in national spatial governance.

According to Imam Hanavi, Head of Advocacy at the Participatory Mapping Network (JKPP), in his article on mongabay.co.id, [Hanavi \(2020\)](#) six years into the implementation of the One Map Policy, the Indonesian government still lacks a clear mechanism for integrating participatory maps into the implementation of this policy. However, participatory mapping plays an important role in helping communities, businesses, and local governments register land, especially forest areas, based on geospatial analysis. Participatory mapping efforts can support the acceleration of high-quality spatial data development while also contributing to land registration that guarantees legal certainty regarding ownership rights ([Silviana, 2019](#)).

In addition, participatory mapping can overcome challenges in meeting the OMP Acceleration target, which is the provision of Geospatial Data (DG) and Geospatial Information (IG). In principle, the implementation of participatory mapping emphasizes the active involvement of the community in gathering information, building consensus, conducting direct measurements in the field, and determining themes that the local community considers relevant. In practice, this mapping can produce high-quality thematic data, especially if the process is supported by guidance from academics, local governments, experts, civil society groups, and other relevant stakeholders.

The need to include recognized customary forest maps in the OMP reflects policy learning in the implementation of the OMP, where there has been a reinterpretation of policy by the community, not just as a technocratic project for consolidating government data, but as a political space to fight for the recognition of customary territories and spatial justice. Maps are seen not only as a planning tool but also as an instrument of advocacy for the right to space. The push for participatory and customary forest maps to be formally recognized demonstrates an effort to shift the paradigm of data control from a centralized to a more democratic and open one. This process reflects social and political learning, in which the state is beginning to open up space for negotiation and recognition of non-state actors in national spatial governance.

The existence of customary forest maps in the OMP plays an important role in ensuring the protection of Indigenous peoples' rights. By making IGT the OMP the sole reference map, this mapping can clarify land-use status and minimize the potential for overlapping sectoral permits. Tenure conflicts, which often arise due to discrepancies in boundaries and land status, can be resolved through the existence of a single, mutually recognized map. According to the 2024 OMP implementation report (One Map Policy Acceleration Team, 2024), only 24,379 hectares of customary forests have been or are in the process of being recognized. Although this number is relatively small compared to the total forest area in Indonesia, the integration of customary areas into the OMP remains an important step in recognizing and protecting the rights of indigenous peoples and preventing land use conflicts between the state and other stakeholders ([Sari, Mayastuti, Rianto, & Lutfiyah, 2018](#)).

Social learning in the implementation of OMP can also be seen in the discussion forums organized by the OMP Secretariat Team. The challenges of coordination and data disclosure to the public, including the community, academics, and organizations that utilize spatial data, have been addressed by the government through the organization of national discussion forums, which have been held regularly by the OMP Secretariat Team since 2021. Some of the national-scale discussion forums that have been recorded involve non-government actors, such as the Socialization of Government Regulation No. 43 of 2021, the National Working Meeting Forum (Rapat Kerja Nasional or Rakernas in 2022), the Agrarian Reform Meeting Forum in 2023, and the One Map Policy Summit in 2024. The forums, which have been held regularly from 2021 to 2024, have also served as an important platform for reporting progress and formulating the direction of OMP implementation moving forward.

The discussion forums held within the framework of OMP implementation involve government actors such as the OMP Acceleration Team, ministries/agencies, and local governments as IGT data custodians, and actively engage non-government stakeholders. Cross-sector participation in the 2024 One Map Policy Summit is a concrete reflection of the increasingly institutionalized social learning in the OMP's implementation. This forum brings together academics, business actors, civil society organizations such as WRI Indonesia, and the media as dissemination partners, demonstrating that spatial data management is increasingly driven by multistakeholder collaboration. The diversity of actors involved strengthens the forum's position as an inclusive and deliberative space for dialogue, where various perspectives and interests can be openly expressed to strengthen national spatial governance.

As stated by Acting Deputy for Regional Development and Spatial Planning Coordination at the Coordinating Ministry for Economic Affairs, Susi Wijono Moegiarso, who also serves as Secretary of the OMP Acceleration Team, "The One Map Policy Summit 2024 is expected to generate ideas, concepts, and breakthroughs to address the challenges and sustainability of the One Map Policy, as well as resolve inconsistencies." Ministry of Coordinating Economic Affairs, 2024. This statement emphasizes that these forums are not merely ceremonial but serve as a platform for collective learning that encourages cross-sectoral innovation in responding to the complexities of future OMP implementation.

Through these forums, a collaborative learning process enables policy actors to understand their respective roles and interests while responding to the dynamics of data ownership and resistance to spatial information disclosure. Dialogue between the central government, regional governments, and

civil society organizations in these forums provides a space for articulating conflicts of values and claims over spatial data that were previously monopolized by the state. This process is reinforced through a series of interactive activities specifically designed to involve non-governmental actors, such as the One Map Summit 2024, which includes interactive activities such as the One Map Talk Show, One Map Inspiring Stage, and One Map Competition Ministry of Coordinating Economic Affairs, 2024. These activities feature inspirational speakers from various professions and backgrounds, expanding the space for the cross-sectoral exchange of ideas. The commitment to information transparency is also reflected in the publication of the OMP Implementation Report, which is regularly published and made accessible to the public.

The institutionalization of national discussion forums and the active engagement of civil society organizations (as exemplified by the 2024 OMP Summit) demonstrate effective social-learning. This shift represents a move away from state-monopolized data control toward an increasingly inclusive, deliberative, and accountable geospatial information governance system, which is essential for building trust and achieving buy-in from diverse stakeholders. Thus, social and political learning in the implementation of the OMP not only strengthens cross-institutional collaboration but also serves as an important asset in building an inclusive, accountable, and sustainable geospatial information governance system.

4.3 Institutional Learning

Beyond the technical and socio-political aspects, the implementation of the OMP also demonstrates elements of institutional learning. This learning focuses on adjusting norms, procedures, and formal governance frameworks to enhance policy effectiveness and sustainability. As noted by [Howlett et al. \(2017\)](#), institutional learning entails the development of shared, long-term arrangements among policy actors encompassing procedures, rules, norms, values, and beliefs that reduce interaction costs and risks while facilitating sustained negotiation and inter-institutional collaboration.

A concrete example of this institutional learning is the regulatory change from Presidential Regulation No. 9 of 2016 to Presidential Regulation No. 23 of 2021. This amendment was a formal response to persistent coordination weaknesses, limited data interoperability, and the imperative to strengthen the institutional authority of the OMP Acceleration Team ([Nurwadjedi Nurwadjedi, 2020](#); [Silviana, 2019](#)). Encouragement from various parties, both internal institutions and external pressure from civil society groups, especially environmental activists and indigenous organizations, as well as President Jokowi's directive on the importance of continuing the One Map Policy, strengthened the institutional learning process reflected in the revision of the Presidential Regulation on the implementation of the KSP.

For instance, during the initial implementation of the OMP, pressure emerged from environmental activists and Indigenous communities, who did not merely perceive the OMP as a technical project for geospatial data consolidation, but rather as a strategic opportunity to advocate for the recognition of Indigenous territories ([Faxon et al., 2022](#)). These environmental groups urged the government to revise Presidential Regulation No. 9 of 2016 and establish a dedicated institution for the registration of Indigenous lands. Their goal was to ensure that territories long unrecognized by the state were formally recorded and institutionalized. As part of this effort, they developed participatory maps, maps of Indigenous territories created collaboratively with local communities through direct citizen involvement.

These maps were then submitted to be included in the OMP so that Indigenous territories could be reflected in national spatial planning. According to the Indonesian Forum for the Environment ([Hermon, 2015](#)), to address land-use conflicts and spatial ambiguity, community-based spatial data produced through participatory mapping must be accommodated and integrated into the One Map Policy as a reference for synchronization. Moreover, restoring the role of Indigenous communities as data custodians is essential for their recognition, protection, and empowerment, especially since the omission of the term “Indigenous Territories” poses a risk to the continued existence of customary land governance systems.

The revision of Presidential Regulation No. 9 of 2016 into Presidential Regulation No. 23 of 2021 expands the scope of the One Map Policy by increasing the number of IGT targets from 85 to 158 IGT, as well as expanding the participation of ministries/institutions from 19 to 24 agencies. In addition, the latest Presidential Regulation strengthens the link between the OMP and the JIGN through the addition of a key activity in the form of data sharing through the JIGN ([Palengkahu, 2023](#); [Shahab, 2016](#)). As a follow-up to these changes, Task Force 3 was formed within the OMP Implementation Team structure, chaired by BIG and coordinated by the Geospatial Information Agency (BIG), with a specific mandate to manage the implementation of data sharing through the OMP Geoportal. This change marks a formal step by the government to strengthen cross-sector coordination mechanisms and support spatial data integration among agencies.

In addition, the values of openness and collaboration are reflected in the expanded use of OMP data products collected from the OMP Geoportal. When it was first launched in 2018, geospatial data in the OMP geoportal were only provided to the central government, differentiated by position. As the President, the coordinating minister for Economic Affairs, the Minister of National Development Planning/Head of Bappenas, and the Head of the BIG had comprehensive access to all data and information on a single map, ministries/agencies/institutions involved in this policy were only given limited access, and the public had no access at all to geospatial data and information on the OMP Geoportal. However, the goal of OMP implementation was to share IG through JIGN ([N Nurwadjedi, Rosalina, & Wibisono, 2019](#)).

This access restriction is based on Presidential Decree No. 20 of 2018 concerning Access Authority for Sharing Geospatial Data and Information through JIGN in OMP Acceleration activities. The Indigenous Territory Registration Agency [Widodo \(2015\)](#) also considers Presidential Decree No. 20 of 2018 a policy that narrows access to information. For example, the Ministry of Environment's forest area map, which was originally open for public download and viewing, became closed information after being included in the One Map Policy Geoportal. The closure of access to thematic data or restrictions on public access to spatial data, which are not regulated in Presidential Decree No. 20 of 2018, represents a significant setback to the public's right to access information and is inconsistent with the objectives of the One Map Policy, which is to facilitate access to geospatial information for the public.

To share IG data, the OMP secretariat team must address the challenge of sectoral egoism from agencies that act as data custodians (map producers). According to [Nurwadjedi et al. \(2019\)](#), this sectoral egoism is generally caused by the fact that some of the IGT data in the OMP Geoportal is either paid or confidential. For example, data from the IGT Status group, which has legal implications in its use, such as certain data like numbers and holders of Land Use Rights (HGU), Building Use Rights (HGB), and Management Rights (HPL), are closed. The challenge of limited access to IG data in the OMP Geoportal has been addressed by the government through the expansion of data-sharing access authority, which was originally regulated in Presidential Decree No. 20 of 2018 and revised to Presidential Decree No. 28 of 2023 on Access Authority for Sharing Geospatial Data and Information through the National Geospatial Information Network in the Context of Accelerating the Implementation of the One Map Policy. Through this regulatory revision, the government officially added the public as one of the holders of access rights to data in the OMP Geoportal.

Regulatory changes in the implementation of the OMP, strengthening the OMP Secretariat's capacity, and expanding data access through the OMP Geoportal reflect a learning process that improves coordination mechanisms, reinforces trust among actors, and fosters a more sustainable, collaborative governance structure. Accordingly, institutional learning in the implementation of OMP enhances formal structures and strengthens the legitimacy and sustainability of spatial policy governance in Indonesia. To clarify the various forms of institutional learning described, Table 1 summarizes the key activities and types of institutional learning identified in the implementation of the OMP.

Tabel 1. Institutional learning in the implementation of the one map policy

Activities / Changes in OMP	Institutional Learning	Explanation
Changes from Presidential Regulation No. 9/2016 to Presidential Regulation No. 23/2021	Revision of the implementation rules for the One Map Policy	Results of the evaluation of previous coordination weaknesses; strengthening the role of the OMP acceleration team and clarifying its authority
Revision of Presidential Decree No. 20 of 2018 to Presidential Decree No. 28 of 2023	Expansion of OMP Geoportal data access authority to the public	Demonstrating learning in developing collaborative procedures between the central government and the community for data synchronization and integration.
Strengthening the structure of the OMP Secretariat by adding Task Force 3 to the structure of the One Map Policy Secretariat	Strengthening institutional capacity	Response to the need for more efficient technical and administrative coordination based on previous experience.

Based on the author's analysis of the policy learning framework according to [Howlett et al. \(2017\)](#) and the development of the One Map Policy implementation based on regulatory documents and official government reports, 2025. The revision of the Presidential Regulation, strengthening of the Secretariat's structure (Task Force 3), and formal expansion of data access to the public through Presidential Decree No. 28 of 2023 reflect a profound institutional learning cycle. This transformation marks a fundamental shift in spatial governance values, moving from a sectoral control-based model to one that formally prioritizes collaboration, transparency, and interoperability. By institutionalizing these shared norms and long-term mechanisms, the OMP enhances its formal legitimacy and sustainability, offering a practical model for improving evidence-based governance in other cross-sectoral policies.

5. Conclusions

5.1 Conclusion

This study demonstrates that the implementation of the OMP in Indonesia represents a crucial case study of dynamic, multidimensional policy learning driven by the necessity of overcoming persistent data fragmentation and weak inter-agency coordination. Analyzing the OMP's evolution between 2016 and 2024 through Howlett's multidimensional framework, this study reveals that the policy's success hinges not only on technology, but also on a continuous learning cycle that transcends its initial technical scope. This learning manifests across three critical dimensions: cognitive, social, and institutional learning. Social Learning enhances dialogue, negotiates sectoral resistance, and crucially integrates public and Indigenous community participation to foster transparency and spatial justice. Institutional Learning formalizes adaptation through significant regulatory revisions (e.g., Presidential Regulation No. 23/2021) to strengthen governance structures and mandate data transparency.

Theoretically, this study reinforces the notion of public policy as a dynamic learning process by applying Howlett's multidimensional framework to a developing country context. Practically, this study offers valuable lessons for policymakers on strengthening inter-agency collaboration, institutional capacity, and inclusive spatial data governance. The insights from the OMP's journey toward integrated, data-driven governance are not only relevant for Indonesia but can also serve as a model for other countries facing similar challenges with fragmented information systems.

5.2 Research Limitations

The primary limitation of this study is its reliance on secondary data, which may not fully capture the perspectives of non-governmental actors. Furthermore, the analysis is confined to the 2016–2024 period and Howlett's theoretical framework. These boundaries limit the generalizability of the findings to different policy contexts and theoretical perspectives.

5.3 Suggestions and Direction for Future Research

Future research could enrich the analysis of policy learning by incorporating primary data from non-state actors through interviews and participatory observation. Additionally, conducting comparative studies between Indonesia and other developing countries may reveal broader patterns of geospatial governance reform. Applying alternative theoretical frameworks, such as the Advocacy Coalition Framework (ACF), would complement existing models and provide a more nuanced understanding of the drivers and limits of policy learning.

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Author Contributions

DSDA was responsible for conceptualizing the research idea, developing the research design, collecting and analyzing data, and drafting the initial manuscript. TK contributed by providing academic supervision, refining the theoretical framework, and critically reviewing the manuscript to ensure its intellectual quality and coherence. Both authors have read and approved the final version of the manuscript.

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