

Open Government Data

An Answer to India's Growth Logjam*

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1 Introduction

From ordnance surveys maps, and weather data, to state-produced texts, traffic studies and scientific information, government is *the* host of invaluable publicly generated data. As Carls Malamud says “government information is a form of infrastructure, no less important to our modern life than our roads, electrical grid or water systems”. It has the potential of unleashing entrepreneurship, innovation, and scientific discovery all of which can generate jobs, improve citizens' lives, promote effective and efficient government, and consequently spur economic growth. However, these direct and indirect benefits from opening government data do not take place automatically. I argue that one of the mechanisms through which these benefits transmit is through **research** - where making available more and good quality government data should improve and multiply research studies that have a direct and indirect impact on evidence-based policy. Fortunately, governments around the world have started to recognize the importance of evidence in policy-decisions, and have now started to actively open its government through data transparency portals at national and regional level.¹

With the launch of data.gov.in, India also embarked on its Open Government Data (OGD) journey in October, 2012. Despite the increasing supply of government datasets available for public consumption on India's OGD platform, the uptake of OGD in evidence-based policy making is low.

The reason for this low uptake, I argue, lies in the drafting and implementation of the National Data Sharing and Accessibility Policy (NDSAP) which governs the OGD. On the surface, the recent initiative seems impressive. However, as often, details matter, and the analysis indicates that the Indian initiatives are rather void and poorly implemented. It is also to be noted that a recent

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¹See <http://www.data.gov/open-gov/> for a full list of national and regional open data sites.

survey² indicated that 1. not many were aware of the OGD movement in India³; 2. those who were familiar with OGD, rarely consulted the OGD portal⁴; 3. those who did consult the OGD portal, rated the quality of data not very satisfactory⁵ (Buteau et al., 2015). These findings raise pertinent question on how the OGD movement in India can make a real impact on the Indian economy. The conclusion suggests ways to fix the shortcomings of the policy. Such a review should preferably include learning from other countries that are working to facilitate their OGD drive, such as the UK. Importantly, the findings are of a wider interest, since OGD is not only crucial in oiling India’s growth logjam but also oil India’s position in the world economy.

The brief is structured as follows: section 2 provides a critical evaluation on the progress of the OGD movement in India through the lens of NDSAP and its implementing guidelines; section 3 discusses the limitations of the progress of the OGD movement; section 4 provides policy recommendations on overcoming the limitation; and section 5 Concludes.

2 Critical Overview of NDSAP

Implemented on 17th March, 2012, NDSAP is contextualized within both international citizens’ rights declaration (United Nations Declaration on Environment and Development Principle 10) and national information disclosures law (Right to Information Act, 2005, Section4). The policy dictates all ministries, departments, subordinate offices, organizations, and autonomous bodies (agencies from now on) of the Government of India to share all publicly generated non-sensitive data in both human readable and machine readable formats through a common government data platform deployed and managed by the National Informatics Centre (NIC), Ministry of Communications and Information Technology. Agencies should upload at least five high-value datasets on the OGD platform within three months of the notification, and all the remaining datasets within one year. Datasets should be periodically updated, and should contain comprehensive metadata which enables data discovery and access through departmental portals.

Following the instructions laid down in the policy, guidelines for implementing the NDSAP policy and subsequently India’s national data transparency, data.gov.in, was launched. The implementation guidelines are comprehensive and it intertwines NDSAP with data.gov.in. The guidelines details out the stage of the data contribution process including the role and responsibilities of the data controller, approval and publishing process for catalogs and resources, and

²Survey was conducted online on 18 professors, 10 PhDs or Post-doctoral Fellows and 36 research fellows and research practitioners which summed to 64 completed surveys. The respondents were actively involved in research studies with 75 per cent of them having been involved in a socio-economic research project over the last two years, in areas as diverse as anthropology, finance, environment, etc. Moreover, 78 per cent of them were involved in the design of the study, and 83 per cent of them used secondary data for their research.

³Only 57 per cent of the survey respondents declared knowing the OGD movement in India of which 25 per cent and 38 per cent consider that they have a low or average understanding of OGD respectively, with only 32 per cent assessing their knowledge as satisfactory and a small 6 per cent judging it extensive.

⁴Only half of the survey respondents familiar with OGD, declared having consulted data.gov.in, while 88 per cent of them already consulted data from the various ministries’ portal.

⁵Only 3.4 per cent of the survey respondents rated the quality of OGD availability in the Indian context to be very good, while the remaining 31, 41.1, and 24.1 per cent rated it to be satisfactory, average and low respectively.

management of datasets after they have been published on data.gov.in. Implementing the suggestions proposed in the implementation guidelines, the portal provides a unified catalog of datasets published by various agencies, including both data stored on data.gov.in and data stored in the server of the agency concerned. The portal allows users to browse the dataset catalog, view the metadata associated with each dataset, comment on and rank various datasets, create basic visualization by choosing variables from the dataset, download available datasets, submit suggestions and queries on the published dataset, and submit request for those that are not available yet (Suman-dro Chattapadhyay, 2013). The OGD platform allows users to quickly identify the database they seek. One of the unique features of the OGD platform is that users can demand a specific dataset from the government and other looking for similar data can endorse these requests. If 100 such endorsements are raised for a particular dataset then it becomes mandatory for a department to release the data Isha Parihar (2015).

Despite the thorough policy and the user-friendly access to data on data.gov.in, agencies have responded predictably, i.e. they neither comply with NDSAP nor the implementation guidelines of the same. For instance, while exploring the OGD platform, it is noticed that there is:

1. Absence of datasets - it is seen that of the total 52⁶ ministries, only 32 have uploaded datasets of which 7 have uploaded less than the mandatory 5. Moreover, it remains unclear whether the 25 (32-7) ministries that have fulfilled the mandatory requirement, have in anyway uploaded *all* the remaining datasets. This finding should be read in light of the fact that NDSAP is in its *fourth* year since its implementation.

Researchers express dissatisfaction with the low quantity of datasets uploaded on the OGD platform by the public authorities compared to the amount of data collected (Buteau et al., 2015).

2. Duplication of datasets - a closer look at the uploaded datasets reveals that they neither improve public knowledge on the operations of the agencies nor create economic opportunities. This is because agencies, in most cases, have either
 - (a) repackaged their datasets into machine readable formats - the dataset on ‘Tourism Statistics of India’ uploaded on the OGD platform by the Ministry of Tourism includes information on ‘Foreign Tourist Arrivals in Numbers’, ‘Exchange Earnings in Crores’, ‘Exchange Earnings in USD Millions’, and ‘Domestic Tourist Visits in Numbers’. However, such information already exists on the ministry’s web portal, nevertheless in a close format (i.e. PDF files); or
 - (b) have improvised on the machine-readable data already available on their websites - Department of Industry Policy and Promotion (DIPP) publish the ‘Whole Price Index Base Year 2004-05’ on its portal <http://www.eaindustry.nic.in/home.asp>. However, it uploads an improvised of the same on the OGD platform.

⁶The number of ministries and departments of India has been retrieved from http://goidirectory.nic.in/union_categories.php?ct=E002 (last accessed on 14th August, 2015).

3. Lack of follow up - it is seen that uploaded datasets on the OGD platform is far from being updated. Instance, dataset on ‘Commodity and Country-Wise Imports in India’ uploaded by the Ministry of Commerce and Industry was last updated in February, 2014. Similarly, dataset on ‘Issuance of Visas to various Foreign Nationals Against Various Categories’ uploaded by the Ministry of Home Affairs was also last updated in February, 2014. In light with this observation, a representative from the Computer Centre of MOSPI was heard explaining that “*the OGD official website is.. only a data repository where all upload data without following-up on its stage*” (Buteau et al., 2015).
4. Lack of response from helpdesk - researchers often cite absence of troubleshooting tools and the lack of helpdesk features as critical issues faced by them while using OGD.⁷ A representative from the Computer Centre of MOSPI states that the OGD official website generates many requests for information on the datasets which are directed to the Computer Centre who cannot take charge of this aspect (Buteau et al., 2015).
5. Lack of metadata⁸ - no metadata file was available with the dataset on ‘Issuance of Visas to various Foreign Nationals Against Various Categories’ uploaded by the Ministry of Home Affairs. Therefore, the data user has to work with several assumptions such as:
 - (a) The variable ‘BUS_VISA_INDSPOUSE_IN_NO’ in the dataset means ‘the number of visas issued for spouses of business visa-holders to India’.
 - (b) Number of tourist visas issued as reported in the dataset is not reported under the ‘tourist-visa-on-arrival/e-tourist visa’ scheme.
 - (c) The existing data represents the entire universe of the visas issued.
 - (d) The days or the country where no visa information is available means that there was no visa issued to the country on a particular day.⁹

Similar observations have been raised by researchers across different research spectrum. Example, a professor, specialist of sampling methods, was heard saying that “*problems in sampling methods can be numerous due to different existing methods to generate estimates for general populations from samples. Lack of information regarding the public entities’ methodology for their data collection is an important issue.*” (Buteau et al., 2015).

⁷I faced a similar problem where an email to the designated Chief Data Officer requesting information on the definition of visa-categories went unanswered. This led me to drop the project whose completion could have the potential in providing the required evidence for policy-decision on matters related to the impact of visa issuance and on India’s economic growth.

⁸Metadata files facilitate data discovery in terms of the methodologies used for data collection, description of the variables that comprise the dataset, and any other peculiarities pertaining to the data.

⁹It should be noted that this assumption works against the information available in the India Tourism Statistics provided by the Ministry of Tourism on its web portal as the number of countries reported in the India Tourism Statistics is greater than the number of countries reported in the dataset on the ‘Issuance of Visas to various Foreign Nationals against Various Categories’ for tourism purpose.

6. Lack of entirety - it is seen that the uploaded datasets on the OGD platform is far from being complete, i.e. datasets are not optimized by adding redundant data or by grouping data before being uploaded. Instance, in the dataset uploaded by the Ministry of Home Affairs on the ‘Issuance of Visas to various Foreign Nationals Against Various Categories’, it is seen that:
 - (a) for the year 2010, information on visa issued against different visa categories is only available for Canada and Bangladesh with information for Canada being available only for one particular day, i.e. 26th July, 2010. As a result, information on visas issued to Canadians against various visa categories is also available for one particular data, i.e. 26th July, 2010.
 - (b) The availability of the data stops after the first month of 2014.
 - (c) No information is available on the total number of visas issued under each category for a country at a given time.
7. Lack of adequate referencing - it is seen that the reference link provided for the datasets on the OGD platform does not contain the dataset. Instance, it is noticed that the reference URL, <https://indianvisaonline.gov.in/>, provided by the Ministry of Home Affairs for the uploaded dataset on the ‘Issuance of Visas to various Foreign Nationals against Various Categories’, does not host this dataset.
8. Lack of semantic interoperability¹⁰ - it is noticed that the uploaded datasets on OGD platform lack semantic interoperability between datasets across agencies and sometimes between datasets within the same agency. A sampling-method specialist, professor, is heard saying that “*a clear definition of the variables is rarely given and a variable name can have a different meaning depending on the data and the ministry considered, and may vary over time. A table of concordance sometimes exists within one entity but not always.*” (Buteau et al., 2015). Lack of standardisation amongst datasets continues to be a problem.

3 What Limits the Success?

The observable slack of agencies in complying with NDSAP and its implementing guidelines, I argue, is because

1. suppliers (agents/agencies)-
 - (a) do not have a clear understanding of what OGD denotes - very often, than not, OGD movement in India is confused with its RTI Act (2005). However, there clearly lies a thin line in understanding the implication of both OGD and RTI Act (2005) on India’s

¹⁰“*Semantic interoperability between two datasets is achieved when there is a common understanding of the terms used. If one dataset mentions a certain term with a certain meaning, does the other datasets use this term in the same meaning or for a certain meaning, does this dataset use the same term?*” (Colpaert et al., 2014)

economic growth. Instance, NITI Aayog on its web portal, discloses information on the details of foreign visits undertaken by its appointed officers in a given period. Disclosure of such information rightly comes under the RTI Act (2005). However, this information is useful for a reformer who wants more information about how government functions so that he can make sense of it and point out the fraud, waste and abuse. Government is generating accountability as the officer taking the international trip is still responsible in justifying his/her trip and the expenses related to the trip. Nevertheless, the liability of the officer with respect to accountability is limited to the information that is requested which may not include the justification required on the economic impact of such foreign trips.

Therefore, to gauge the economic impact of such international trips, a researcher, would need a broader kind of data about health, education, or the economy to identify creative solutions to the problems the officer is going to discuss in their foreign visits. Disclosure of such information rightly comes under the OGD movement. Government is generating accountability by facilitating collaborative democracy - optimizing the OGD platform by providing data on education and health and other indicators, government is taking advantage of the know-how and entrepreneurial spirit of those outside the government institutions to work together with those inside the government to identify creative solutions to the problems which the appointed officer would discuss on his international trips.

While RTI Act (2005) will facilitate information on a government employee's salary, OGD will enable the justification of the same, i.e. whether the marginal productivity of labour of the government employee is equal to the salary he is being given (MPL = Wages)

Hence, it would be fair to say that both the OGD movement and the RTI Act (2005) in India are complementary to each other. Both facilitate transparency, participation and collaboration. However, the benefits of these principles transmit to the Indian economy (citizens at large) depending on the end-user of both OGD and RTI Act (2005).

- (b) do not have an idea on the economic value OGD can generate to both the upstream and downstream users of OGD - many official statisticians in India admit that they did not know much about the use of OGD by researchers (Buteau et al., 2015). Moreover, it appears that they are unable to comprehend on how OGD can benefit both the supplier and consumer of public sector information.
- (c) lack resources and capacities to implement OGD - Buteau et al. (2015) report that statisticians have never denied the fact that many datasets remain unpublished mainly due to lack of necessary resources. These resources could be related to the limited knowledge data providers have on data collection and dissemination practises, and shortage in physical functioning infrastructure. Agencies have reported public statistical machinery being out-of-date as of the reasons that impacts data quality and the timeliness of data

publication (Chattapadhyay, 2014). Official statistician reported that they did not have the structure or the resources to respond to the questions sent by researchers about the data (Buteau et al., 2015).

2. consumers (researchers) - are unaware of the existence of India's OGD platform (as noted earlier, survey respondents reported not having to heard about OGD platform in India). Many researchers were reported to consult data from various ministries' portal mostly because of the easy access and the fact that such data was not available elsewhere to the best of their knowledge (Buteau et al., 2015). Data intermediary organizations were also reported to downloading OGD from the concerned ministries' websites and almost never using the OGD platform mainly because they were accustomed to collecting these datasets from ministries' websites long before the OGD platform was launched and they continued to doing so (Chattapadhyay, 2014).
3. limited or no interaction between suppliers and consumers - which highlights the growing wedge in the quantity and quality of uploaded datasets on India's OGD platform.

4 Policy Implications

India is at a crossroads of a digital revolution where it visions to combine *Indian Talent* (IT) with *Information Technology* (IT) for a *Digital India Tomorrow* (IT). Therefore OGD remains an inescapable priority. This is also observed in its recently launched Digital India programme where emphasis on OGD continues to feature - pillar six, Information to All, of the Digital India programme focuses on online hosting of information and documents so that citizens have open, easy access to information through an open data platform, and encourages proactive interaction of government and citizens through social media, online messaging, amongst others. Despite such substantial efforts, researchers fail to even take notice of the OGD resources available in India. The hope that opening government data for uncomfortable scrutiny would not only generate greater accountability and transparency but also facilitate in evidence-based policy (through greater participation and collaboration with participants from outside the government), does not seem to have lived up to expectations yet. In this brief, it has been noticed that the uptake of OGD movement in India has been low.

To strategically fast-track the OGD movement in India so to maximize economic benefits, I make the following two propositions.

The first strategic step should focus on the smooth implementation of NDSAP. In this regard, India should bring in more clarity on the objective of the policy which is so far giving the agency a window to procrastinate. Several steps need to be taken for the same. Firstly, if the objective is to open its doors for uncomfortable scrutiny, it will help to wipe out the need to prioritize datasets into 'high-value' and 'non-high value' for being uploaded on the OGD platform. This will avoid confusion as well as redirect agencies efforts in uploading all the datasets they have (in closed

formats like PDFs or HTML or paper) on the OGD platform which they may have been avoiding otherwise.¹¹

If India still wants to continue with the prioritization of datasets, then the government should think of collaborating with the agencies by facilitating the use of information which they collect from citizen participation through various engagement sources. Government can enforce agencies to upload datasets based on information they receive in the Google Analytics report of its OGD platform. Similar to uploading datasets that have 100 endorsements, the government can make it mandatory for agencies to upload datasets on the platform for which it has received 100 unique unsuccessful searches. Example, if there are 100 unique unsuccessful searches for ‘number of e-visas issued in a month to all the countries eligible for e-visas’ or ‘top 10 exporting partners of India’ then the concerned agency, i.e. Ministry of Tourism and Ministry of Commerce and Industry, should be mandated to upload datasets on the OGD platform that fulfils such queries. In a similar vein, government can use statistics that indicate the use of the OGD resources so as to determine the participation of the agencies on the OGD platform and the use of its uploaded datasets (in terms of views and downloads).¹² This helps in identifying the popularity of the agency and the open datasets thus enforcing the popular agencies to improve the quality and access of their uploaded datasets on an on-going basis. Besides, as a spillover effect, such statistics would enable the government in identifying the not-so-popular agencies and force them to grab the attention of the user either by uploading more datasets or improve the quality and access of the already uploaded datasets on the platform.¹³

This will not only help in correcting the adverse selection problem of the agencies but also in collecting data to devise ongoing strategies, reinforce scientific rigour, to maximize the economic benefit of the same. Irrespective of the prioritization problems, India should ensure that agencies adhere to the mandation of NDSAP and follow Open Data Standards¹⁴ to upload *all* the existing datasets on the OGD platform.

Although it cannot be denied that the popularity of datasets could simply be a function of the demand and supply of the datasets, it could also be a function of the dissemination of the datasets.

Therefore, the second strategic step should focus on the achieving consistency in the implementation of the NDSAP. One of the ways to achieve consistency could be to look for support in the

¹¹There is a tendency that agencies may have been avoiding the uploading of datasets on the OGD platform by putting forth arguments that favours the ‘high-value’ nature of uploaded datasets on the OGD platform. Besides what the agencies term as high-value, may not necessarily be high-value for the data-user.

¹²Currently the OGD platform provides information on the number of visits, page views and visitors that have visited the OGD platform. This information is provided on a monthly and yearly basis. In addition, it also provides information on the number of times a particular dataset is downloaded. However, such information is not only limited but it is also given in a closed format. Following the United Kingdom, India should also provide comprehensive analytics on the use of the OGD platform and the resources it host.

¹³It should be noted that the most viewed or downloaded datasets do not necessarily correspond to greater innovation (Shakespeare, 2013). However, it has the potential in indicating whether the information is in areas where potential economic value can be generated.

¹⁴Refer to Open Data Handbook (<http://opendatahandbook.org/guide/en/what-is-open-data/>) for a full definition of Open Data. To summarize, Open Data should ideally have the following characteristics: (i) available and access; (ii) re-use and redistribution; and (iii) universal participation.

e-Governance standards laid down in its National e-Governance Plans.¹⁵ Therefore, it is suggested that India combines the e-Governance standards with NDSAP, and make it mandatory for agencies to comply with e-Governance standards for uploading datasets on the OGD platform. This would enforce the agency to implement practises that enable standardization of data and metadata standards such that precise meaning of information is understood across agencies, within a single agency, and over time. For instance, it is to be noted that several uploaded datasets on the OGD platform have a space dimension, i.e. they have indicators explaining the performance of a country, state, district, sub-district, village or a town, to itself. However, these datasets operate in silos. Therefore, if one of the objectives of NDSAP is to facilitate data interoperability, implementing Metadata and Data Standards¹⁶ (MDDS) can only improve cooperation and standardisation among data producers and data collection exercises.

The strategy could also be strengthened by reinstating the capacity of the agencies by directly involving researchers in the entire process from data collection to data dissemination. Uploaded datasets on the OGD platform following best practices and Open Data standards will 1. reduce a fair amount of researchers' time which would have gone in making the dataset amenable to analysis; 2. reduce to a large extent duplication of activities like cleaning datasets, compiling, merging, formatting, etc, by a multitude of researchers. This will, in turn, allow for a better allocation of research resource¹⁷ (often scarce in nature) and increase transparency and replicability of research studies thereby reinforcing scientific rigour.

This could be achieved by developing internship programmes for specialist researchers or by inviting specialist researchers as consultants on particular projects at the concerned agency or having a roster of researchers that could be appointed as and when the need arises. For instance, if the Ministry of Tourism would like to upload all its datasets onto the OGD platform, it could either have internship programmes or invite specialist researchers as consultants at the Ministry who can help them standardize the structure of OGD and the format of dissemination so that there is consistency across datasets and across years. Agencies can be sensitive in having researchers in their team due to data sensitivity. In such instances, government can conduct training programmes for agents at the agencies on an on-going basis where specialist train them with latest methods and practises used right from data collection to data dissemination. This would also give data providers an opportunity to interact and trouble shoot their queries with data users, and create space for an on-going direct interactions between data users and data providers.

¹⁵India introduced the National e-Governance Plans (NeGP) on 18th May, 2006 comprising of 27 Mission Mode Projects and 8 components. More can be read at <http://deity.gov.in/content/national-e-governance-plan>.

¹⁶Metadata and Data Standards (MDDS) are currently available for Person Identification and Land Region Collection (LRC). LRC is a code available for every country, state, district, sub-district, rural land region (revenue village), and urban land region (town).

¹⁷Amongst the many benefits of the OGD movement on research is that the publication of data helps avoid redundancy and therefore waste of resources (Guo Xu, 2012). It offers opportunity to conduct new research studies by giving access to new datasets. Besides, by making secondary data available, OGD movement facilitates the use of a dataset collected for one study by another researcher to answer a completely different research question (Buteau et al., 2015). For this very reason, OGD movement particularly in a developing country context like India where data-collection to data-dissemination process can be cost-sensitive, can play a significant role in enriching the existing knowledge base at a negligible cost.

Moreover, the government should focus on providing both the referencing as well as metadata in the same uploaded document on the OGD platform. For instance, [Natasha Agarwal and Magnus Lodefalk \(2015\)](#) convert the OGD on the ‘number of e-visas issued to eligible countries in a given time period’ available on the Ministry of Tourism website in PDF formats into a usable format, i.e. .xls. In their uploaded file, they provide live links to the original data source. One link on the live link will take you the data source. Moreover, in the same document but in a separate sheet they provide a comprehensive metadata that explains the peculiarities pertaining to the dataset. Researchers not only get the information in a usable format but also do not have to scavenge to find the data source and metadata.

India should also focus in not only updating the already uploaded datasets on the OGD platform but also ensure that datasets on the OGD platform are periodically updated now and in the future. This can be achieved in two ways: 1. by having a dedicated team for ensuring data updation whose failure should account for monetary compensation from the team members; 2. for datasets that are also available on the ministries’ web portal agencies could linking the datasets on their web portal (data source) to the uploaded dataset on the OGD platform so that an updation of the data on the ministries portal is immediately reflected on the OGD platform.

India should also focus on instating a dedicated team involving researchers for troubleshooting of queries posted on the OGD platform so that questions sent by researchers about the data can be answered in a timely manner. Besides, having a live streaming of response to data queries on the OGD platform will also reduce the queries sent in by the researchers.

None of the above can be achieved if India did not build a functioning physical infrastructure capacity. For instance, investing in new computers, having (updated) multiple statistical packages, a seamless internet connection, hosting of super computers for processing large datasets, and an engineering team to troubleshoot computer problems immediately, are some of measures that can help in the creation and subsistence.

Besides, it is essential to reinforce the motivation of the agents/agencies by cutting down on the bureaucracy¹⁸ and their reluctance to innovate. This would enable greater publication of (original) datasets thus strengthening the underlying belief of the OGD movement, i.e. enabling evidence-based policy for socio-economic development process.

5 Conclusion

In a nutshell, India’s long-term commitment to OGD is to be lauded. However, the effort needs to be closely attended to have any substantial impact, as laid out above. The government has to pay more attention to the modalities of the NDSAP and its implementation guidelines. 98 per cent of

¹⁸Policy-makers may have personal motivation to not publish adequate evidence. As [Dr. Suresh D. Tendulkar \(2009\)](#) notes “*what is put in public domain by way of numerical facts is fundamentally a political decision of those in power. It is well recognized that not all those in power are driven by development motivation. Political power can be sustained by appealing to emotive non-development goals as well and official statistics cannot escape being influenced by political process.*”

the survey respondents noted that OGD can have an impact on the public policy (Buteau et al., 2015). Hence, to oil India's growth logjam, the government has to unleash the potential locked in its OGD movement.

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