Thane Municipal Corporation

City Data Policy

Thane Smart City Limited

2021

Contents

1 Foreword

To effectively make use of the services offline and online, it is imperative that there is a clear assessment and dissemination of information among the citizens. To increase the usage of the offline and online services, one of the major initiatives was to build up the 'Open Data Policy' and implement it rigorously.

In order to improve co-ordination amongst stakeholders in the city, it is imperative that to be the most inclusive, the Local body has to adopt the open data policy for public data and help citizens find relevant information, such that they feel included in the governance. The policy will also cater safety, security, privacy & confidentiality of the relevant data.

2 About Thane Municipal Corporation (TMC)

The Thane Municipal Corporation (TMC) came into existence on 1st October 1982 and it is the governing body of the city of Thane in the Indian state of Maharashtra. The municipal corporation consisting of democratically elected members, is headed by a Mayor alongside Deputy Mayor and the Municipal Commissioner. Members from the nation's and state's leading political parties hold elected offices in the corporation.

Thane Municipal Corporation (TMC) administers the overall functioning of the Thane city, having a rich cultural heritage, mythological background, followed by a large number of events of historical importance, archeological collectives that have contributed to enrichment of the history of the city.

As per Government of India's 2011 census, population of Thane stood at 1,841,488; of which male and female were 975,399 and 866,089 respectively. On the education front, total literates in Thane city reported to be 1,458,796 of which 797,342 were males while 661,454 were females. Average literacy rate of Thane city stood at 89.41% of which male and female literacy was 92.14% and 86.33%. The sex ratio of Thane city was 888 per 1000 males while the Child sex ratio of girls was 908 per 1000 boys.

Thane Municipal Corporation (TMC) governs an area of 147 sq. kms. and has 33 general wards.

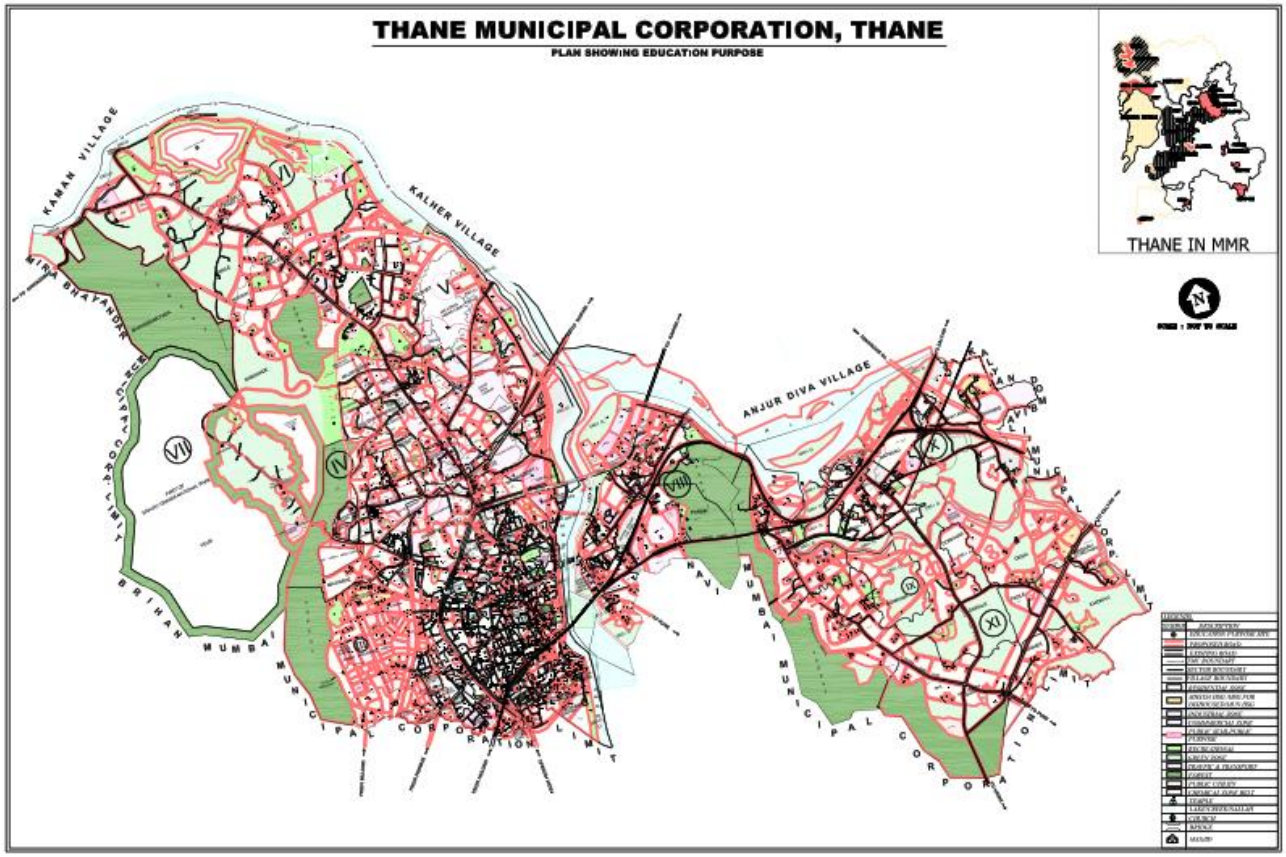

Figure 1: Map of the Thane Municipal Corporation governed area

The Municipal Commissioner heads as well as overseas the entire city administration among the public services, city's infrastructure, transport, Information Technology (IT) etc. and is supported by two Additional Commissioners along with different department heads.

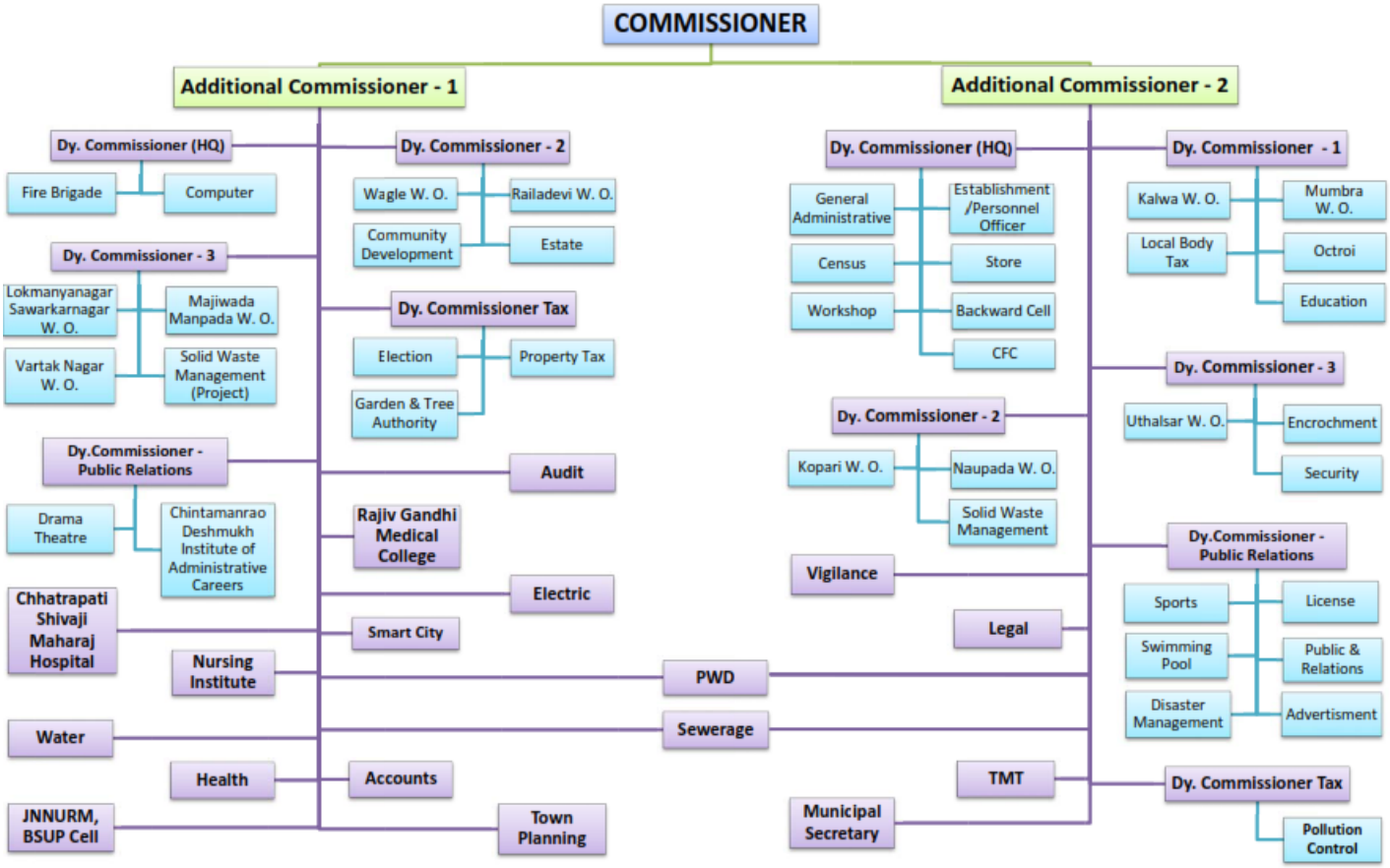

Figure 2: Organization Chart of Thane Municipal Corporation (TMC)

3 About Thane Smart City Limited (TSCL)

Under the Smart Cities Mission, a Special Purpose Vehicle (SPV) was incorporated to implement and monitor all smart city projects proposed by the Thane Municipal Corporation (TMC).

The Thane Smart City Ltd. (TSCL) was incorporated on 18th Oct 2016 under the Companies Act, 2013, and it was one of the cities selected in Smart Cities Mission (SCM) by the Ministry of Housing and Urban Affairs (MoHUA), Government of India (GoI).

The Thane Smart City Ltd. (TSCL) has the mandate to plan, implement, monitor, and manage, the Smart City development projects in Thane with the purpose of enabling Thane to become a truly global smart city. As per the Smart Cities Mission (SCM), the Thane Smart City Ltd. (TSCL) operates at two levels i.e., Area Based Development (ABD) and Pan-city initiative in which Smart Solutions are applied covering the entire city.

The Chief Executive Officer (CEO) handles as well as overseas the day-to-day operations of the Thane Smart City and is supported by Nodal Officer, Chief Information Technology Officer (CITO), etc.

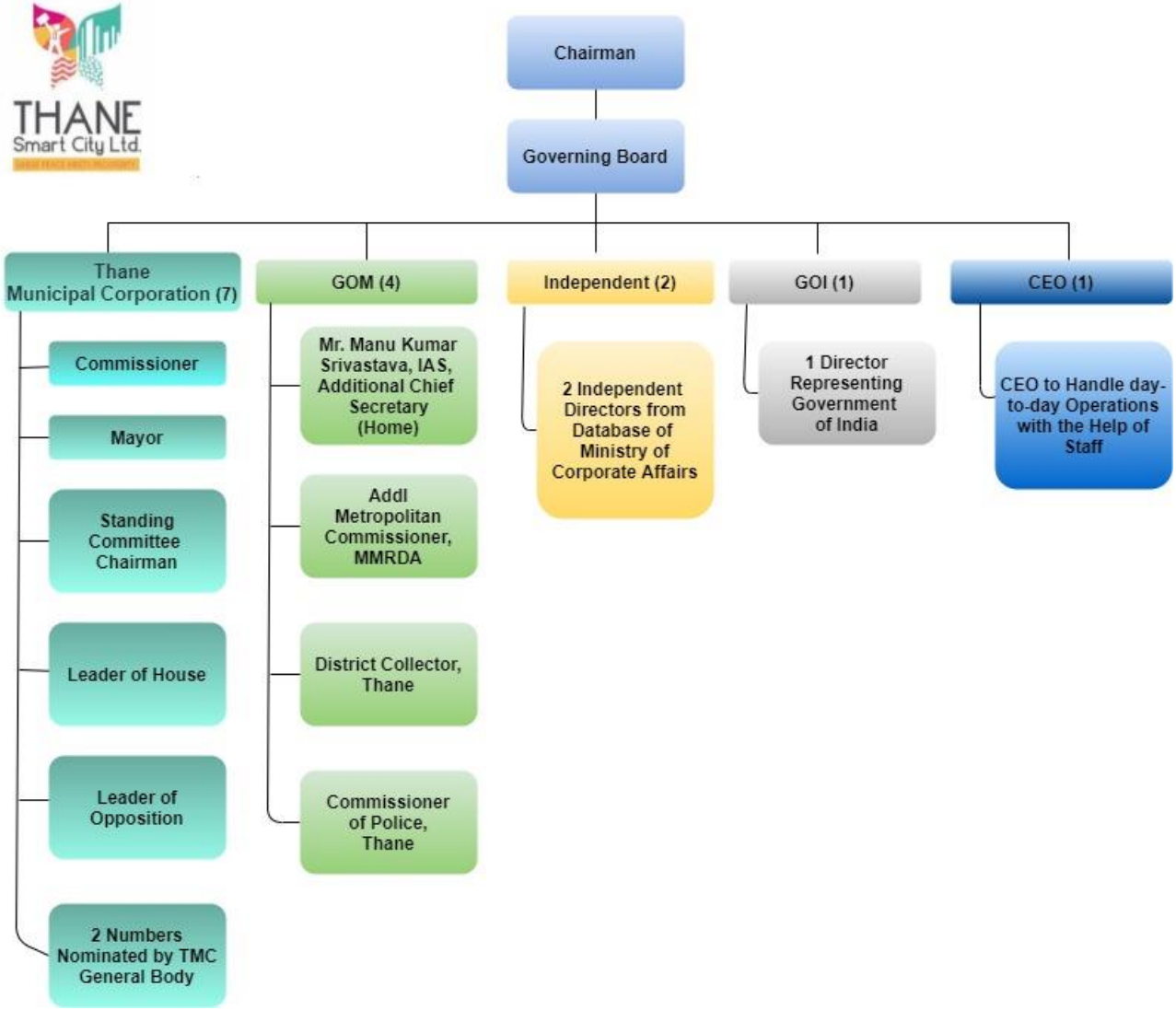

Figure 3: Organization Chart of Thane Smart City Limited (TSCL)

4 Setting the Context

Thane city deals with large number of issues like mobility, management of water, waste-water and solid waste, safety and security services, energy, housing, education and health amongst many others.

These issues are highly complex in nature and require integrated approaches to resolve. Functions of city government are organized into multiple departments, agencies and networks. These departments, agencies, networks, work in vertically integrated structures and are each responsible for performance of some functions integral to the working of the city.

Besides the departments of governments, private sector organizations, corporates, community organizations, research and academic institutions also play a large role in the functioning of cities, through provision of infrastructure, services, research, co-creation and valuable feedback. All government/ non-government organizations/ individuals are custodians of different types of datasets that is generated through their operations. Since these organizations work as vertically integrated structures, a lot of the data so produced remains in silos within their organizations.

In order to solve the myriad complex issues faced by Thane city, it is vital that data locked in such silos be unlocked and shared amongst these entities/organizations. The importance of using data to resolve critical problems faced by the city cannot be exaggerated. In fact, Thane Smart City recognizes that smart cities are all about getting the right data to the right people at the right time to solve relevant use case scenarios.

While the value of data highlighted above is accepted and understood by all stakeholders, there arises a need to frame a customized **"City Data Policy"** which is aligned to the guidelines issued by the Government of India, Government of Maharashtra, and various other internationally recognized institutions, thus facilitating data driven governance to the city government/ administration.

5 Preamble

"A dataset is said to be open if anyone is free to use, reuse, and redistribute it – Open Data shall be machine readable and it should also be easily accessible."

Asset and value potentials of data are widely recognized at all levels. Data collected or developed through public investments, and services when made publicly available and maintained over time, their potential value could be more fully realized. There has been an increasing demand by the community, that such data collected' with the deployment of public funds should be made more readily available to all, for enabling rational debate, better decision making and use in meeting civil society needs.

Principle 10 of the United Nations (UN) Declaration on Environment and Development

"Each individual shall have appropriate access to information concerning the environment that is held by public authorities, and the opportunity to participate fry the decision-making process. Stares shall facilitate and encourage public awareness and participation by making information widely available!"

Section 4(2) of the Right to Information Act, 2005 reads:

"It states that every public authority should take steps in to provide information to the public at regular intervals through various means of communication, including internet, so that the public have minimum resort to the use of this Act to obtain information."

The principle of data sharing accessibility includes Openness, Flexibility, Transparency, Conformity, Protection of Intellectual Property Right, Formal Responsibility, Interoperability, Quality, Security, Efficiency, Accountability, Sustainability and Privacy.

A large quantum of data generated using public funds by various organizations and institutions in the city remains inaccessible to civil society, although most of such data may be non-sensitive in nature and could be used by public for scientific, economic and developmental purposes. Efficient sharing of data among data owners and inter-and-intra governmental agencies along with data standards and interoperable systems is the need of the hour. Hence, there was a need to formulate a policy on Open Data which could provide an enabling provision and platform for proactive and open access to the data generated through the funds available with various central, state and city level ministries/departments organizations and agencies (hereafter, agencies can be both private and public).

In purview of the same, Thane Smart City Ltd. (hereafter, TSCL) has decided to endorse the National Data Sharing and Accessibility Policy and developed the Open data portal. The policy is designed to promote data sharing and enable access to Government owned data for planning and development.

6 Definitions

Terms & Abbreviations	Definitions
API	Application Programming Interface
CAFO	Chief Accounts & Finance Officer
CDC	City Data Cell
CDO	Chief Data Officer
CDA	City Data Alliance
CEO	Chief Executive Officer
CITO	Chief Information Technology Officer
CSV	Comma-Separated Values (File Format)
CTO	City Transformation Office
Data	Data means a representation of information, numerical compilations and observations, documents, facts, maps, images, charts, tables and figures, concepts in digital and/or analog form.
Data Archive	Place where machine-readable data are acquired, manipulated, documented, and distributed to others for further analysis and consumption.
Data Generation	Initial generation / collection of data or subsequent addition of data to the same specification.
Data Set	Named collection of logically related features including processed data or information.
DAM	Database Activity Monitoring
DCs	Data Coordinators
DMS	Document Management System
GML	Geography Markup Language
GoI	Government of India
GoM	Government of Maharashtra
Geospatial Data	All data which is geographically referenced
HoDs	Head of Departments
IPS	Intrusion Prevention System
IT	Information Technology
Information	Processed data
KML	Keyhole Markup Language
MoHUA	Ministry of Housing and Urban Affairs
Meta Data	Information that describes the data source and the time, place, and conditions under which the data were created. Metadata informs the user of who, when, what, where, why, and how data were generated. Metadata allows the data to be traced to a known origin and know quality.

NDSAP	National Data Sharing and Accessibility Policy
Negative List	Non-sharable data as declared by the departments / organizations
ODS	OpenDocument Spreadsheet (File Format)
OLAP	Online Analytical Processing
PKI	Public Key Infrastructure
Restricted Data	Data which is accessible only through a prescribed process of registration and authorization by respective departments / organizations.
RDF	Resources Description Framework
RSS	Really Simple Syndication / Rich Site Summary
RTI	Right To Information (RTI Act 2005)
SCM	Smart Cities Mission
Sensitive Data	Data as defined as "Sensitive Data" in various Acts and rules of the Government of India & Government of Maharashtra & Maharashtra Municipal Act.
Sharable Data	Data not covered under the scope of negative list and non-sensitive in nature
SIEM	Security Information and Event Management System
SPV	Special Purpose Vehicle
SSL	Secure Socket Layer
Standards	Any application that embeds data handling functions (e.g., data collection, management, transfer, integration, publication, etc.) and operates on data in a manner that complies with data format and data syntax specifications produced and maintained by open, standards bodies.
TSCL	Thane Smart City Limited
TMC	Thane Municipal Corporation
UN	United Nations
XML	Extensive Markup Language
XLSX	Microsoft Excel Open XML Spreadsheet (File Format)

7 Need for the City Data Policy

"A city's data is one of its most valuable assets."

Thane Municipal Corporation recognizes that *"City Data Policy"* is a significant step in the direction to provide conceptual clarity over accessing and sharing protocols over Thane city's data. Global experience has convincingly shown that access to data not only imparts multiple benefits to civil society, but also leads to breakthroughs in scientific understanding as well as to economic and public good at large.

Since, evidence-based planning of socio-economic development processes relies on quality data, it is utmost important to facilitate sharing and utilization of the massive amount of data generated and residing among numerous entities such as Government departments, Municipal Corporations, etc. This calls for a data policy to leverage these heterogenous and diverse data assets.

Keeping in view the emphasis of the Government on engaging citizens in Governance Reforms, placing of non-strategic data in public domain and the provisions of RTI Act 2005 for empowering the citizens to secure access to information under the control of public authority leading to the transparency and accountability in the working of every public authority, the National Data Sharing and Accessibility Policy (NDSAP) was enforced in March 2012 by the Government of India (GoI). The National Policy has been expected to increase the accessibility and easier sharing of non-sensitive data amongst the registered users and their availability for scientific, economic and social developmental purposes.

Hence, in line with the NDSAP policy, the City Data Policy of TSCL aims to provide an enabling provision and platform for providing proactive and open access to the data generated through public funds & public revenue available with various departments of TSCL.

This City Data Policy will help TSCL in -

- Easy access to the information
- Making available the Accurate, Reliable and Unbiased information
- Providing single data Open Data Platform for the city for data sharing
- Establishment of a platform to promote innovation in government applications
- Enhancing Transparency, Accountability and Public Engagement
- Effective utilization of data by providing meaningful visual representations
- Enabling development of Innovative Applications around datasets or mash-up from multiple datasets hence giving different perspectives to government data

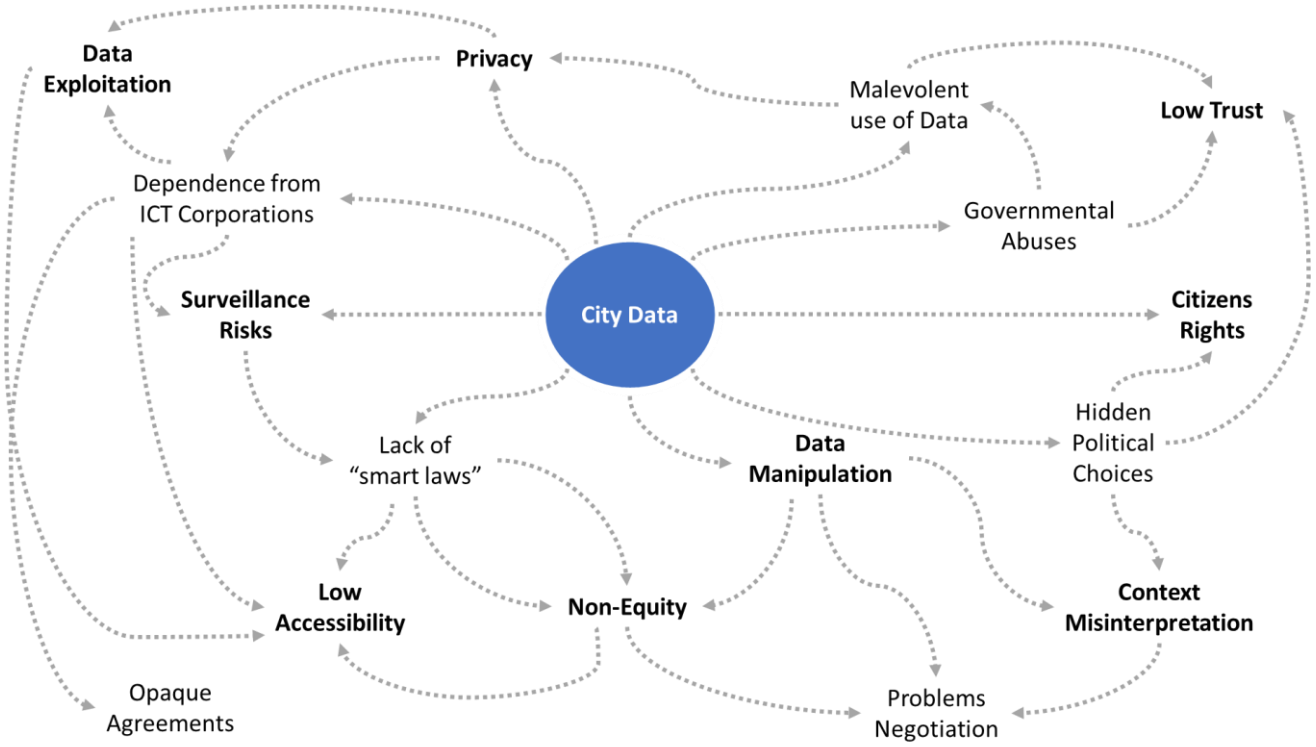

Figure 4: Map of the key issues associated to city data and their governance

8 Objectives

The ultimate goal of Thane's City Data Policy is to build a Safe, Secure, Easily Accessible environment for data collection, collation and analysis. This data governance policy will serve as clear documented set of guidelines for ensuring the proper management of managing digital information across all stages of the data management lifecycle.

The objective of this policy is to facilitate access to the TSCL owned shareable data and information in both human readable and machine-readable forms through a network all over the city in a proactive and periodically updatable manner, within the framework of various related policies, Acts and rules of Government of India, thereby permitting wider accessibility and use of public data and information.

This data policy is intended to make sure that only the data necessary to build a more inclusive and sustainable cities will be collected and used, while making sure that citizens have control over their personal data. Also, this data policy is aimed at regulating data ownership and uses/data exchange platforms to avoid a reinforcement of private companies at the expense of everyday citizens.

9 Scope of this Policy

The City Data Policy of TSCL will apply to all data and information created, generated, collected and archived using the funds provided by Central and State Governmental Departments or TSCL directly or through authorized agencies by various Ministries / Departments/ Organizations / Agencies and Autonomous bodies.

10 Benefits of the Data Sharing Policy

Thane Smart City Ltd. (TSCL) recognizes that smart cities are about doing more with less and thus it requires better situational awareness at any given point of time for effective decision making to respond in real time. Data sharing will lead to enhanced citizens and community engagement over various civic issues. The implementation of this 'City Data Policy' initiative in the Thane Smart City predominantly caters to building trust between city government and citizens along with numerous others benefits mentioned below, but not limited to:

10.1 Data Driven Governance and Policy Formulation

- Data will help TSCL in making better decisions and policies for the city. Data empowers city officials, citizens and communities and helps promote evidence-based decision making.

10.2 Maximized Use

- Ready access to government owned data will enable more extensive use of a valuable public resource for the benefit of the community.

10.3 Promotion of Data Sharing and Exchange

- Open Data initiatives, data sharing and exchange platforms will assist in facilitating G2G, G2C and G2B data sharing and exchange of data for effective decision making in real time.

10.4 Avoiding Duplication

- By sharing data, the need for separate bodies to collect the same data will be avoided resulting in significant cost savings in data collection.

10.5 Promotion of Multi-Disciplinary Research

- Research requires local data which could unlock research on civic issues like transport, traffic, solid waste etc. Multi-Disciplinary researchers may provide different perspectives or solutions on civic issues to TSCL.

10.6 Maximized Integration

- By adopting common standards for the collection and transfer of data, integration of data sets may be feasible.

10.7 Co-Creation and Open Innovation

- TSCL will be able to work with entrepreneurs, Industry, and Academia to promote co-creation and open innovation to design cost-effective and contextual solutions to address civic issues by empowering them with required civic data.

10.8 Emergence of Innovative Technologies

- Data is fuel for development of solutions based on emerging technologies like AI, ML, Blockchain etc. It will help Thane city become data ready to kickstart innovation in emerging technologies.

10.9 Enhance Transparency and Accountability

- Enhanced transparency and accountability among its citizens and communities by making reliable data available through data platforms.

10.10 Ownership Information

- Identification of owners for principal data sets provide information to users to identify those responsible for implementation of prioritized data correction programs and development of data standards.

10.11 Enhance Civic Engagement

- Enhance partnerships and collaborations between institutions, communities and stakeholders in different ways. Enhanced civic engagement enables delivery of sustainable outcomes.

10.12 Better Decision-Making

- Data and information facilitates making important decisions without incurring repetitive costs. Ready access to existing valuable data is essential for many decision-making tasks such as protecting the environment, development planning, managing assets, improving ease of living conditions, national security and controlling disasters.

10.13 Equity of Access

- A more open data transfer policy ensures better access to all bonafide users

11 Data Classification

The different types of data sets generated in geospatial as well as non-spatial form by different GoI/ GoM / ministries / departments and other agencies in the city would be classified as 'Shareable Data' and 'Non-Shareable Data'.

The types of data produced by a statistical system is inclusive of derived statistics like national accounts statistics, indicators like price index, data bases from census and surveys, while the geospatial data consists primarily of satellite data, maps, etc.

In such a system, it becomes important to maintain standards in respect of metadata, data layout and data access policy. All departments of TSCL will prepare the negative list within six (6) months of the notification of the policy, which would be periodically reviewed by the oversight committee.

11.1 Review Committee

The review / assessment committee will be chaired by the Chief Executive Officer (CEO) along with the following members as mentioned below:

1. Nodal Officer
2. Chief Information Technology Officer (CITO)
3. City Data Officer (CDO)

Following is the organization chart of the review committee:

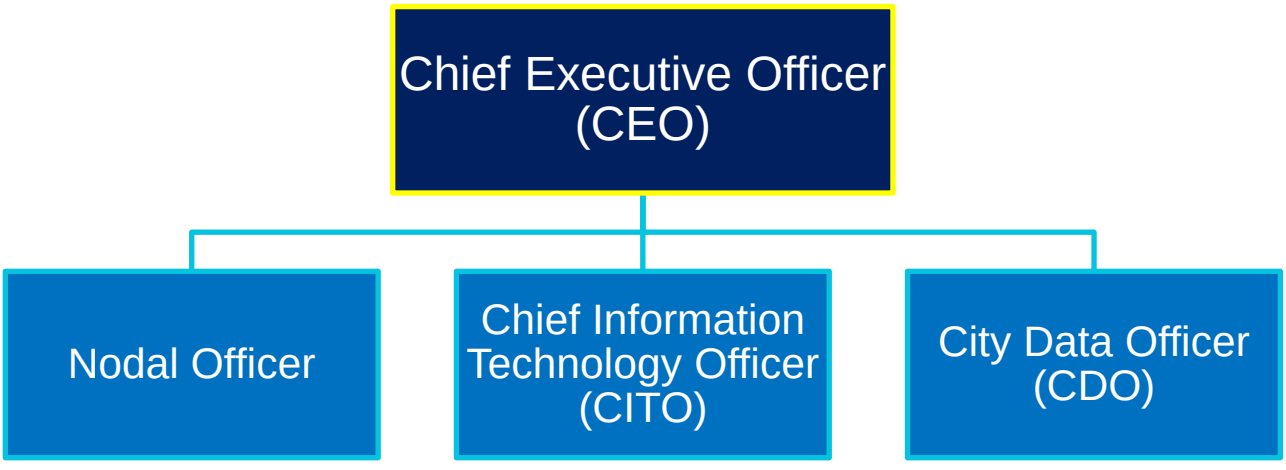

Figure 5: Organization structure of the review committee

12 Data Categorization

12.1 Data will be Categorized into two broad categories:

12.1.1 Personal Data:

"Personal data" refers to the data containing information which is related to a living individual who can be identified from that information (or from that and other information in the possession of the data users), including any expression of opinion about the individual but not any indication of the intention of the data user in respect to that individual. 'Data' is defined as information recorded in a form in which it can be processed by equipment operating economically in response to instructions given for those purposes.

12.1.2 Non-Personal Data:

While, "Non-personal data" refers to anonymous information/data, namely information which does not relate to an identified or identifiable natural person, or personal data rendered anonymous in such a manner that the data subject is not or no longer identifiable. In other word, anonymization means excluding any personal identifiers from the data sets.

12.2 Personal and Non-Personal Data will be classified into following category:

Classification	Class	Definition
Level-1	Public	Data available for public consumption and use.
Level-2	Internal Use	Information which could only be disclosed to Municipal Corporation employees for managing operations or delivery of public services on day-to-day basis.
Level-3	Sensitive	Data regulated by any City/ State/Central law or regulation like privacy etc.
Level-4	Protected	Data which needs to be protected for e.g. Identity of citizens and disclosure /notification needs to be issued by municipal corporation in case of any breach or loss of data.
Level-5	Restricted	Data which could lead to threat to life or loss of public assets or critical infrastructure.

13 Data Flow / Approval Framework

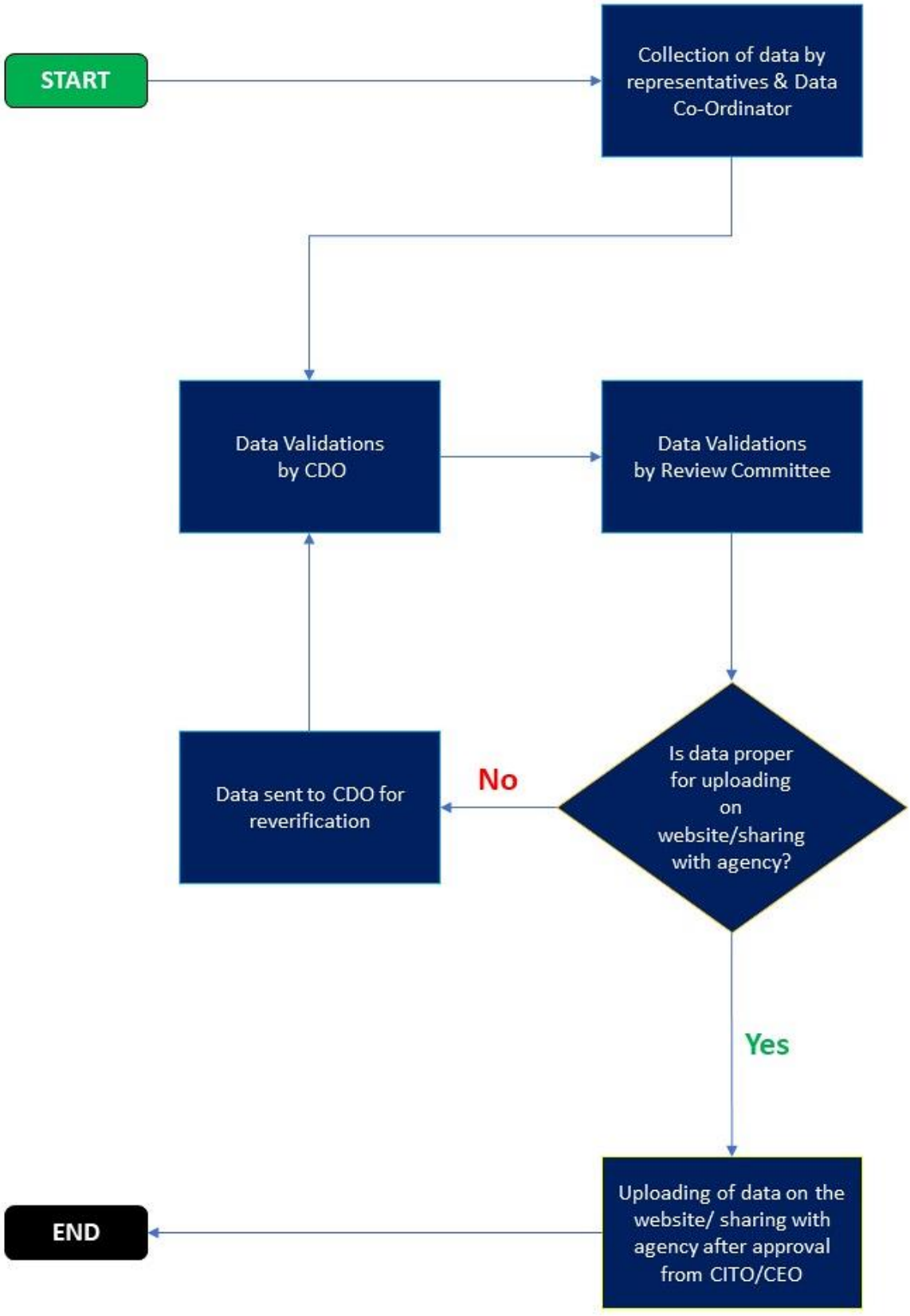

Figure 6: Data Flow / Approval Framework of City's Data

14 Data Archival and Retention Policy

Digitization of the E-Files/records would be undertaken according to any one of the below mentioned categories:

Category-I

(e-Files/records to preserved permanently which are of historical importance)

- For 10 years, it will be kept in the Department's server and thereafter transferred other available physical storage formats such as Tapes, hard-drives, Storages etc.

Category –II

(e-Files/records of secondary importance and have a reference value for a limited period)

- 10 years on the Department's server. In exceptional cases, if the record is required to be retained beyond 10 years it will be upgraded to Category-I.

Data will be stored in the main database for six (6) Months in a live state so that whenever a report is required to be generated, the data will be extracted from main database.

While, the data older than 6 months will be archived. In case, a report is to be generated for the data extending beyond 6 months, the data would be retrieved from archived to generate the report.

15 Data Security & Privacy

Sr. No.	Security Areas	Specifications
1.	Physical Security	➢ The premises should be physically secured by the SI.
2.	Network Security	➢ Appropriate firewalls, IPS, SSL devices etc. should be used to ensure Network security. ➢ The solution should support SSL encryption mechanism for transferring data across network and between client and server.
3.	System Security	➢ Adequate access control procedures should be defined to secure the entire IT system, physically and logically. ➢ The access controls procedures should cover all stages in the lifecycle of user access, from the initial registration of new users to the final de- registration of users who no longer require access to information systems and services. ➢ The system should have 2-factor authentication mechanism either through One Time Password (OTP) or soft tokens-based technologies for access control and user authentication.
4.	Application Security	➢ The solution should have appropriate authentication mechanisms. ➢ Application user authentication & authorization related transactions should be encrypted. ➢ Operating system should be hardened on which the application is installed. ➢ A web application firewall shall be deployed to secure the web-layer.
5.	Audit Trails & Logs	➢ Event logging should create an accurate record of user activity such as which users accessed which system, and for how long. ➢ The solution should log all types of events especially those related to security. ➢ Empanelled external audit can be included for auditing every aspect of the system.
6.	Data Protection	➢ The solution should support SSL encryption mechanism for transferring data across network. ➢ The data transferred across network should be encrypted using Public Key Infrastructure (PKI). ➢ Complete end point data protection should be provided at client site such that any type of data pilferage using unauthorized copying, storing and emailing could be prohibited.

Sr. No.	Security Areas	Specifications
		➢ Access to all system resources including data files, devices, processes and audit files should be provided to the intended users only. ➢ All mobile applications should be designed and developed in a way that it ensures security of the application and data on the device. ➢ Ensure to protect documents by assigning security parameters and criteria in order to provide more effective protection for an electronic document in order to maintain Confidentiality, Authorization, Accountability, Integrity, Authenticity and Non-repudiation.
7.	Session Management	➢ The system should limit to only one session per user or process ID. ➢ The system should put a limit on the maximum time length of an idle session, which should ensure that automatic session termination takes place after expiry of the specific time length. ➢ Mandatory password change after 90 days.
8.	Data Warehouse Security	➢ Users must not have access to the data warehouse prompt of the application. Access to the data warehouse prompt must be restricted only to the database administrator. ➢ "Super user" rights for the data warehouse must only be given to the administrator and activities of these accounts must be properly logged.
9.	Application Deployment	➢ All unused ports should be blocked at server machines. ➢ The application server should be segregated from internet zone through firewall or other filtering ➢ mechanism.
10.	Information Security Governance	➢ The employees working on the project should be made aware of his or her responsibilities with respect to Information Privacy and Information Security. ➢ Employees working on the project shall undergo security awareness training during training.
11.	Compliance to Security Standard	➢ Software/Hardware system should be in compliance with <ISO/IEC 27001:2015>.
12.	Security Information and Event Management System (SIEM)	➢ SI should install SIEM for Real-time analysis of security alerts generated by applications and infrastructure.
13.	Database Activity Monitoring (DAM)	➢ SI should install DAM to monitor all database

15.1 Types of Access

15.1.1 Open Access

Access to the data generated from public funding should be easy, timely, user-friendly and web-based without any process of registration / authorization.

15.1.2 Registered Access

Data sets which are accessible only through a prescribed process of registration/authorization by respective departments / organizations will be available to the recognized institutions / organizations / public users, through defined procedures. These procedures will be defined by the Open Data Cell within 1 month of their formation.

15.1.3 Restricted Access

Data declared as restricted, by Government of India (GoI), Government of Maharashtra (GoM) & TSCL policies, will be accessible only through and under authorization.

15.2 Technology for Sharing and Access

It is of utmost importance to establish a state-of-the-art data warehouse and data archive with Online Analytical Processing (OLAP) capabilities, which provides a multi-dimensional and subject oriented view of the database. This integrated repository of data of various ministries / departments / agencies on the TSCLs portal as a part of data.gov.in will hold the collected data for a period of 6 month before archival.

Over a period of time, this repository would also encompass data generated by various ministries / departments / agencies of the Central / State / Local Governments. The main features of the data warehouse need to include:

a. User friendly interface
b. Dynamic /pull down menus
c. Search based report
d. Secured web access
e. Complete Metadata
f. Parametric and Dynamic report in exportable format

15.3 Legal Framework

1. Data accessibility under this policy will not be in violation of any Acts and rules of the Government of India & Government of Maharashtra in force today or come into existence in the future.

2. Data will remain the property of the agency/department/ ministry/ entity which collected them and reside in their IT enabled facility for sharing and providing access.
3. Legal framework of this policy will be aligned with various Acts and rules covering the data & Government of Maharashtra.
4. Thane Smart City Ltd. (TSCL) shall only be facilitator of the data and would not be liable for completeness, correctness & quality of the data.
5. Any person/organization shall not be part or party of any legal action based on the open data published on their portal.

15.4 Pricing

The open data will be free to access for public usage. Data used for any commercial purposes by the "Registered Access" may be charged in future. Pricing of data, if any, would be decided by the Thane Smart City Ltd. (TSCL) along with data owners and as per the standard government policies. City Data Cell (CDC) jointly with HoDs of all the departments will upload the Pricing policy of the data under registered and restricted access within three (3) 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.

16 Standard Operating Procedures (SOPs)

This section covers the main procedures for data collection, verification, validation and dissemination among other activities.

16.1 Standard Operating Procedures (SOPs) for Data Collection

16.1.1 Data Collection Methodology

a. The data will be collected through digital, physical or a hybrid of both methods.
b. City Data Cell (CDC) will define the method and workflow of collection of every identified dataset within one (1) month of identification of that dataset.
c. The data should be collected in consent with the end user who may be a citizen or TSCL employee.
d. Data which is not going to be used for any kind of analysis or will not be used for any communication purpose should not be collected at all.
e. Data Security measures mentioned in "Data Security" shall be followed to maintain confidentiality and security of data.
f. The CDO will be responsible for capacity building of the DCs for data collection who in-turn will be responsible for the capacity building of the departments for the same.
g. The CDC, with prior approval from the Review Committee, can onboard any member mention in the Data Team for data collection.
h. The CDC is responsible for preparation of reports on all the methodologies used for data collection and their end results of all the identified datasets for publishing it on the open data portal.
i. External agencies / identified TSCL partners would require getting an approval from the CDO for accessing the open data.
j. The annual reports prepared for the citizens of the city do not fall under this category. These reports will be accessible to the general public without any need for approval.

16.1.2 Development of Data Collection Tools

a. Twice a year (April & October), CDO in collaboration with Data Coordinators (DCs) and the Department of IT (DIT) identify anticipated data needs of TSCL Departments from project work plans.
b. From the identified needs, CDO and DCs identify all possible data sources, indicating their reliability and methodology for collection.
c. CDO implements enhancements or updates to existing tools and develops new ones as necessary for the collection.
d. Under CDO and DCs, Experts provide rules for data quality checks, including redundancy in data collection tools for more quality check and integrity check to be performed at data entry for each indicator and value.
e. These rules will be done in collaboration with domains specialist from DIT & City Transformation Office (CTO).

16.2 Standard Operating Procedures (SOPs) for Electronic Data Collection

1. City Data Officer (CDO) will develop the metadata framework.
2. City Data Cell (CDC) will define the method and workflow of collection of every identified dataset
3. The data should be collected in consent with the end user who may be a citizen or TSCL employee
4. Data which is not going to be used for any kind of analysis or will not be used for any communication purpose should not be collected at all.
5. Data Security measures mentioned in "Data Security" shall be followed to maintain confidentiality and security of data
6. The CDO, with the help of Data Coordinators of all departments, should prepare a list of all sensors and field devices currently being used by TSCL along with their details (Mapping of the sensor devices to departments, Numbers and shape file with Latitude & Longitude, Frequency of Data Collection etc.) and post in the Open Data Portal of TSCL.
7. In order to stay updated with the technological advancements being made in the field of data collection, the CDO should also prepare a list of new technologies which should be presented quarterly in-front of the review committee for approval.
8. The Open Data Portal should also mention the other type of data collection technologies like GIS, Remote Sensing, RFID etc. being used for TSCL for data collection.

16.3 Standard Operating Procedures (SOPs) for Data Collection through Field Survey

1. Depending on requirement of data, competent agency can be employed to perform field survey.
2. The DCs will get a prior approval from the review committee for the onboarding of an agency.
3. The competent agency will be onboarded by the DCs for their department.
4. If a new technology is to be used for survey, the DCs will suggest it to the review committee for approval.
5. The review committee has the authority to direct the HoDs their own departmental resources including manpower for data collection and to share existing data available with various departments.

16.4 Standard Operating Procedures (SOPs) for Data Processing and Cleaning

1. The DCs along with the clerks of their respective department will collect the data from various sources.
2. The DCs along with CTO will use various methodologies suggested by the experts for data processing and cleaning.
3. The suggested methodologies should be in line with the GoI's Open Data Policy and NDSAP Policy

4. These methodologies will be finalized during the monthly/quarterly/bi-annually meetings by the Review committee.
5. These methodologies will be suggested by the DCs to the review committee.
6. The various tools used by the DCs for data processing & cleaning will be kept up to date for better results. DIT will be responsible for keeping these tools up to date.
7. If the review committee finds the data unsatisfactory, the data will then get re- analyzed and processed jointly by the DCs & CTO.

16.5 Standard Operating Procedures (SOPs) for Data Quality Assessment

1. Under the leadership of Chief Executive Officer, 3-member committee will be formed comprised of Nodal Officer, Chief Information Technology Officer (CITO) and Chief Data Officer (CDO).
2. The final report will be sent to CITO/CEO for final approval.
3. The Data Coordinators shall submit their data to the committee for quality assessment.

16.6 Standard Operating Procedures (SOPs) for Stakeholder Engagement

16.6.1 Formation of Data Alliances

The CDO & the City Data Cell will form a City Data Alliance (CDA) through various MoUs with various communities, industry, academia and other governmental agencies for assessing the data available in all Government and non - government entities for better understanding, creation, and promotion of data-driven solutions for the city.

16.6.2 Roles & Responsibilities of the Data Alliance

16.6.2.1 Identification of Data related Urban Challenges:

The CDA will help the departments in identifying urban challenges and the methodology to tackle the challenge.

16.6.2.2 Formation of Engagement Platforms for Solving the Identified Challenges:

CDA along with the Assessment Committee & CDO must design various programs & engagement platforms to solve its urban challenges through a structured challenge process.

16.6.2.3 Identification of Analytics to Solve Urban Problems in the City:

The CDA will coordinate the application of emerging analytics, methods and technologies to identify and address urban challenges in a systemic manner at the City Level.

16.7 Standard Operating Procedures (SOPs) for Data Publishing as per Open Data Norms

1. Only data which has been approved by Assessment / Review Committee shall be uploaded on Open Data Portals.
2. Data sets which are considered to be open by default unless classified as internal, sensitive, protected or restricted shall be uploaded on the Open Data Portals.
3. Data sets and feeds must be published with proper metadata. Information about the datasets being published using common data taxonomy/structure shall be uploaded as it helps in providing easy access through Data Platform.
4. Data Sets and feeds should be published in formats specified under the (National Data Sharing and Accessibility Policy) NDSAP i.e. Open format. Data should be provided in freely available formats which can be accessed without the need for a software license.
5. Data Sets and Feeds should be machine readable.
6. Following data formats can be used for uploading data on Open Data Portal
    a. CSV (Comma separated values)
    b. XLSX (Spread sheet - Excel)
    c. ODS (Open Document Formats for Spreadsheets)
    d. XML (Extensive Markup Language)
    e. RDF (Resources Description Framework)
    f. KML (Keyhole Markup Language used for Maps)
    g. GML (Geography Markup Language)
    h. RSS/ATOM (Fast changing data e.g. hourly/daily)

Going forward, all the e-governance IT applications/Systems shall be designed in such a way that manual processes get replaced by automated process without much intervention of humans. As most of process would be automated and handled by an e-mode, data will be available for further analysis.

16.8 Standard Operating Procedures (SOPs) for Data Collection, Processing, and Analysis for on Field Survey

16.8.1 Steps in Data Collection

Broadly speaking there are three major steps in data collection viz.

1. One can ask people questions related to the problem being investigated.
2. One can make observations related to places, people, and organizations their services or outcomes.
3. One can utilize existing records or data already gathered by others for the purpose.

The first two steps relate to the collection of primary data while the third step relates to the collection of secondary data. The information/ data collected by a person directly is known as primary data while records or data collected from offices/ institutions is known as secondary data

16.8.1.1 Steps in Primary Data Collection:

a. Collection of primary data involves the following steps:
b. Making oneself ready both mentally as well as physically for collecting primary data from field situations.
c. Keeping a field book/ record book or diary for writing relevant information, doing field sketching, or writing records of the occurrence of phenomenon at specific time intervals.
d. Administering questionnaire schedule to the target groups of area people across sampled sites.
e. Verifying the facts through cross checks in the answers and ground realties.
f. Integrating the observations, responses, and recorded facts in a systematic and logical framework.

16.8.1.2 Steps in Secondary Data Collection:

The collection of secondary data involves the following steps:

a. Knowledge about the offices/ institutes etc. keeping the record of relevant data is of prime importance to obtain the secondary data /information.
b. Get an official letter containing your requirements of data and purpose of data collection from your competent authority. Your identity card is also an essential requirement to get an entry in the offices.
c. Keep a notebook/ record file to transfer data for the purpose. It could also be done with the help of photo copying systems.
d. The secondary data, thus, collected forms the basis for tabulation and processing as per need.

16.8.1.3 Identification of Issues

It is very important to clearly identify the issues that are going to be assessed. Depending upon the availability of time, cost, manpower and tools, a framework of issues to be covered need to be developed. In case of local area planning the following issues need to be considered.

a. Issues related to environmental conditions like environmental degradation, quality of human life, level of citizen services, etc.
b. Social issues like people's perception, literacy status, health hazards, incidence of crime etc.
c. Economic issues like employment, expenditure pattern, etc.
d. Facilities and amenities available for social and economic development.
e. Problems related to growth of economy such as irrigation, means of transportation, availability of power, etc.
f. Focal theme of planning like provision of basic amenities in slum areas, pollution control, clean environment in an industrial area.

16.8.2 Steps in Data Collection

The processing of data/ information is an essential dimension of streamlining the facts and writing of a field report. A separate account of processing is given here.

16.8.2.1 Processing of Primary Data:

The primary data collected from the field remains in the raw form of statements, digits, and qualitative terms. The raw data contains error, omissions, and inconsistencies. It requires corrections after careful scrutinizing the completed questionnaires. The following steps are involved in the processing of primary data.

I. **Editing of Data:** The editing of data can be done at two stages: field and post-field editing. The field editing is a review of reporting by the investigator for completing what has been written in an abbreviated form during interviewing the respondent. The post- field editing is carried out when field survey is completed, and all the forms of schedule have been collected together. This type of editing requires review of all forms thoroughly.

II. **Coding of Data:** To keep the response within limited alternatives, we need to assign some alphabetical or numerical symbols or both to the answers. The alternatives must mutually exclusive i.e., defined in one concept or term only. This form of processing is known as coding. For example, in a question of educational qualifications alternative choices given are: Uneducated; Below Matriculation; Matriculation & above but below Graduate; Graduate & above; Technical Diploma; Technical Degree.

III. **Organization of Data:** The data information collected through different sources should be organized. The first task in this regard is to develop a master chart. For example, in a local area survey, we record individual households in rows and the details of population, function, facilities and amenities etc. in columns. Thus, a large chart is prepared that contains, practically, all relevant information/data. Finally, the total of rows and columns are cross-checked. The information arranged in an ascending order is known as the array of data. The set of information related to specific entity is called the field. The following illustration demonstrates the way data is organized.

IV. **Classification of Data:** The data is also classified on the following bases.
    a. Descriptive characteristics-example land holding, sex, caste and so on.
    b. Time, situation, and area specific characteristics.
    c. Nature of data as continuous or discrete.

16.8.2.2 Presentation of Data:

Presentation of data: The presentation of data could be tabular, statistical, and cartographic. In case of tabular form of presentation, data related to different variables should be classified and compared. Various statistical techniques are available to derive accurate and precise results. Since techniques have a large range coupled with the limitations of their own, selection of appropriate technique needs to be made for the purpose. The construction of graphs, charts, diagrams,

and maps are the various forms of cartographic presentations. The data is transformed into cartographic system which is used for visual presentation.

16.8.3 Steps in Data Analysis

Interpretation of information/data is crucial for written communication. It is an art of expressing a given data/information in a written or oral form to provide a logical explanation for the given facts. The following points should be kept in mind while interpreting the information:

a. Clarity and explicitness of the interpretation.
b. Segregation of common and special features.
c. Focus should be clarified right in the beginning.
d. Organisation of the facts must be step by step.
e. Accuracy of facts need to be checked.

16.8.3.1 Interpretation of a Table:

A table is a compact orderly arrangement of facts. It is summarized or grouped from a processed data. Interpretation of a table needs to start with the identification of minimum and maximum value i.e., ranges in the data. The difference between these two values explains the range to be comparatively smaller or larger. The smaller the range, lower the and in the concentrated form is the distribution. Contrary to this, if range is larger, the interpretation will change as the distribution will be dispersed. The second step in the interpretation of a table relates to the analysis of various classes and their frequencies. The third step in the analysis of a table relates to the inferences derived. It should be brought out very clearly as what generalizations emerge from the table.

16.8.3.2 Interpretation of a Graph:

Graphs are different types, and their interpretation significantly varies one another. The interpretation should be done with great care. There could be broadly two types of graphical interpretations. The first type of interpretation may deal with the amount of change with reference to time or areal units or both. The second dimensions of graphical interpretation are the trend. It is further divided into total trend and point specific trend.

16.8.3.3 Interpretation of a Diagram:

Each diagram has its own merit of presentation. It should be interpreted with regard to variables shown. A diagram highlights different levels of variables viz high, medium, low, very low etc. Interpretation of each component should be made clearly to give an idea about the performance of a variable across time and places.

16.8.3.4 Interpretation of Maps:

Interpretation of maps refer to area specific characteristics of a phenomenon. It could be with regards to time, intensity, and community. The distributional, characteristics of a variable should be

interpreted. It will bring out the distributions both in terms of volume and area covered. Logical explanation should be given to the factor responsible for such a distribution.

16.9 Provisions for Data Analysis

The value of the report is adjusted on the basis of insight and labour put in its making of a scientific and logical project. Analysis of the report is sub-divided into chapter of convenient number. Sequence of these chapters, however, follows the system as follows:

1. Structure on nature of the theme of investigation,
2. Trends and patterns (both temporal a well as spatial) related to the theme of investigation,
3. Correlation of associated factor influencing the problem under study,
4. Constraints and associated problems,
5. Conclusions and suggestions.

Each chapter contains logical and scientific analysis of the facts derived through the processing of data in the form of tabular and cartographic presentations besides investigators personal impressions gathered during the field work.

17 Implementation

17.1.1 Formation of City Data Cell (CDC)

In order to implement CDP, a centralized City Data Cell (CDC) would be established. There shall be a provision to contract or outsource the CDC through an external agency. The size of the CDC would vary, taking into consideration the effective delivery of following responsibilities:

1. Prepare Negative List of datasets and communicate to DIT within six months
2. Prepare a schedule of datasets to be released in next one year
3. Extend Technical Support for Preparation of datasets, conversion of formats etc.
4. Monitor and manage the Open data initiative in their respective Department and ensure quality and correctness of the data
5. Work out an open data strategy to promote proactive dissemination of datasets
6. Institutionalize the creation of datasets as part of routine functioning
7. Periodically assess data maturity to Institutionalize Data Culture
8. Setup Urban Data Observatory and Data Lab

City Data Cell shall be headed by Chief Data Officer who could be assisted by number of Data Contributors. City Data Cell shall have professionals from data analyst, visualization and programming domain.

17.1.2 Roles & Responsibilities:

17.1.2.1 City Data Officer

The responsibility of Chief Data Officer are as follows:

i. Head the City Data Cell, which helps in compilation, collation, conversion and publishing catalogs/resource on the platform. The size of the cell varies from Department to Department and depends on the quantum of resources to be published.
ii. Lead the open data initiative of TSCL.
iii. Nominate Data Contributors.
iv. Take initiative to release as many datasets as possible on proactive basis.
v. Identify the High Value Datasets and schedule their release on Open Data Platform.
vi. Prepare the Negative List for the Department as per the directions in NDSAP.
vii. Ensure that the datasets being published are compliant with CDP through a predefined workflow process.
viii. Periodically monitor the release of datasets as per predefined schedule
ix. Take relevant action on the feedback/suggestion received from the citizen for the datasets belonging to the respective TSCL department.
x. Ensure the correctness of his contact details on the Open Data Platform
xi. Act on suggestions on new datasets made by public / citizens on Open Data Platform.

17.1.2.2 Data Coordinators

In order to cater to the contribution of the datasets from under the TSCL Departments, the Chief Data Officer can nominate a few Data Contributors who would be responsible in contributing the datasets along with their metadata. Using the web based DMS, each data contributor would be able to contribute the data as per the given metadata format (elaborated in Annexure 5). The contributed datasets would be approved by the Chief Data Officer as the case may be. Data Contributor could be an officer of their respective department who would be responsible for his/her department. The responsibilities of the Data Contributor are as follows:

i. Responsible for ensuring quality and correctness datasets of his/her department
ii. Preparing and contributing the catalogues and resources along with the metadata on the Open Data Platform

17.1.2.3 Data Team

17.1.2.3.1 Data Scientists

The responsibility of the Data Scientist are as follows:

a. Working closely with CDO & DC's to turn data into critical information and knowledge that can be used to make sound TSCL level decisions.
b. Providing data that is congruent and reliable.
c. They need to be creative thinkers and propose innovative ways to look at problems by using data mining (the process of discovering new patterns from large datasets) approaches on the set of information available.
d. They will need to validate their findings using an experimental and iterative approach.

e. They will need to be able to present back their findings to the Assessment Team by exposing their assumptions and validation work in a way that can be easily understood by the Assessment Team.

17.1.2.3.2 Architect

The responsibility of the Architect are as follows:

a. Improving the consistency, timeliness, quality, security and delivery of data.
b. Streamlining data flows and remove unnecessary costs from the complex, fragmented, heterogeneous data architecture that is found in most of the departments.

17.1.2.3.3 Analyst

The responsibility of the Analyst are as follows:

a. Designing, creating and executing analytical products including standard reporting, custom reporting, import/export data files and simulation models.
b. Working with DC's to produce reports that provide valuable insight for all departments of the TSCL to enable continuous improvements with current practices, products and services

17.1.2.3.4 Experts

After prior approval from the review committee, the CDO can onboard experts from various fields for helping TSCL in better data driven governance. The responsibility of an expert is:

a. Providing the CDC with suggestions and solutions for better data gathering, processing, cleaning and analysis.
b. Preparation of reports on the new technologies and methodologies being used across the globe in data driven governance. The report should also mention the customization required for implementing the suggestions.
c. Reviewing the plan of action of the various data driven departmental projects and city-wide data enabled events for better execution
d. Provide support to CDO and CDC when asked by them

17.1.2.3.5 Interns

The responsibility of the Intern is:

a. Support the clerks, DCs and CDO in data collection and cleaning.
b. Support DCs and CDO prepare reports for the CDC and Review Committee
c. Provide support to DCs when asked by them
d. Set up collaborative meetings between departments and other non TSCL agencies as directed by the CDC

17.1.3 Capacity Building

i. City Data Cell (CDC) needs to assess the capacity and training needs in the departments of TSCL (in collaboration and coordination with DIT)
ii. CDC and DIT will conduct a gap analysis of the capacities of the TSCL departments in order to build capacities in the area related to their activities (data quality, standards and classification, concepts and definition, metadata framework, data dissemination, data quality and validation, geospatial information management)
iii. City Data Officer (CDO) initiates proposals to the review committee for capacity building and/or training
iv. The CDO will also ensure attendance of DCs in trainings or workshops on data given by the Central / State Ministry. A minimum of 80% of the trainings or workshops should be attended by the DCs in a year.
v. The CDO will keep a track of trainings or workshops attended by the DCs on data given by the Central / State Ministry.
vi. Providing monthly / quarterly trainings or workshops on data through the help of Experts to the DCs & their respective HoDs

17.1.4 Formation of Use Cases & Data related Applications

i. The CDC jointly with DIT will form the use cases for all the data related solutions / concepts / prototypes being implemented in the city by TSCL or identified partners of TSCL
ii. These use cases should be formed within 1 month of identification by the CDC
iii. Additionally, the CDC jointly with DIT will be responsible for formation of service-based applications for the citizens using the datasets collected of data driven governance
iv. If there already exists an integrated citizen centric application for providing TSCL services to the citizens, then the CDC jointly with DIT will be responsible for integrating the modules of new services in the existing application
v. The CDC is also responsible for preparing data stories / blogs on these use cases & applications for publishing them on the Open Data Portal of TSCL.

17.1.5 System Alerts & Public Disclosures for the Citizens

i. The CDC will be responsible for generating system driven alerts which will be disseminated to the citizens.
ii. The CDO will be responsible for ensuring that the alerts are being received by at least 10% of the city population
iii. The list of system alerts and public disclosures will be generated by the CDC for the approval of review committee
iv. The message in the alerts to be sent will be finalized jointly by the CDC and Public Relationship Office (PRO)
v. The message should receive a prior approval of CITO/CEO before dissemination

18 Budget Provisions

The implementation of Open Data Policy of TSCL is expected to entail expenditures for both data owners and data managers for analog to digital conversion, field revenue data refinement data storage, quality up-gradation etc. Budgetary provisions and appropriate support for data management for each department by TSCL would be necessary. The departments will also earmark the decided budget in its Annual Budget after going through the suggestions given by the CDO for implementation of data-related initiatives/activities.

19 Conclusion

19.1 While policies provide official mandate, facilitation of optimum accessibility and usability of data by the implementers presuppose a trajectory of proper organization of data, with access services and analysis tools that provide the researchers and stakeholders with added value. For data to be reused, it needs to be adequately described and linked to services that disseminate the data to other, researchers and stakeholders. The current methods of storing data are as diverse as the disciplines that generate it. It is necessary to develop institutional repositories, data centers on domain and national levels that all methods of storing and sharing must exist within the specific infrastructure to enable all users to access and use it.

19.2 City Data Policy of TSCL aims at the promotion of a technology-based culture of data management as well as data sharing and access. It opens up information on available data which could be shared with civil society for developmental purposes, their price details if any and methods for gaining access to registered and restricted use. The policy has limited its scope to data owned by the agencies, departments, ministries and entities under the Government and its commitment to transparency and efficiency in governance. Department of IT of TSCL along with the City Data Officer will continue the process of evolving the policy further, keeping in tune with technological advancements and the National requirements and enrolling the State Governments, Central Government.

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Mr. Swaroop Kulkarni

Chief Information Technology Officer,
Thane Municipal Corporation

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Mr. Sandeep Malvi

Chief Executive Officer, Thane Smart City Limited
Additional Municipal Commissioner - 1,
Thane Municipal Corporation

20 Annexure 1: Open Data Platform for Thane (TSCL Datastore)

Website must be created which shall provide the following features:

a. Collated access to Resources (datasets/apps) under Departments published in open format
b. It also provides a search & discovery mechanism for instant access to desired datasets.
c. TSCL Data Store shall also have a rich mechanism for citizen engagement.
d. Besides enabling citizens to express their need for specific resource (datasets or apps) or API, it also allows them to rate the quality of datasets, seek clarification or information from respective data controller.

21 Annexure 2: Datasets

List of Datasets must be identified by TSCL Review Committee. This dataset must be made available for download by anyone.

Sr. No.	Data Set Name
1	VAT and GST
2	Financial Health
3	Community Facilities
4	Housing and Slum Population
5	Public Amenities
6	Education
7	Governance
8	Street-Lights
9	Electricity
10	Health Infrastructure
11	Mortality
12	Road Safety
13	Diseases
14	Digital Availability
15	Digital Payments
16	Environment
17	Natural Features
18	Households
19	Property Tax
20	Roads
21	Water and Sanitation
22	Solid Waste Management-Basic
23	Solid Waste Management-Efficiency
24	Solid Waste Segregation
25	SolidWasteD2DCollectionRevenue
26	Solid Waste Collection Vehicle
27	Solid Waste Processing
28	Solid Waste Disposal
29	City Profile
30	Infrastructure Distribution
31	Open Spaces
32	Cultural Heritage
33	Neighbouhood_1
34	Neighbourhood_3
35	Buses
36	Earnings-Bus Trips
37	Public Transport Accessibility
38	Public Transport Mode Share
39	Water Tax
40	Water Supply

22 Annexure 3: Open Data Platform for Thane Smart City Ltd. (TSCL Data Store)

TSCL Datastore set up to provide collated access to Resources (datasets/apps) under Departments published in open format. It also provides a search & discovery mechanism for instant access to desired datasets. TSCL Data Store to have a rich mechanism for citizen engagement. Besides enabling citizens to express their need for specific resource (datasets or apps) or API, it also allows them to rate the quality of datasets, seek clarification or information from respective data controller.

TMC Open Data Vision

Non-Proprietary

Data is available in a format over which no entity has exclusive control.

Primary

Data is collected at the soruce, with the highest possible level of granularity, not in aggregate or modified forms.

Non-Discriminatory

Data is available to anyone with no requirement of registration.

License Free

Data is not subject to any copyright, patent, trademark or trade secret regulation. Reasonable privacy, secuity and privilege restrictions may be allowed.

Accessible

Data is available to the widest range of users for the widest range of purposes.

Processable

Data is reasonably structured to allow automated processing.

Classification of Data

All public data is made available. Public data is data that is not subject to valid privacy, security or privelege limitations.

Timely

Data is made available as quickly as possible to preserve the value of the data.

23 Annexure 4: NDSAP Implementation

In order to implement open data, TSCL has to undertake the following activities:

- Nominate Data Contributors
- Identify Datasets
- Publish Resources (Datasets/Apps) on TSCL Datastore portal
- Prepare Negative List
- Create Action Plan for regular release of datasets on the OGD Platform India
- Monitor and Manage the Open Data Programme of the Department

24 Annexure 5: Metadata Elements for Catalogs/Resources and their Description

24.1 Catalog:

24.1.1 Title (Required)

A unique name for the catalog (group of resources) viz. Current Population Survey <Year>, Consumer Price Index <Year>, Variety-wise Daily Market Prices Data, State-wise Construction of Deep Tube wells over the years, etc.

24.1.2 Description (Required)

Provide a detailed description of the catalog e.g., an abstract determining the nature and purpose of the catalog.

24.1.3 Keywords (Required)

It is a list of terms, separated by commas, describing and indicating at the content of the catalog. Example: rainfall, weather, monthly statistics.

24.1.4 Group Name

This is an optional field to provide a Group Name to multiple catalogs in order to show that they may be presented as a group or a set.

24.1.5 Sector & Sub-Sector (Required)

Choose the sectors(s)/sub-sector(s) those most closely apply(ies) to your catalog.

24.1.6 Asset Jurisdiction (Required)

This is a required field to identify the exact location or area to which the catalog and resources (dataset/apps) caters to viz. entire country, state/province, district, city, etc.

24.2 Resources (Datasets/Apps):

24.2.1 Category (Required)

Choose from the drop-down options. Is it a Dataset or an Application

24.2.2 Title (Required)

A unique name of the resource viz. Consumer Price Index for <Month/Year> etc.

24.2.3 Access Method (Required)

This could be “Upload a Dataset” or “Single Click Link to Dataset”.

24.2.4 Reference URLs

This may include description to the study design, instrumentation, implementation, limitations, and appropriate use of the dataset or tool. In the case of multiple documents or URLs, please delimit with commas or enter in separate lines.

24.2.4.1 If Resource Category is Dataset

24.2.4.1.1 Frequency (Required)

It mentions the time interval over which the dataset is published on the OGD Platform on a regular interval (one-time, annual, hourly, etc.).

24.2.4.1.2 Granularity of Data

It mentions the time interval over which the data inside the dataset is collected/ updated on a regular basis (one-time, annual, hourly, etc.)

24.2.5 Access Type

It mentions the type of access viz. Open, Priced, Registered Access or Restricted Access (G2G).

i. If Resource Category is App

1. App Type (Required): It mentions the type of App being contributed viz. Web App, Web Service, Mobile App, Web Map Service, RSS, APIs etc.
2. Datasets Used: Datasets used for making this app.
3. Language: Language used for app.

24.2.6 Date Released

It mentions the release date of the Dataset/App.

24.2.7 Note

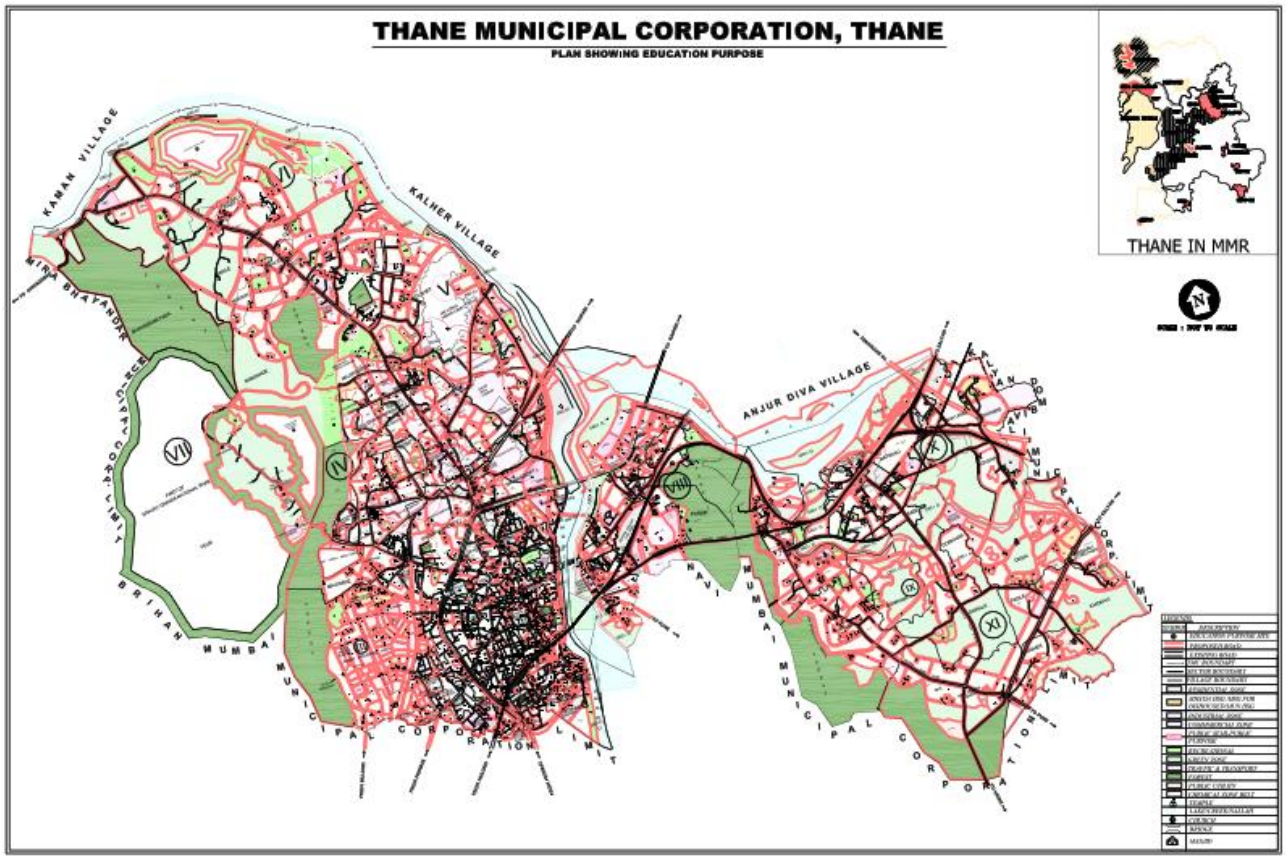
It mentions the anymore information the contributor/controller wishes to provide to the data consumer or about the resource.

24.2.8 NDSAP Policy Compliance

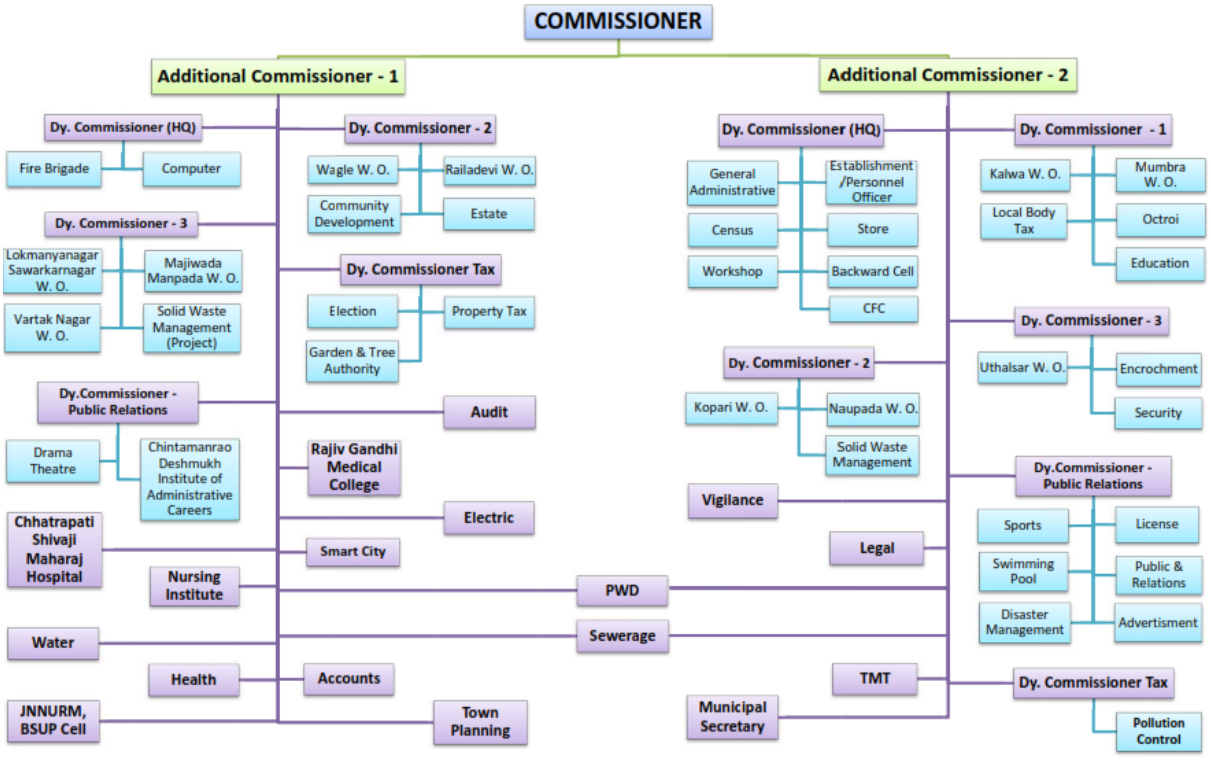
This field is to indicate if this dataset is in conformity with the National Data Sharing and Access Policy of the Govt. of India.

25 Annexure 6: Figures

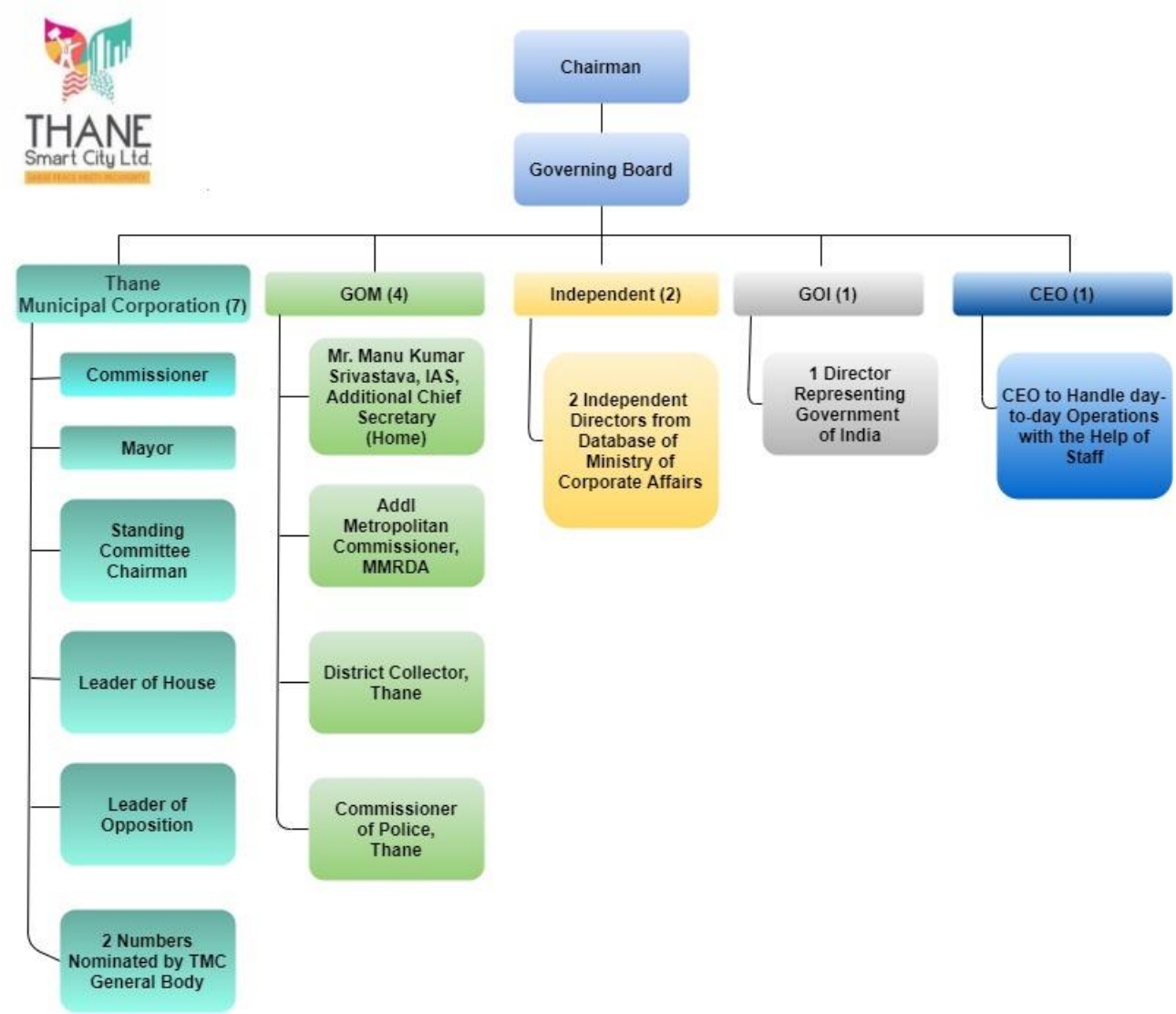
25.1 Figure 1: Map of the Thane Municipal Corporation governed area



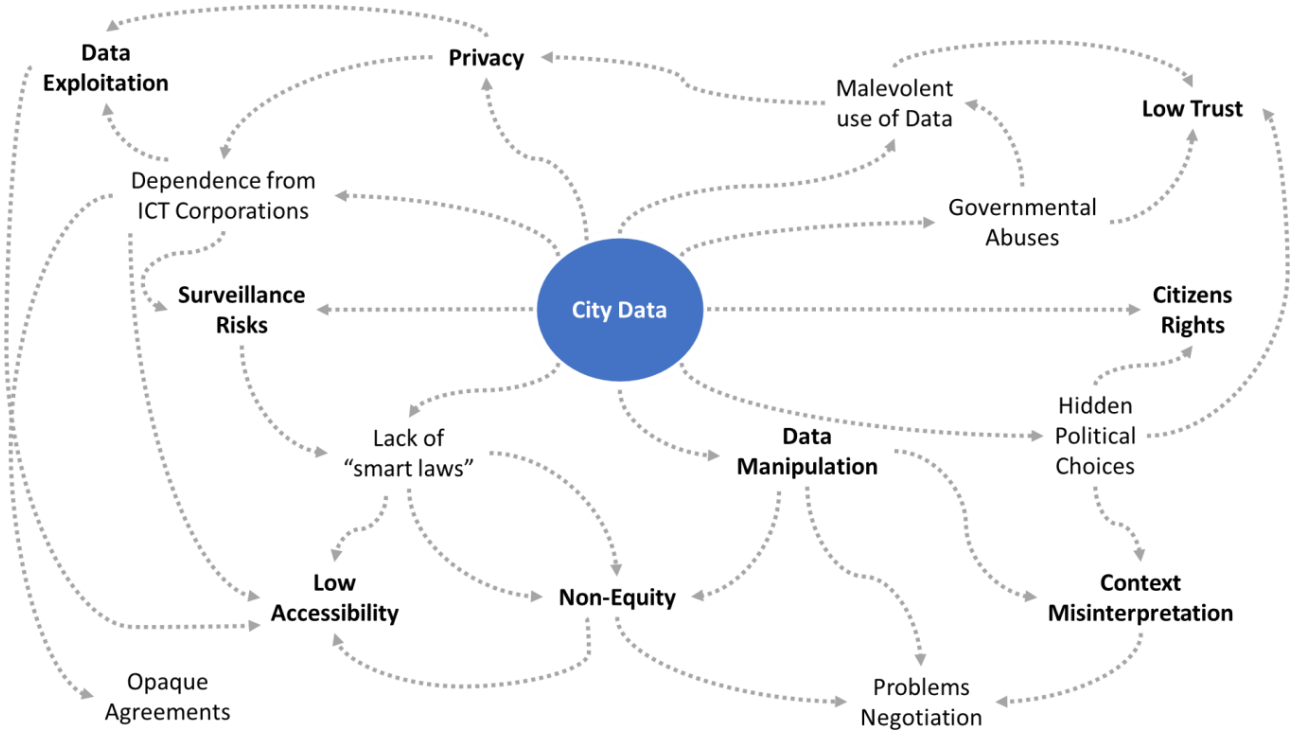
25.2 Figure 2: Organization Chart of Thane Municipal Corporation (TMC)



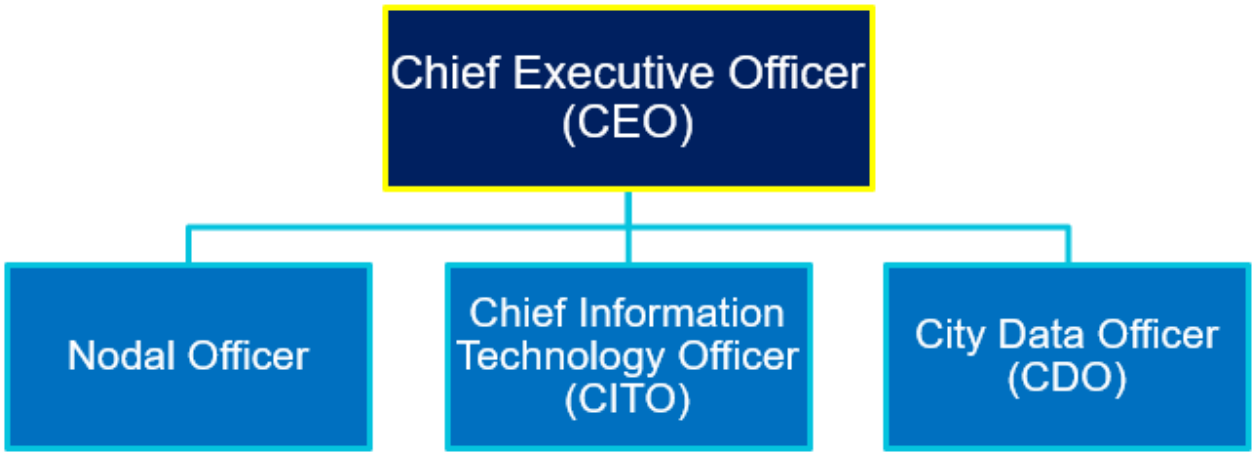
25.3 Figure 3: Organization Chart of Thane Smart City Limited (TSCL)



25.4 Figure 4: Map of the key issues associated to city data and their governance



25.5 Figure 5: Organization structure of the review committee



25.6 Figure 6: Data Flow / Approval Framework of City's Data