IDFC Institute response to draft National Geospatial Policy, 2021

Overview

IDFC Institute[1] appreciates the initiative that the Department of Science and Technology (DST) has taken in drafting this crucial policy and putting it out for public consultation. Based on our published research and experience in advising various levels of government for data-related policies, we are pleased to share our views on the draft National Geospatial Policy.

In this document, we discuss general principles that should serve as the foundation of the Policy. Next, we discuss the implementation of this policy, in particular regarding its authorities and tools. We further comment on the terms proposed for opening geospatial data; we also discuss elements of privacy and standards that should be kept in mind. Finally, we highlight the need to develop incentives to build a more effective geospatial sector in the country.

General principles

A national geospatial policy should encompass vital principles of governance that set up the ecosystem for success. Our recommendations therefore hope to strengthen the policy along these lines, to serve as the cornerstone for future legislation, policies, and implementation rules. We recommend integrating these principles, based on proven international frameworks[2,3,4] , into India's policy in spirit. We highlight the ones that should be central:

1. **Transparency and accountability**
Geospatial information should be developed and disseminated according to essential accountability and transparency guidelines enabling access for all citizens, government agencies, academia and the private sector to this valuable national resource. Such geospatial information for good governance should be available at all administrative levels.

2. **Findable, Accessible, Reliable, and Easily Used**
Geospatial information has to be made easily findable, accessible, reliable (complete, accurate and updated), and usable so that it can be leveraged for knowledge creation through research and development, used to spur innovation, and support the creation of sustainable services and products to advance social, economic and environmental development.

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[1] Please refer to the Annexure for further information on IDFC Institute and Data Governance Network
[2] Infrastructure for Spatial Information in Europe. INSPIRE, https://inspire.ec.europa.eu/inspire-legislation/26
[3] *Integrated Geospatial Information Network. UN-GGIM,* ggim.un.org/IGIF/part1.cshtml.
[4] Wilkinson, Mark D., et al. "The FAIR Guiding Principles for Scientific Data Management and Stewardship." *Scientific Data*, vol. 3, no. 1, 2016. *Crossref*, doi:10.1038/sdata.2016.18.

3. **Seamless Interoperability**
It should be possible to combine seamless spatial information from different government sources across the country and share it with many users and applications across multiple levels and scales, both within and outside the government.

4. **Collaboration and Cooperation**
Collaboration and cooperation among government, business, academia and civil society should be factored into the implementation of the policy framework. This strengthens information sharing between providers and users, reduces duplication of effort across the government sector, makes for a robust system, and establishes clarity on roles and responsibilities.

Thematic comments and recommendations

We have divided our specific comments on the draft policy into four categories which include:

1. Implementation of the policy
2. Openness of data
3. Privacy concerns
4. Issues on incentive structures

1. Implementation of the policy

a. Geospatial Data Promotion and Development Committee (GDPDC)

Section 10.2.1
"...NSDC will be rechristened as Geospatial Data Promotion and Development Committee [GDPDC] and will be reconstituted to make it a nimble body and with representation in tune with changing times. It shall perform the duties and functions of existing NSDC and those laid under this policy apart from other matters referred to it by the Government of India. Similarly, NSDI EC will be reconstituted as GDPDCEC to undertake implementing and executive functions for and on behalf of GDPDC. Composition and role of GDPDC and its EC shall be as given at Annexure II."

We suggest that the provisions for the composition and role of GDPDC and its Executive Committee (EC), under Annexure II of the draft, strengthen and build on the existing rules[5] of having representatives from NGOs, academia and industry present in the NSDC and its EC. It should also outline the process and modalities by which third-party stakeholders will be selected and onboarded on to the GDPDC.

The policy envisages a vibrant ecosystem of data consumers - public and private, adding value and enabling reuse for enterprise development and public good. We emphasise the importance of external stakeholder representation in GDPDC, to inform the committee on the needs and interests of these potential consumers of public spatial data, and also help the

[5] NSDC - National Spatial Data Committee, Cabinet Resolution 2006

committee with design and implementation of the policy. The GDPDC should include representation from Civic Society Organisations, academia and the private sector; it should do so in a transparent manner to avoid conflict of interest. This is particularly important given that the GDPDC decides on matters of opening up datasets generated using public funds, and will oversee coordination with external stakeholders in publishing their data on the National Data Registry and Geo-Platform (section 7.4.2.6).

On this front, the GDPDC can leverage the knowledge of thriving, innovative civil society organisations and communities that work on open data mapping in the country, such as Datameet[6] and OpenStreetMap-India[7]. These organisations and networks have a wealth of experience in mobilising volunteers, carrying out open data awareness campaigns, conducting mapathons and possess the technological expertise required to establish platforms using crowdsourced data. Academia representatives can inform the committee on cutting-edge research[8] happening in the spatial sector. Representation from industry can inform the committee on the spatial data needs of small businesses and the innovation being brought about in the sector. In the long term, doing so will not only incentivise the stakeholders to contribute to the platform, but also provide feedback for good governance. Ultimately, this should lead to the consistent adoption of best practices and improve overall implementation efficiency.

The GDPDC oversees additions to the National Foundation Geospatial Data Asset data themes or National Thematic Geospatial Data Asset data themes. The rationale and process for these modifications should be publicly available and based on well-defined principles[9].

b. Partnering Agencies

Section 7.4.2
"For each National Geospatial Foundational or Thematic Data Asset data theme, ***GDPDC will designate one or more Central or State Level Partnering Agencies[10]*** *as Lead Agencies with the following responsibilities: …"*

Section 7.4.2 and Section 7.7 detail the responsibilities of Central & State Level Partnering Agencies and of those designated as Lead Agencies for each of the Data Asset Themes respectively. However, the policy needs to specify whether existing government departments/bodies/agencies will be chosen, or if new bodies will be formed to function as Partnering Agencies. The policy should also outline the process of formation/selection of each of the partnering agencies and keep their definitions/designations consistent. For example, section 7.4.2.1 and section 7.4.2.2 use the terms *"Lead Partnering Agency(ies)"* and

[6] *DataMeet*.http://www.datameet.org.
[7] India - OpenStreetMap Wiki.wiki.openstreetmap.org/wiki/India.
[8] For more information on advanced spatial research happening in India of policy relevance: Sarda, N., et al. *Geospatial Infrastructure, Applications and Technologies: India Case Studies*. 1st ed. 2018, Springer, 2018.https://link.springer.com/book/10.1007%2F978-981-13-2330-0#toc
[9] *Process for Adjusting OMB Circular A-16 (Appendix E): NSDI Geospatial Data Theme Principles* . Federal Geographic Data Committee, USA Gov. https://www.fgdc.gov/policyandplanning/a-16/nsdi-geospatial-data-theme-principles-a16.pdf/at_download/file
[10] Emphasis is authors'

"Lead Agencies" respectively; adding a section with important definitions at the beginning of the policy would help in doing so.

c. National Data Registry (NDR) and Geo-Platform

We suggest that metadata access[11] to the catalogue of shareable data available on Geo-Platform should be freely available through APIs[12] without any barriers to ensure better data discovery by all end-users. We also recommend that dissemination standards for geospatial data adopted by the NDR and the Geo-Platform use technical standards and formats suggested by international best practices[13,14] for openness and accessibility.

2. Openness of data

a. NDSAP and Geospatial Data, Products, Services and Solutions (GDPSS)

Section 8.3.1
"In line with NDSAP, all GDPSS produced using public funds provided by Government through Ministries/Departments/Organizations shall be classified by respective Departments into one of the following three categories for their use and accessibility… 8.3.1.1 Open Access GDPSS… 8.3.1.2 Registered Access GDPSS… 8.3.1.3 Restricted Access GDPSS…"

[Excerpt from NDSAP 2012, section 1.3]*"…The National Data Sharing and Accessibility Policy (NDSAP) is designed so as to apply to all shareable nonsensitive **data** available either in digital or analog forms but generated using public funds by various Ministries / Departments /Subordinate offices / organizations / agencies of Government of India."*

The draft NGP applies the provisions of the NDSAP to all GDPSS. However, the relevant section of NDSAP (section 1.3) is only applicable to the 'data' generated by public funds; whereas the NGP also includes geospatial 'Products', 'Services' and 'Solutions' (herein referred to as 'services' in this section).

We suggest that the policy should outline the rationale for classification of these services into the relevant categories to ensure consistency in implementation and avoid incorrect classification of Open Access GDPSS. It would be necessary to have a separate pricing structure for services, based on principles that are economically sound, equitable, and that help generate substantial social benefits[15].

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[11] *Catalogue Service, OGC.* www.ogc.org/standards/cat
[12] INSPIRE Metadata Implementing Rules: Technical Guidelines Based on EN ISO 19115 and EN ISO 19119. *INSPIRE Infrastructure for Spatial Information in Europe*, European Commission Joint Research Centre, https://inspire.ec.europa.eu/documents/Metadata/MD_IR_and_ISO_20131029.pdf
[13] *Spatial Data on the Web Best Practices*. World Wide Web Consortium and Open Geospatial Consortium, www.w3.org/TR/sdw-bp
[14] *Good Practice Library , INSPIRE.*https://inspire.ec.europa.eu/portfolio/good-practice-library
[15] Johnson, Craig L. 'A Framework for Pricing Government E-Services'. *Electronic Commerce Research and Applications*, vol. 6, no. 4, 2007, pp. 484–89. *Crossref*, doi:10.1016/j.elerap.2007.02.005.

b. Fees on datasets generated through public funds

(Note: The following subsections [2bi and 2bii] strictly speak about only a subset of GDPSS, i.e., geospatial data and not about geospatial 'Products', 'Services', 'Solutions')

i. Open Access Geospatial Data

Section 8.3.1.1
"8.3.1.1 Open Access GDPSS: The Open Access GDPSS will be accessible in an easy, timely, user-friendly and web-based format, either free ***or at a cost to be decided*** *by the Department, but without any process of registration/authorization."*

Section 7.6.2
"*It* (i.e. Geo-Platform) *shall include download access to all* ***open geospatial data*** *directly or indirectly collected by the Central and State Level Partnering Agencies free or on the basis of payment of* ***fees as determined by the respective Partnering Agencies*** *from time to time."*

Section 10.6[16]
The Policy will supersede the provisions of any existing policy, guidelines and instructions (Annexure VII) in the matter to the extent such provisions are contrary to the provisions laid out under the Policy. Issues arising out of interpretation of the Policy would be referred to Secretary, DST whose decision shall be final."

Annexure VII
"...3. National Data Sharing and Accessibility Policy 2012
4. NDSAP MeitY guidelines 2015"

The policy allows for imposing a fee structure on the open geospatial data accessible through Geo-Platform (section 7.6.2). This goes against NDSAP Implementation Guidelines 2015 which recommend not imposing fee on open data (Section 6.8 and Annexure III)[17], as follows:

[Excerpts from NDSAP Implementation Guidelines, 2015]
"6.8 DON'Ts for Data Contribution and Approval
Don't impose cost on the public for access of datasets, as imposing fees for access skews the pool of who is willing (or able) to access information."

and also,

[16] Subsection 6 under Section 11, labelled as 10.6 in the draft policy
[17] *Implementation Guidelines for National Data Sharing and Accessibility Policy (NDSAP)*. Government of India, 2015,https://data.gov.in/sites/default/files/NDSAP%20Implementation%20Guidelines%202.4.pdf

Annexure III, *Principles for Opening Up Government Information*
"10. ...Most government information is collected for governmental purposes, and the existence of user fees has little to no effect on whether the government gathers the data in the first place. Imposing fees for access skews the pool of who is willing (or able) to access information. It also may preclude transformative uses of the data that in turn generates business growth and tax revenues."

Hence open geospatial data generated through public funds should not impose any fee to truly uphold the spirit of NDSAP. It is crucial for the policy to clarify this because it will supersede NDSAP (section 10.6[16]). Additionally, the policy should make it mandatory that any open access geospatial data generated by government authorities remains free. Such a move will immensely spur innovation and knowledge creation that the overall policy aims to achieve.

ii. Registered and Restricted Access Geospatial Data

If a fee has to be imposed on the datasets generated through public funds, we recommend that such charges be applicable only for datasets outside the open category, i.e., Registered and Restricted categories as also directed by NDSAP (section 11) as follows:

[Excerpt from NDSAP 2012, section 11]"*Pricing: Pricing of data, **if any**, would be decided by the data owners and as per the government policies. All Ministries / Departments will upload the pricing policy of the data under **registered and restricted access** within three months of the notification of the policy. A broad set of parameters would be standardized and provided as guidelines for the use of data owners."*

However, we list two of the concerns that need to be considered while developing a fee structure.

First, section 7.6.2 mentions that the corresponding Partnering Agencies determine the fee charged for the datasets hosted on the Geo-Platform. Allowing Partnering Agencies to decide on the fee autonomously can lead to unfair and disorganised pricing of datasets and hinder overall access to data.

Second, there are issues even if agencies explore an end-use based pricing model, such as allowing free consumption for public end-use and paid consumption for commercial end-use.[18] This is because any dataset that ends up heavily priced by such a model can still be prohibitively restrictive for small businesses or start-ups. This can hurt economic opportunity, hinder potential innovation for these entities and limit the ability of this policy to realise its full potential.

In view of the above concerns, the policy needs to provide guidelines by which the respective Partnering Agencies can implement transparent, fair and organised pricing.

[18] National Research Council. 2001. National Spatial Data Infrastructure Partnership Programs: Rethinking the Focus. Washington, DC: The National Academies Press.https://doi.org/10.17226/10241

c. Grievance redressal

Section 8.3.2
"While regulating access to any such GDPSS, a considered view would be taken by an authority in the concerned Department not less than that of Joint Secretary to Government of India, weighing safety and security concerns with that of the potential of that GDPSS to contribute towards enterprise development. Any such decision can be ***represented against before the GDPDC who shall decide*** *the matter after considering views of Administrative Secretary of the concerned Department."*

The complaint/grievance redressal mechanism system outlined in Section 8.3.2 suffers from two problems: lack of support for stakeholder representation and potential inefficiency. Regarding the first problem, open data policy frameworks -- similar to right to information regulation -- are fundamentally about providing information to the public. The draft policy is in keeping with this; it intersects with several areas of public interest, ranging from privacy to innovation and commercial impact. In other areas of citizen-facing public interest -- banking, insurance and income tax -- the Government of India has instituted ombudsmen as a structural mechanism for prioritising citizens' concerns and grievances. In other jurisdictions as well, at both the national and sub-national level, ombudsmen have become core components of open government initiatives[19].

Secondly, the GDPDC, as envisioned in the draft policy, will be a body with multiple responsibilities. Given the volume of geospatial data that is likely to be hosted on Geo-Platform, the administrative burden of these responsibilities will be significant. Giving due attention to grievances about specific Departmental decisions may not be possible. In another area of high-volume citizen interaction -- digital financial transactions -- the Reserve Bank of India's ombudsman scheme serves as a good precedent[20].

We recommend, therefore, that the policy institute an independent ombudsman office with the sole function of addressing public grievances and representing citizens' interests in the geospatial data sector.

d. Discretionary powers of Chair GDPDC in deciding disclosure of data/info

Section 7.6.4
"...On the advice of the GDPDC, Chair GDPDC may withhold from public disclosure any information the disclosure of which reasonably could be expected to cause damage to the national interest, security, sovereignty of the country."

Chair GDPDC is given unilateral power to withhold any information from public disclosure (section 7.6.4). This undue power conferred to the Chair of GDPDC can be misused to withhold datasets without scrutiny.

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[19] OECD. *The Role of Ombudsmen Institutions in Open Government*. OECD Working Paper on Public Grievance No. 29. the-role-of-ombudsman-institutions-in-open-government.pdf (oecd.org)
[20] Reserve Bank of India. *Ombudsman Scheme for Digital Transactions, 2019*. OSDT31012019.pdf (rbi.org.in)

The policy should place checks on the Chair's power to withhold data. As the NDSAP guidelines [21] already provide exceptions for the same reasons mentioned in the draft policy, additional criteria without standard definitions should be avoided.

Additionally, the policy should outline mechanisms for audit and accountability of such decisions, to which the Chair may be held accountable.

3. Privacy Concerns

a. General Personal Privacy Concerns

Section 7.7.3
"*They* [i.e. National level and state level partnering agencies] *will participate in determining, when applicable, the content of the Negative List as prescribed by the NDSAP and whether the shareable data by the Agency can contribute to and become a part of the NDR of GDPDC. They will protect personal privacy and maintain confidentiality in accordance with prevailing policies, acts, rules & regulations.*"

The policy should specify the criteria that will be used to assess "*...whether shareable data by the Agency can contribute to and become a part of the NDR of GDPDC*". If data is shareable, it should be in the NDR (or other data platforms like data.gov.in or IUDX, if NDR is deemed not suitable for any reason) in accordance with the NDSAP.

b. National Data Asset Themes and Privacy Concerns

Annexure III Point 12:
"An address is a structured label – usually containing a property number, a road name and a locality name – used to identify a plot of land, a building or part of a building, or some other construction together with geographical coordinates. They can be Postal and non-postal. They are often used as a proxy for other data themes e.g., land parcels. "

The policy should emphasise the need to place safeguards for any privacy risks that might arise out of the processes deployed to build datasets under National Foundation and National Thematic Data Asset Themes.

For example, if we consider 'Addresses' dataset under National Foundation Data Asset Theme, we recommend GDPDC and the concerned Partnering Agency outline the process by which the Address data asset (Annexure III, Theme #12) will be built and to identify any potential privacy risks that can surface. We also suggest looking at some of the global experiences of creating Address datasets, such as the Open Addresses project in the UK created in collaboration with Open Data Institute and Open Data User Group[22], funded by

[21] Implementation Guidelines for National Data Sharing and Accessibility Policy (NDSAP). Government of India, 2015, https://data.gov.in/sites/default/files/NDSAP%20Implementation%20Guidelines%202.4.pdf
[22] Tennison, Jeni, and Ellen Broad. *Open Addresses*. Edited by Anna Scott, Open Data Institute, https://theodi.org/wp-content/uploads/2015/01/265440465-Open-Addresses-the-story-so-far.pdf

the Cabinet Office, Govt. of UK, to learn from their approach to identifying and addressing privacy risks while building a national level Addresses dataset.

4. Issues with incentives

Section 7.7.1
"Each National and State Level Partnering Agency will prepare, maintain, publish, and implement a strategy for advancing geographic information and related geospatial data and activities appropriate to the mission of the agency in support of the activities and plans of GDPDC."

Section 7.4.2
"For each National Geospatial Foundational or Thematic Data Asset data theme, GDPDC will designate one or more Central or State Level Partnering Agencies as Lead Agencies with the following responsibilities:... "

Section 7.4.2.6 (iv)
" The Lead Agencies as part of administering the National Foundation/ Thematic Geospatial Data Asset data theme will ...(iv) encourage individuals and entities that are a source of geospatial data or metadata for geospatial data for the data theme to provide access to such data through the NDR and the Geo-Platform; "

Government

The policy outlines the responsibilities of national and state level partnering agencies (section 7.7.1) and also prescribes the GDPDC to designate one or more of them to lead a Data Asset Theme (Annexures III and IV) and to develop and implement plans for the same (section 7.4.2). Designating a data theme to a partnering agency will not be sufficient to ensure active publishing of data by the authorities. We recommend the respective lead agencies first identify priority or high value datasets, in consultation with data end-users (including members from civil society and private sector) under each data theme and actively publish, maintain and promote them. Further, we recommend that the policy prescribe that the partnering agencies develop regular action plans for phased publishing of new datasets, and the GDPDC actively monitor and assist the agencies to track the progress. Over time, as the partnering agencies learn from their experiences of data publishing, management and related activities, this will further refine data standards and design of the platform. Based on this, adequate legislation can be framed and eventually passed. The Open Government Partnership[23] is an international example for developing periodic action plans, for data commitments by the members, wherein member countries submit their action plans to measure and track the progress and also learn from their peers.

[23] OGP National Handbook - Rules and Guidance for Participants (2021),*Open Government Partnership*, 24 Feb. 2021,https://www.opengovpartnership.org/documents/ogp-national-handbook/

Private Entities and Individuals

The policy framework suggests that it will encourage private entities to publish their datasets on the proposed platforms (Section 7.4.2.6 (iv)). Businesses that are sources of geospatial data will need clarity on the potential value that can accrue from contributing their data to the NDR and Geo-Platform. Competitive business solutions cannot be entirely created by in-house teams but private entities can unlock additional value by contributing to and gaining from the larger open data ecosystem[24]. However, the initial impetus will have to be driven by the government. The NGP needs to take stock of other data frameworks currently under discussion in the country, such as the non-personal data committee report[25] which proposes to establish community rights over non personal datasets collected by private entities that are beneficial to the community. It is necessary for these different frameworks to converge in matters of access and sharing, to avoid potential confusion between roles and responsibilities of various stakeholders. This will also allow citizens to hold respective authorities accountable for their prescribed duties.

Community and Crowdsourced Efforts

The geospatial guidelines that came out earlier this year [26] (15.02.2021) stated that, *"(8.xi)...The Government of India shall encourage crowdsourcing efforts to build Maps by allocating public funds towards these efforts as appropriate."* We recommend that the policy details out ways in which the mapping community can avail such funds.

Besides funding, active collaboration and support from the government can also boost participatory mapping efforts, providing encouragement to generate, host and maintain their datasets on the National Data Registry and Geo-Platform. For example, the lead agencies responsible for the National Foundation and Thematic Geospatial data asset theme 'Utilities' can explore a possible collaboration with community mapping projects such as HealthSites.io (https://healthsites.io) to build a comprehensive and updated dataset on health facilities in the country.

Conclusion

The DST's approach to forming a comprehensive geospatial policy for the country is promising; it is a first step in enhancing India's geospatial ecosystem. In this public consultation, we shared principle-based recommendations to emphasise the need for clear and precise provisions on the governance structure, ethics and standards, and building India's open geospatial data ecosystem and capacities. As the government revises this policy, it should give it legislative backing, establish clear timetables and procedures, and delegate

[24] Sharing Data to Create Value in the Private Sector, Open Data Institute theodi.org/article/report-sharing-data-to-create-value-in-the-private-sector.

[25] *Report by the Committee of Experts on Non-Personal Data Governance Framework* . Ministry of Electronics and Information Technology, 16 Dec. 2020, https://static.mygov.in/rest/s3fs-public/mygov_160922880751553221.pdf

[26] *National Geospatial Guidelines 2021*. Department of Science and Technology, Government of India , https://dst.gov.in/sites/default/files/Final%20Approved%20Guidelines%20on%20Geospatial%20Data.pdf

responsibilities. Without these, geospatial policy frameworks result in slow or no actual progress[27]. We also appreciate and emphasise India's current participation in global partnerships such as with UN-Global Geospatial Information Management and Open Geospatial Consortium (OGC) Foundation[28]. As the government takes the next actions in the sector of geospatial data and services, such partnerships allow us to learn from other developing countries and adapt to global best practices.

[27] *Global Geospatial Industry Outlook*. Geospatial Media Communications , 2017, https://geospatialmedia.net/pdf/Industry-Outlook-report-2017.pdf

[28] *India Country Report Submitted To The United Nations Committee Of Experts On Global Geospatial Information Management*. The Department Of Science & Technology Government Of India, Sept. 2020, https://ggim.un.org/country-reports/documents/India_Country_Report-UNGGIM_2020.pdf

Annexure

About IDFC Institute

IDFC Institute has been set up as a research-focused think/do tank to investigate the political, economic and spatial dimensions of India's ongoing transition from a low income, state-led country to a prosperous market-based economy. We provide in-depth, actionable research and recommendations that are grounded in a contextual understanding of the political economy of execution. Our work rests on three pillars – 'State and the Citizen', 'Strengthening Institutions' and 'Urbanisation'. The State and the Citizen pillar covers the design and delivery of public goods, ranging from healthcare and infrastructure to a robust data protection regime. The Strengthening Institutions pillar focuses on improving the functioning and responsiveness of institutions. Finally, the Urbanisation pillar focuses on the historic transformation of India from a primarily rural to largely urban country. All our research, papers, databases and recommendations are in the public domain and freely accessible through www.idfcinstitute.org.

Data Governance Network

The Data Governance Network, anchored by IDFC Institute, is a multi-disciplinary community of researchers tackling India's next policy frontiers: data-enabled policymaking and the digital economy. At DGN, we work to cultivate and communicate research stemming from diverse viewpoints on market regulation, information privacy and digital rights. Our hope is to generate balanced and networked perspectives on data governance — thereby helping governments make smart policy choices which advance the empowerment and protection of individuals in today's data-rich environment.

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