TOOLKIT TO CREATE AN ITC-CENTRIC
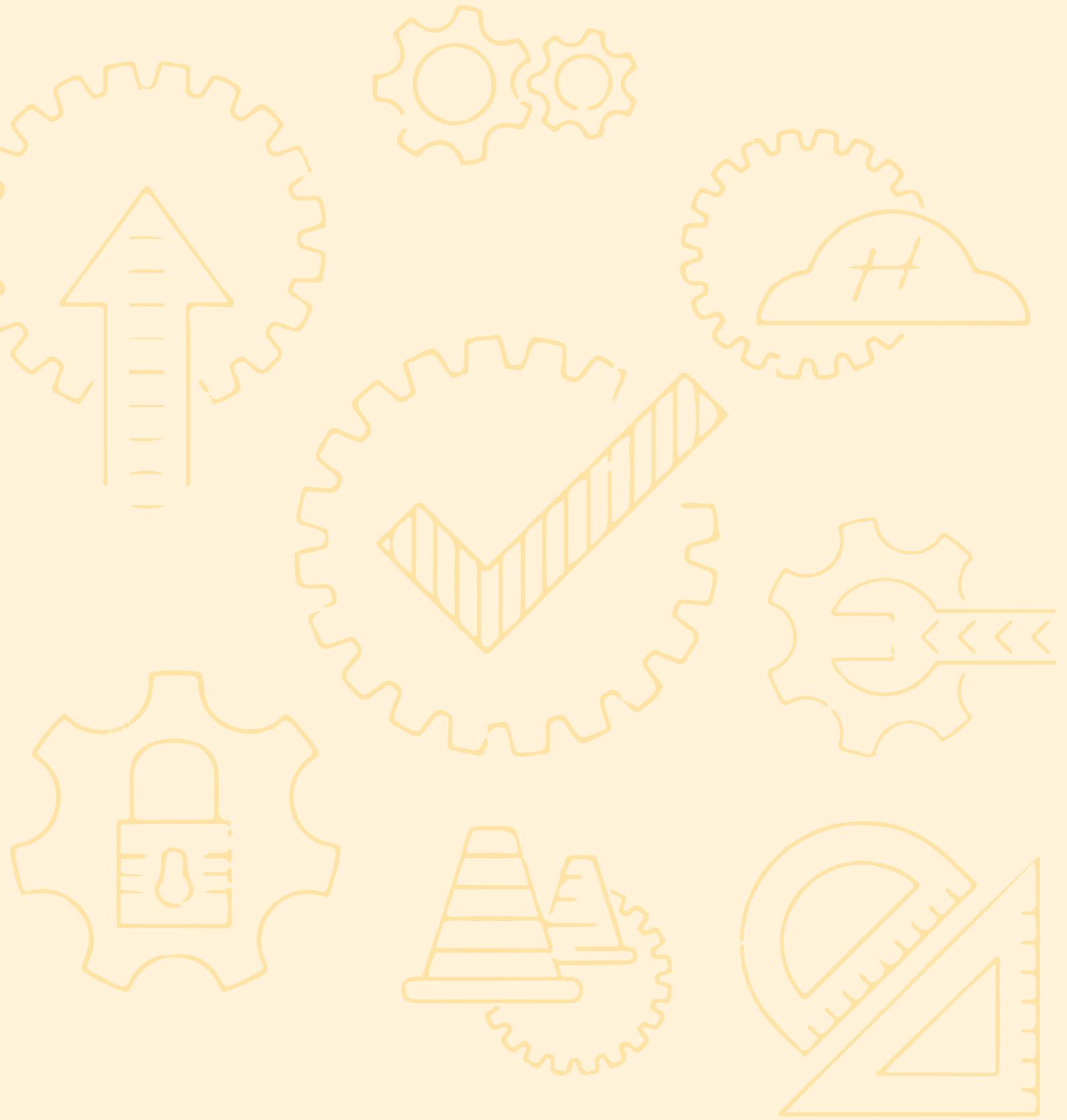## CITY LEVEL DASHBOARD

INFANT, TODDLER AND CAREGIVER-FRIENDLY NEIGHBOURHOODS CAPACITY BUILDING PROGRAMME

National Institute of Urban Affairs

Core 4B, India Habitat Centre, Lodhi Road, New Delhi- 110003

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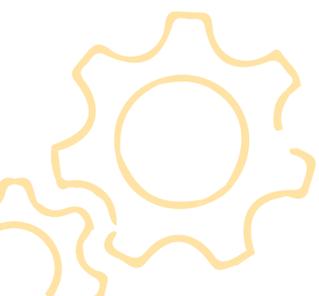
Abstract

Toolkit to Create an ITC-Centric City Level Dashboard, second in the series of 3 toolkits developed under ITCN Capacity Building Programme, takes a step forward learning from the first toolkit - 'Toolkit for creating Data Baseline for Young Children in Cities'. Toolkit for creating Data Baseline for Young Children in Cities is a comprehensive document on creating an ITC centric database for the city covering data collection, data cleaning and consolidation. Though, data needs to be comprehensively visualized and analysed for better understanding of ITC-related issues by the diverse group of city stakeholders. Data dashboards in the public domain have emerged as an effective tool to bring various stakeholders on a common platform and help the city understand development needs of various population segments, identify gaps in infrastructure & social facilities, assess progress in meeting the aspirations of the people and promote learning in a transparent and accountable manner. Toolkit to create an ITC- centric City Level Dashboard introduces the concept of city dashboards, detailing out the institutional setup, risks & challenges and ways of incorporating reforms using the dashboard.
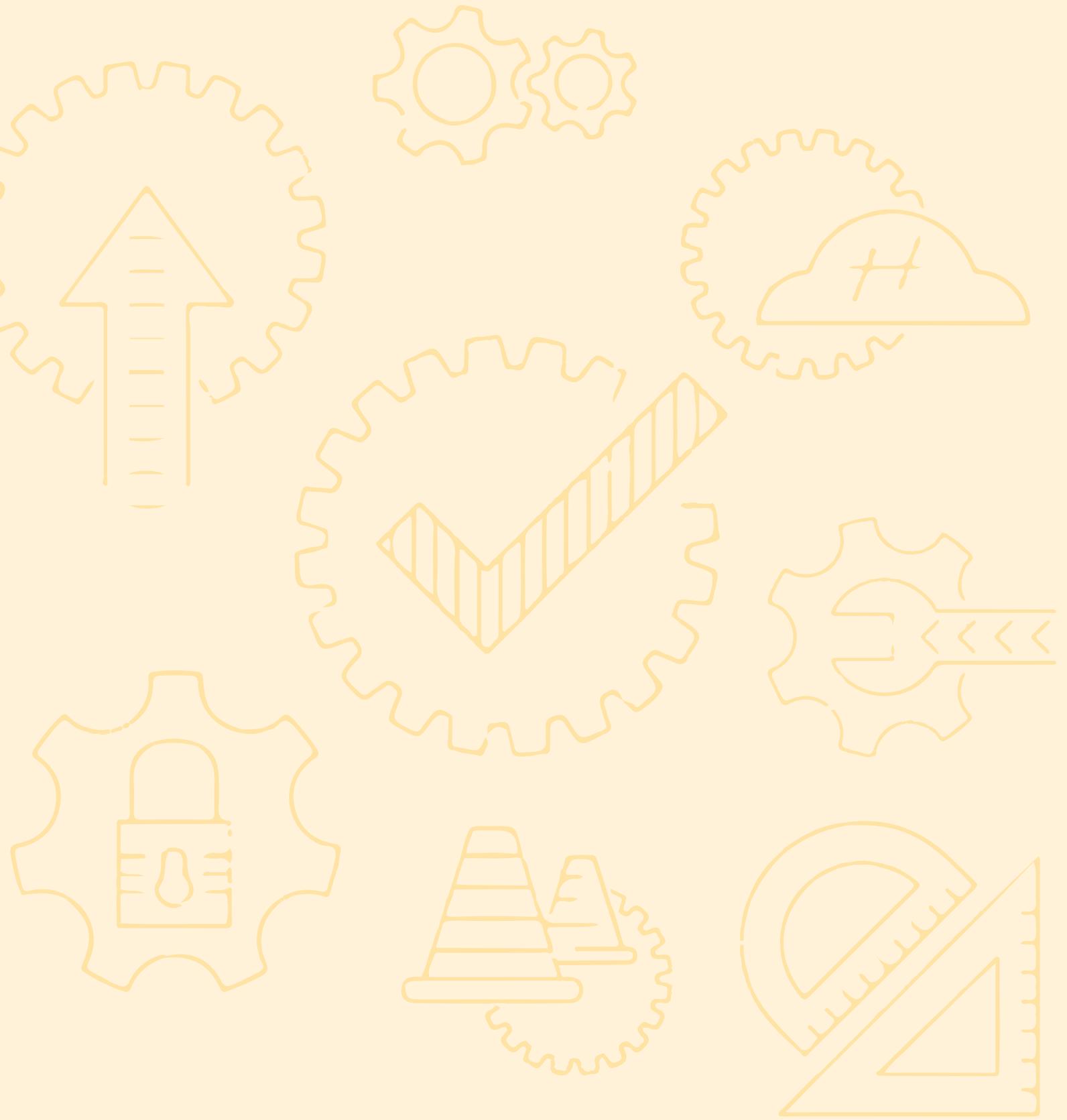
National Institute of Urban Affairs

National Institute of Urban Affairs (NIUA), an apex institute of Ministry of Housing and Urban Affairs (MoHUA) is tasked to bridge the gap between research and practice on issues related to urbanization, suggest ways and mechanisms to address urban challenges and strive to develop sustainable, inclusive, and productive urban ecosystems in the country. The institution has been actively working on bringing forth key areas of concern for urban India to build the urban discourse at various urban scales by utilizing its competencies in research, knowledge management, policy advocacy, and capacity building. NIUA imparts these responsibilities through five major themes: Urbanization & Economic Growth, Urban Governance & Finance, Urban Infrastructure & Built Environment, Environment, Climate Change & Resilience, and Social Development.

https://www.niua.org/

Founded in 1949, the Bernard van Leer Foundation (BvLF) is a private foundation focused on developing and sharing knowledge about what works in early childhood development. It provides financial support and expertise to partners in government, civil society and business to help test and scale effective services for young children and families. Urban95 is the Bernard van Leer Foundation's 30-million-euro initiative to make lasting change in the landscapes and opportunities that shape the crucial first five years of children's lives. BvLF has supported programs in India since 1992. Urban95 seeks to improve two critical factors in early childhood development – the quality and frequency of interactions between young children and their caregivers, and the well-being of these caregivers – through the provision of early childhood services, public space, transport, planning, land use and data management in cities.

https://bernardvanleer.org/

Foreword

Hitesh Vaidya
Director
NIUA

Young children aged 0-6 and their caregivers form one of the most vulnerable sections of the city population. The ITCN Capacity Building Programme, in its efforts to mainstream the needs of the youngest citizens of the city at the neighbourhood level on a city-wide scale, has recognised the need for analysing data in relation to ITCs. NIUA's initiatives have been well in line with the Ministry of Housing and Urban Affairs (MoHUA)'s continued efforts toward creating integrated systems of data management to support future city development in India.

The 'toolkit to create an ITC-centric city level dashboard' is the second among the series of three toolkits developed by the NIUA-ITCN team to support and guide cities in creating ITC-friendly neighbourhoods. I am hopeful that the toolkit would facilitate cities in data driven decision making and create a nurturing and thriving environment for young children and their caregivers.

My sincere compliments to Ajay Suri for providing overall support and guidance to the ITCN team at NIUA for developing this knowledge product. Congratulations to the ITCN team led by Krishna Kant Pandey for splendid efforts in developing the toolkit.

I would like to acknowledge the support received from BvLF in developing the toolkit.

Message

Ipshita Sinha

India Representative
Bernard van Leer Foundation

"Representing the key data points through an easy to consume dashboard for the city officials ensures that Infants, Toddlers and Caregivers (ITC) centric initiatives are monitored and sustained.

At the Bernard van Leer Foundation, we are happy to support the development of 'Data Dashboard Toolkit' developed by the abled team of our partner National Institute of Urban Affairs which will serve as a helpful tool to all those looking to use the ITC centric database effectively."
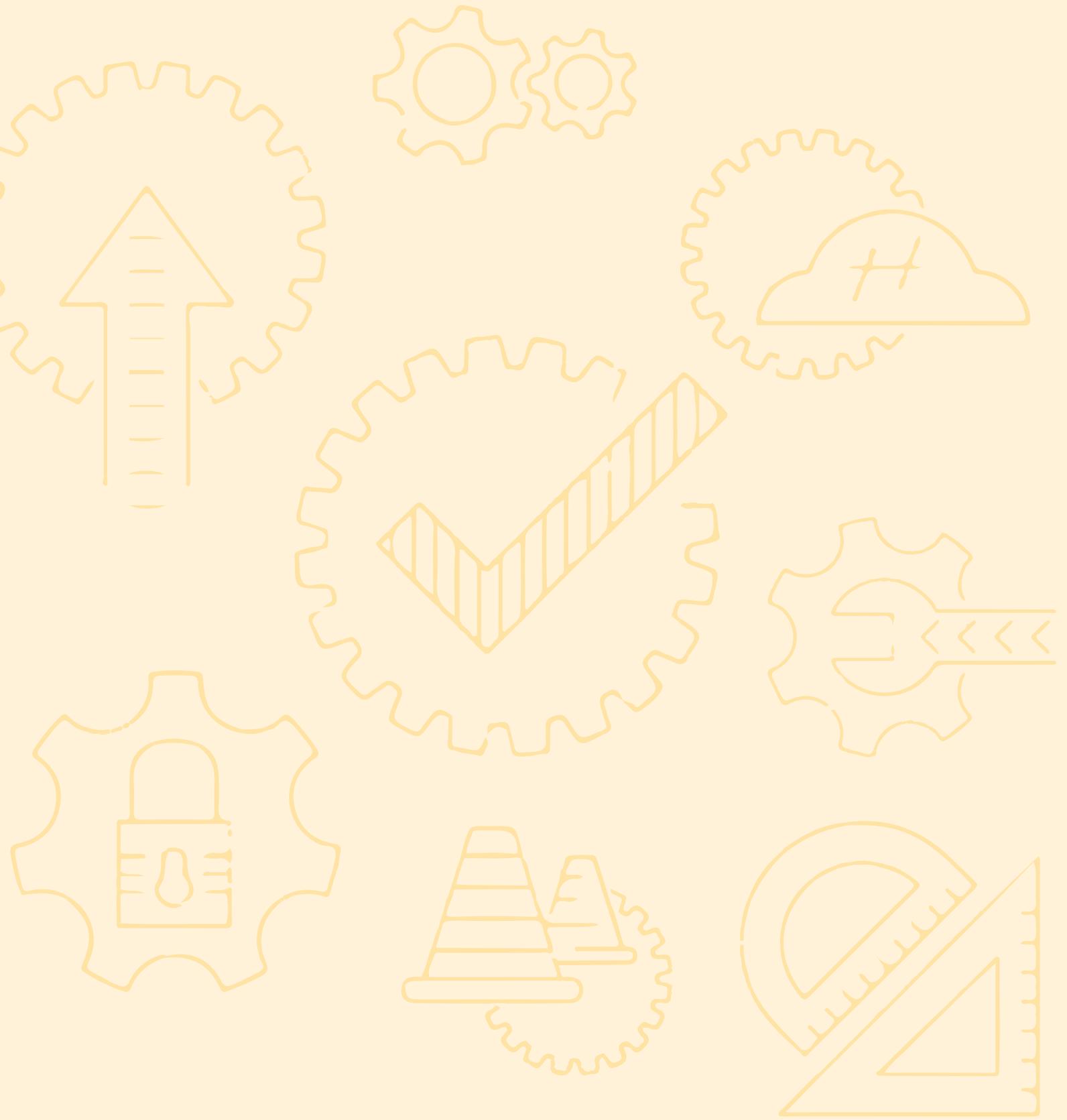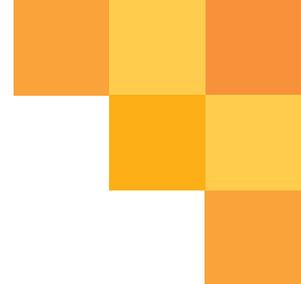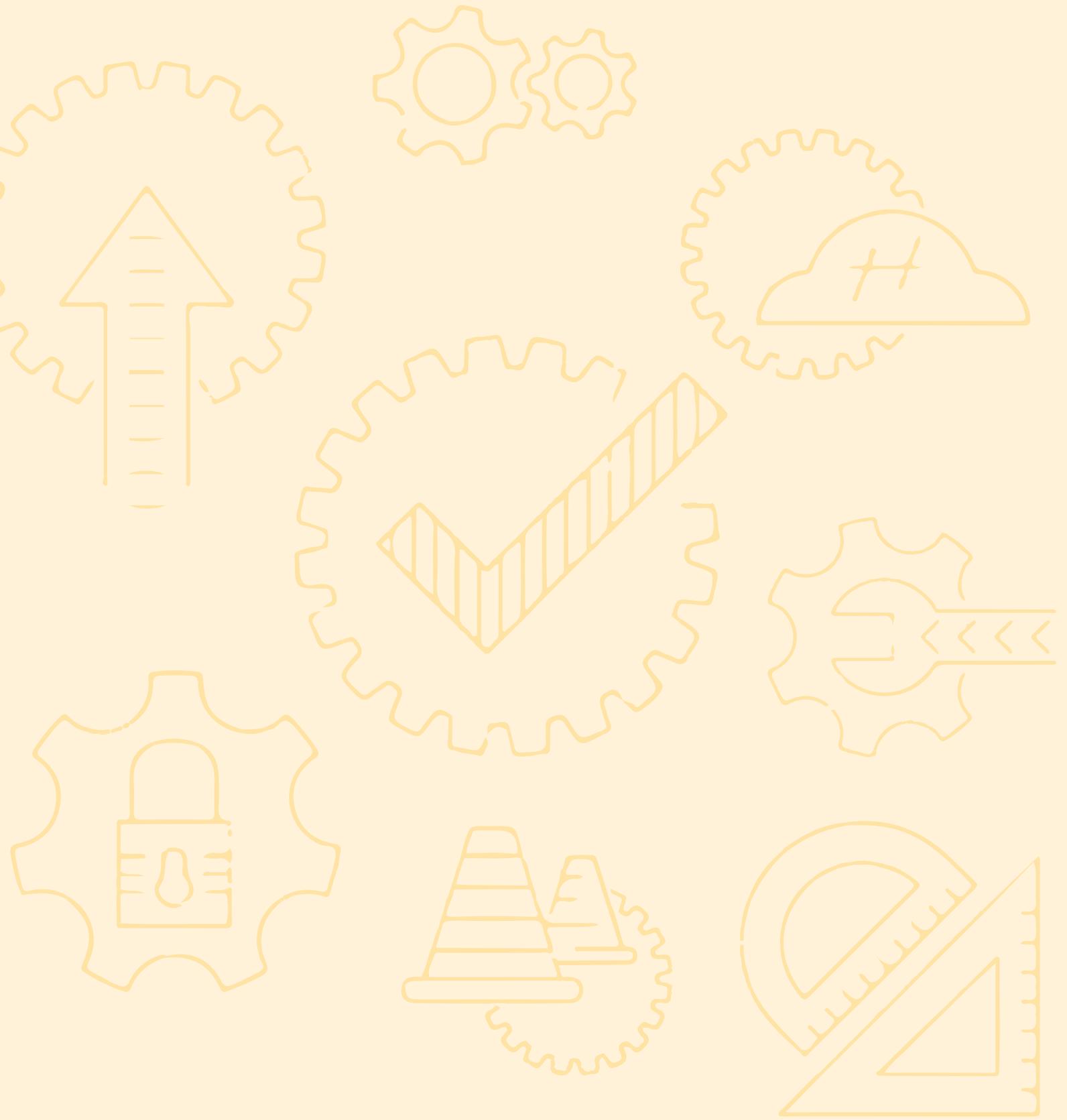
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Abbreviations

AMRUT	Atal Mission for Rejuvenation and Urban Transformation
AQI	Air Quality Index
ASHA	Accredited Social Health Activist
AWC	Anganwadi Centre
AWW	Anganwadi Worker
BIS	Bureau of Indian Standards
BvLF	Bernard van Leer Foundation
CARA	Central Adoption Resource Authority
CBO	Community Based Organisation
CCI	Child Care Institutions
CFSC	Child Friendly Smart Cities
CPCB	Central Pollution Control Board
CSO	Civil Society Organisation
CWC	Child Welfare Committee
DTCP	Directorate of Town and Country Planning
ECD	Early Childhood Development
ECCE	Early Childhood Care & Education
I-CHILD	Indicators for Child friendly Local Development
HRIDAY	National Heritage Development and Augmentation Yojana
ICDS	Integrated Child Development Services
ICPS	Integrated Child Protection Scheme
IMR	Infant Mortality Rate
ITCN	Infant, Toddlers and Caregiver-Friendly Neighbourhood
IT	Information Technology
LOS	Level of Service
MoHA	Ministry of Home Affairs
MoHUA	Ministry of Housing and Urban Affairs
MoSPI	Ministry of Statistics and Programme Implementation
MoWCD	Ministry of Women and Child Development
NBC	National Building Code
NCRB	National Crime Records Bureau
NGO	Non-governmental Organization
NIUA	National Institute of Urban Affairs
NUIS	National Urban Information System
NMT	Non-Motorised Transportation
NSSO	National Sample Survey Organisation
PwD	Person with Disability
RTE	Right to Education
RWA	Resident Welfare Association
SLB	Service Level Benchmarks
SWM	Solid Waste Management
ULB	Urban Local Body
UDA	Urban Development Authority

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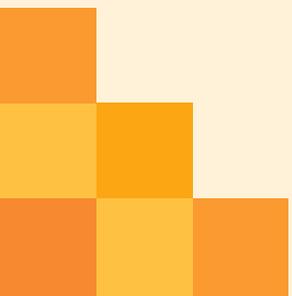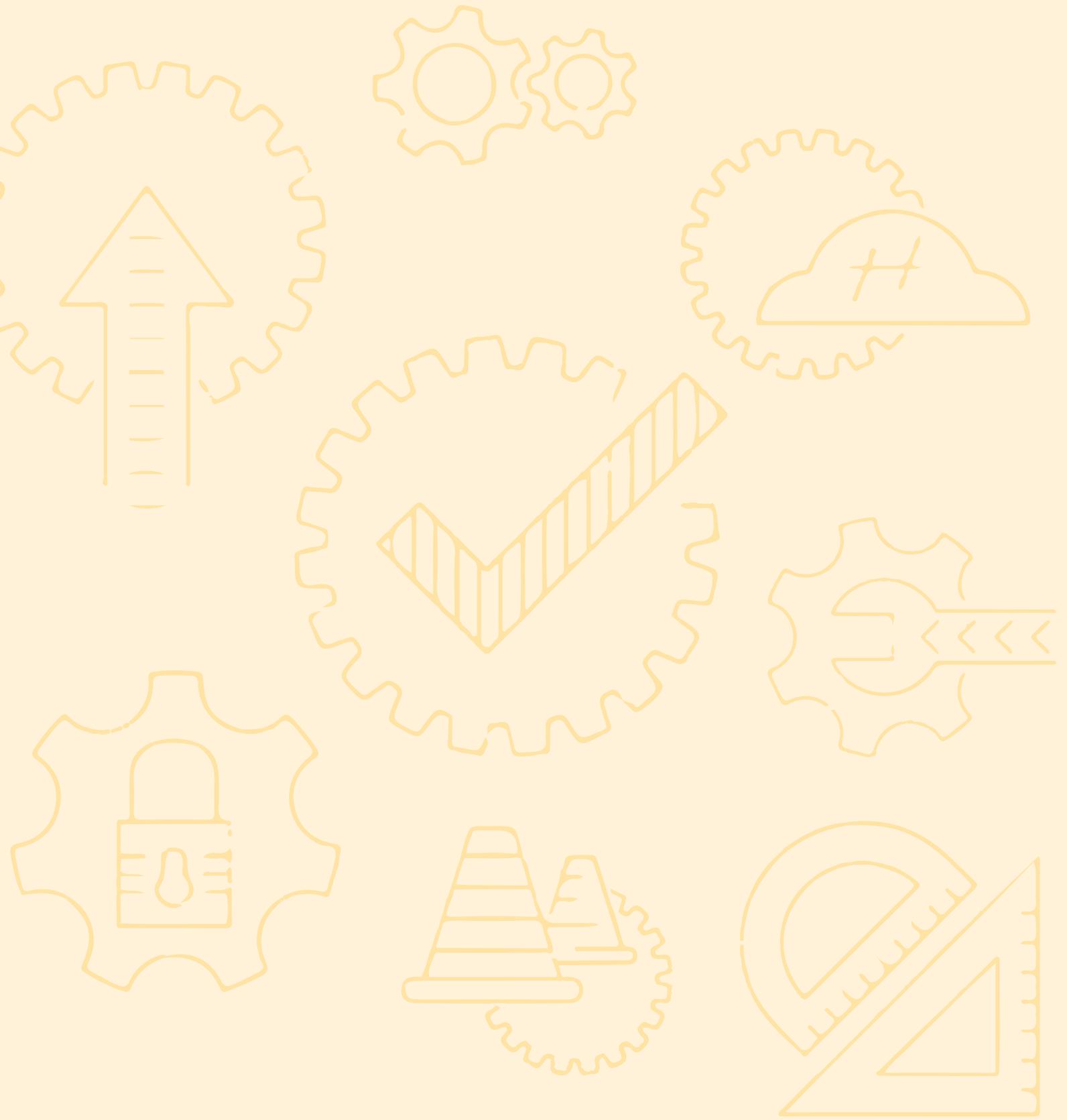
1. Introduction

1.1 Background

According to Census 2011[1], 31% of population (approximately 377 million) resides in urban India, of which young children under the age of 6 years form approximately 11% of the demographics (43 million). The ITC[2] demographic goes up further up to 34% (129 million), considering parents of the children as primary caregivers which makes them one of the most important stakeholders of the urban realm. However, in planning and creation of urban spaces, especially in case of infrastructure, the needs of this demographic are often overlooked, or not taken into account by cities.

As the population of cities soars high, availability of living as well as open space per person keeps dwindling. There seems to emerge a conflict of interest between provision of built form or the open spaces, and often construction of built form is being prioritised over development of open spaces, by the cities. There is a lack of land allocation for developed open spaces and recreation facilities for people. In such scenario, young children are being forced to the confinements of their homes. They do not get an opportunity to experience their city as the city does not accommodate their recreation and development.

The 'Data Baseline toolkit', developed by NIUA under the ITCN Capacity Building Programme, emphasises the importance of creating a city which is welcoming for young children. The efforts to develop an Infant, Toddler and their Caregivers (ITC)-friendly city include an evidence-based assessment of the existing facilities for young children. The toolkit supports municipal governments to develop ITC-focused database and good practices for informed planning decision to develop green environment, safe walking spaces, and inclusive open spaces and built environment, incorporating child safety norms. The increased focus on promoting ITC-friendly cities is catalysed by several research findings which show that early childhood development is the most vital period for physical and cognitive development of individuals. Disaggregated ITC-related data help plan cities which enhance their experience of neighbourhoods and cities. The Data Baseline Toolkit provides an exhaustive list of indicators, relating to various facets of ITC-friendly neighbourhoods and cities, and explains the relevance of each indicator, the methodology and the data source.

Data needs to be comprehensively visualized and analysed for better understanding of ITC-related issues by the diverse group of city stakeholders. Data dashboards in the public domain have emerged as an effective tool to bring various stakeholders on a common platform and help the city understand development needs of various population segments, identify gaps in infrastructure & social facilities, assess progress in meeting the aspirations of the people and promote learning in a transparent and accountable manner. Dashboard can help set policy priorities, monitor progress, encourage collaboration, inform decisions, increase accountability,

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1   (Office of the Registrar General & Census Commissioner, India, 2011)
2   Infant, Toddler, Caregiver (ITC): Infants, Toddlers and Caregivers or 'ITCs' is a grouping of persons in various age groups and gender. The term refers to a grouping of at least two people, the youngest of whom is under six years old.

and strengthen the voices of marginalised city population. A data dashboard is a tool for collating and sharing data in an accessible format. It may combine maps, live-feeds, heat graphs, stories, alerts and word clouds to provide further context. Reliable and accurate data are fundamental to targeting resources effectively and facilitating collaboration. In the case of ITC-focused initiatives, cities can benefit greatly from bringing the data together in one place, aggregating the neighbourhood-level data on young children and their caregivers at city-level and making it available to various city stakeholders including the state departments and city agencies.

The Toolkit aids city stakeholders to align, design, plan and implement programmes to enhance well-being of young children and their caregivers. The aim is to integrate relevant data which could act as a reference guide for urban local bodies to make decisions at the city level. For the ITCN city dashboard, parameters for categorizing identified ITC indicators include built environment, socio-economic variables, safety, governance and planning trends and patterns accordingly[3]. The toolkit guides city to develop new ITC centric dashboard, as well as accommodate ITC data in existing city dashboards.

1.2 Toolkit for creating a Dashboard for ITC centric City

ITCs are a dynamic group in the overall demographics of Indian cities, with constantly changing composition and development needs. Regularly updated data, at short intervals, are required by the state departments and city agencies to respond to their development needs. The data will help agencies to better design their investments, and monitor progress and impacts for real change on ground. It is important to adopt a holistic approach for promoting ITC-friendly neighbourhoods at citywide scale by taking cognizance of the responsibilities mandated to various state departments and city agencies. According to Article 15 of Indian Constitution, NECCE policy 2013 and 74th CAA, Service providers are mandated to provide urban infrastructure and services for every citizen. Integration of ITC considerations into urban planning and investment processes requires a strong database on the ITC and its integration into the larger city database. The ITC database should include indicators on relevant thematic issues at neighbourhood level.

The ITC related indicators along with their relevance, methodology and data source are presented in the ITC Data Baseline Toolkit. As a complementary tool, the ITC Data Dashboard toolkit is designed to help cities to develop this tool for data analysis and data visualisation for a shared situational analysis, diagnostics and investment priorities amongst various city stakeholders to promote ITC-friendly neighbourhoods. Co-relating ITC specific indicators from the city level data baseline toolkit and the importance of data dashboards in city-wide governance and effective planning for young children and family friendly policies and programmes; the toolkit propagates the necessity for bringing data together for urban local bodies and municipalities, for the creation of ITC specific design and interface.

The objective of the toolkit is to provide an accessible platform for the stakeholders to have better understanding of their city in terms of ITC related services available, by collecting data based on ITC related indicators identified in the baseline toolkit data, for the city level interface. Open assessment can pave the way for reviewing ITC centric city dashboard as an effective measurement of various thematic areas related to young children and caregivers at the city level. A general lack of digitalized data in ULBs for evidence-based governance can be catered by feeding the data on dashboard. Dashboard is necessary for cities to create benchmarks, set investment priorities for ITC and to monitor the progress in achieving the envisioned outcomes by the urban local body level. The ITC Dashboard may be part of similar initiatives at city level such as the Amplifi 100 smart cities[4] and the ITC components merged into relevant components of a wider city database.

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3   ITC Thematic Areas identified in Toolkit for Data Baseline
4   https://amplifi.mohua.gov.in/#ex9

1.3 Understanding and Monitoring Early Childhood Development[5]

The early years of childhood are a key developmental period for individuals. Early experiences become biologically embedded, and shape physiological pathways which have lifelong protective or detrimental effects on health, well-being, learning, behaviour, future employment and earnings. Experts in early childhood development highlight risk factors, such as unavailability of good social and physical infrastructure, as barriers in a young child's development.

An inclusive city should cater to the needs of all inhabitants, balance the resources equitably across various population segments and plan for ease of living to foster development for all. This requires a robust participatory planning process, engaging all segments of city population. The vulnerable groups such as ITC often do not have effective representation and voice in city planning and decision making process. The specific development needs of a young child and the caregiver may not be addressed under the generic city planning norms. Young children need a nurturing environment, incorporating their special requirements in public spaces. Investing in the overall development of young children such as social/emotional, language/communication, physical/movement and cognitive development of young children and assisting them with the necessary facilities will always reflect back through their participation in India's future economic and cultural growth. This might prove to be the finest investment for a long-term future and help build a new national discourse.

A neighbourhood is the closest unit block where a young child spends maximum time experiencing the outer world. Consequently, neighbourhood offers the greatest prospect of developing an environment conducive to early childhood development. However, in the planning and creation of urban spaces, the needs of this demography are often overlooked and not taken into account by cities. Since the ITCs are a dynamic age group, the related data should be collected at least on an annual basis for real time situation analysis. Integration of ITC into urban planning practices is the need of the hour. To avoid overlapping with existing data dashboards, it is suggested that ITC components be integrated as a sub-component into them.

1.4 Urbanisation: Challenges and Opportunities
(Existing Systematic Issues of Data Dashboards)

India's urban population is predicted to reach 600 million by 2030, accounting for 40% of the country's total population[6]. Cities offer an opportunity for economic growth along with industrialisation. Urban India has become the fulcrum of India's growth, with 70 percent of national GDP predicted to come from urban regions due to the concentration of trade and commerce, knowledge-based businesses, and a massive informal sector[7]. India has around 7,840 urban local bodies (ULB) including municipal corporations, municipalities, Nagar panchayat. India's economy is boosting at a fast pace. In such a scenario, the role of cities become important, being the economic drivers for the country.

Data-driven governance is creating positive ripples throughout planning departments. Cities have been acknowledging the importance of data in accomplishing city goals and priorities, and looking for innovative methods to facilitate data-driven governance and policymaking at the local level. Inter-agency cooperation, private-sector collaborations, and public involvement may all benefit from reliable data. Cities may utilise data to capture the gaps of any system in a more visible and fast manner. There are ways to enforce regulations and enhance social services through data management. Hence, data is increasingly being used as the cornerstone for good governance, allowing city stakeholders to navigate through accessible data. Dashboards can be a very effective urban informatics tool.

However, the ULBs are not presently equipped to adopt the emerging technological advances in data-driven planning. There also exists a huge gap in exchange of data between different departments. If and when

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5   Early Childhood Development (ECD): Early childhood refers to the formative stage of first six years of life, with well-marked sub-stages (conception to birth; birth to three years and three to six years) having age-specific needs. The NECCE Policy, 2013 specifies care, health, nutrition, play and early learning within a protective and enabling environment as the key elements for early childhood development.

6   Franco, Sainu, Venkata Ravibabu Mandla, and K. Ram Mohan Rao. «Urbanization, energy consumption and emissions in the Indian Context A review.» Renewable and Sustainable Energy Reviews 71 (2017): 898-907.

7   Mohanty, Prasanna K. Cities and public policy: an urban agenda for India. SAGE Publications India, 2014.

the data are made available, often it's captured in a disaggregated manner that is difficult to be utilised for comparative analysis. Currently there is no mechanism to ensure inter-departmental coordination at the local body level. Data dashboards can be used to feed and deliver data in a readable, engaging, transparent, analysable format. Such readily available data will cater to the existing gap between different departments and hierarchies of governance. Dashboards are the media for data aggregation for policy formulation, planning, designing investment programmes and monitoring and evaluation. They also enable cities to assess the impact of the various urban interventions. The Smart Cities, AMRUT, SBM Dash boards are good examples. In February 2019, the Smart Cities Mission gave a glimpse of how data could help address urban issues and challenges. Cities were also encouraged to improve their data infrastructure. Pune Municipal Corporation, for example, has ensured the success of forecasting data by re-imagining the way data can be easily accessed. Technology is now increasingly being viewed as a tool for achieving the desired results, such as improved quality of life, economic viability and long-term sustainability. But there is the need to ensure public engagement in the design and execution of technological initiatives. As a result, there is a greater need now to talk, debate, and consider how cities should develop, plan, and implement technological initiatives.

The dashboard is an empowering tool for public, giving them open access to information on city services. In addition, data visualization through dashboards is quicker to grasp and comprehensible to the audience. It provides a common interface for the public and the government officials. The dashboard is a mechanism for community engagement but when deployed well it is an important aspect to enable cities achieving and reaching their stated goals and ensure accountability and transparency. City dashboards[8], especially instances such as municipal performance indicators, depict how display of information, performance, structure, ranking and trends of cities provide a holistic view and help in evidence-based decisions on provisions that address problem areas for transformation. The dashboard offers progression and real time information on the historical trends and help users to reflect on the future action. The dashboards' utility extends beyond monitoring the current situation and facilitate evidence-based planning and actions. Data visualizations serves the purpose of redirecting any failing trends and projecting current situation that allows to make provisions. Data could be used to help government take conscious decisions to help achieve policy objectives. The end-goal is to help urban local bodies, public sector organisations and governing bodies to formulate impact-oriented programmes and decisions. Figure 1 details out the necessity of creating an ITC centric dashboard.

The dashboard is a data driven decision support system to help collect, analyse and disseminate data by the cities for bringing in interventions to improve efficient management of urban areas. It helps anticipate city problems by spatial mapping, and understanding the scale of problem as well. City score cards or parameter management systems, such as maintained by Open Data Portal under National Urban Digital Mission gives an insight into how cities have looked at incentivising and monitoring key indicators to promote equitable, inclusive and sustainable cities. Data feeding, compilation, visualization and analysis will happen on the common platform for comparative analysis in different departments.

Dashboard will help in achieving following objectives -

- To facilitate cities enabling data driven decision making for more effective and efficient governance and have comparative analysis over regular period of time.
- To understand how cities are creating a nurturing and thriving environment for young children adapting evidence based decision-making.
- To Encourage data-based policies and programmes.
- To understand how can policy reforms, guidelines and recommendations be attributed to the data practices at the city level.

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8   https://eol.smartcities.gov.in/dashboard

Figure 1: Why creation of data dashboards is necessary for ITCs
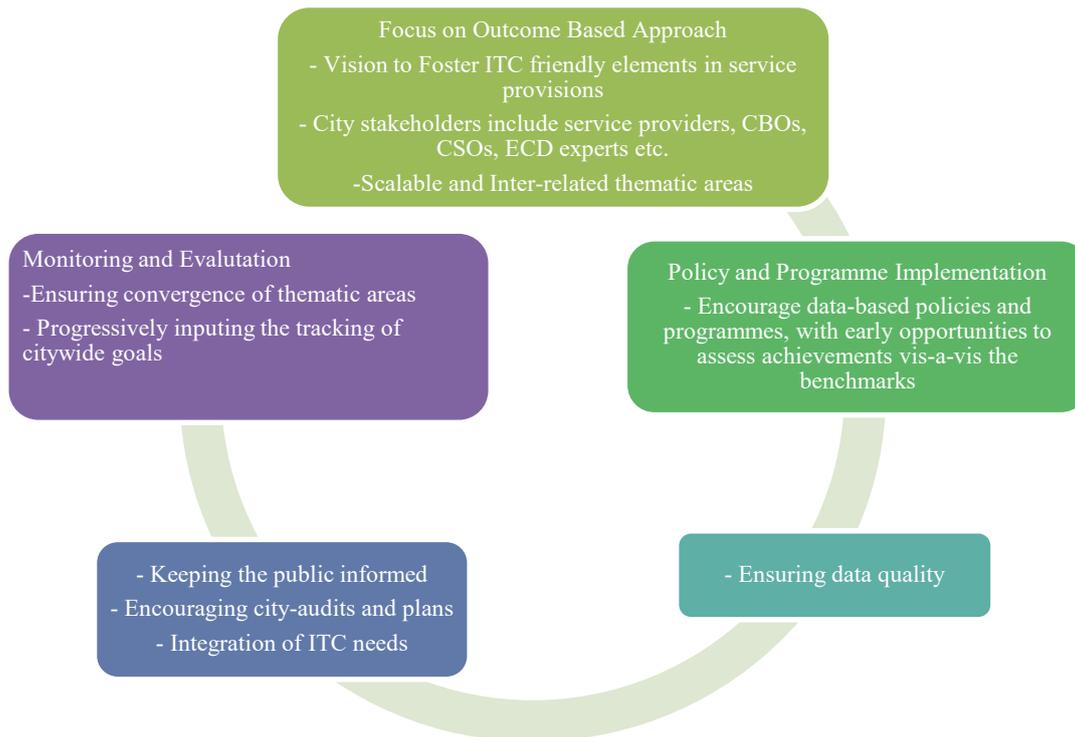
1.5 Connecting the Baseline Toolkit to the Dashboard Toolkit

City is a critical play and learning source for children, providing constant opportunity to realise the potential of playful learning experiences. The city scape invites and nurtures children's innate curiosity during play, whilst providing the necessary interactions for children. Developing the relational skills at early years of their lives, children learn to be adaptable, sustainable and flourishing. This doesn't solely shape their childhood but the entire trajectory of their lives. The Data Baseline Toolkit for young children in cities, developed by NIUA under its ITCN Capacity Building Programme, presents various parameters related to early childhood development, along with the related indicators for rapid and in-depth assessment situation analysis by service providers and ULB officials. The Toolkit provides an exhaustive list of ITC indicators and related data sources (Table 1). The baseline toolkit assists city stakeholders in translating actions into targeted outcomes for young children and caregivers. It also explains the importance of data based decision making in transforming city spaces through advanced planning and governance. This ascends the need of systematic data collection and aggregation on a common platform. Hence, a dashboard is the next necessary step. Dashboard creation would facilitate 'data pooling and data harmonisation' and provide various city stakeholders including state departments and local agencies, CSOs, amongst others to city database. ITC data dashboard will help in analysis for framing mechanisms, outlining strategies, policy decisions, and creating plans that would respond to the needs of the ITCs. ITC data board would help in identification of the location and scope of intervention.

Table 1: Rapid Assessment Indicators for Dashboard development (These indicators are based on baseline toolkit study)

#	Indicator	Value	Response	Benchmark	Beneficiary	Source	Type of Data Source	Expected output from the indicator
Socio – Economic Indicators								
1	Pregnant women- Number of pregnant women in the city	Number	Multiply the birth rate[9] (per 1000 population) of urban area with the population of the city and then divide it by 1000 (A) Correction factor: 10 % of (A) considering the abortions[10] and stillbirths[11] (B) Estimated pregnancy in a year (C): A +B	NA	ITC	Birth Rate: Sample Registration System (SRS) Bulletin, office of the Registrar General, India Population of city: Municipal Town Planning Department, Census tables Government of India (Please browse table C-10, select the state to get the required information).	Secondary	To estimate the pregnant women in the city – relevant for provision of ITC services and facilities
2	Young children: City's Population in 0-6 years age group	%	Numerator: Difference between Sum total of No. of Births Registered in the past 6 Years and Sum Total of No. of deaths of children below the age of 6 years registered in the past six years Denominator : Population of City in the current year (Estimate or Census)	NA	ITC	Numerator : Municipal Public Health Department National Portal of India Integrated Child Development Services (ICDS) Denominator: Municipal Town Planning Department, Census tables Government of India (Please browse table C-10, select the state to get the required information)	Secondary	To estimate the ITC constituency in the city – relevant for provision of ITC services and facilities

Toolkit to Create an ITC- Centric City Level Dashboard

#	Indicator	Value	Response	Benchmark	Beneficiary	Source	Type of Data Source	Expected output from the indicator
3	Infants and Toddlers: City's Population in the age group 0-3 years[12]	%	Numerator: Difference between Sum total of No. of Births Registered in the past 3 Years and Sum Total of No. of deaths of children below the age of 3 years registered in the past 3 years Denominator : Population of City in the current year (Estimate or Census)	NA	ITC	Numerator : Municipal Public Health Department National Portal of India Integrated Child Development Services (ICDS) Denominator: Municipal Town Planning Department, Census tables Government of India (Please browse table C-10, select the state to get the required information)	Secondary	To estimate the infants and toddlers constituency in the city – relevant for provision of services and facilities for infants and toddlers
4	Young Children Sex ratio (females/ 1,000 males)	Ratio	Numerator: Number of female child births in the last 6 years Denominator: Number of male child births in the last 6 years multiplied by 1000	1000	ITC	Municipal Public Health Department, National Portal of India, Integrated Child Development Services (ICDS) Census tables Government of India. (Please browse table C-10, select the state to get the required information). Website of Municipal Corporation/Municipal Council/ other urban local bodies	Secondary	To provide gender responsive ITC facilities and services
5	Concentration of Young children in Slums: Percentage of children in 0-6 years age group living in slums[13] in the city	%	Numerator: Number of children in 0-6 years age living in slums of city multiplied by 100 Denominator: Total number of children in 0-6 years age in the city	NA	ITC	Numerator: Department of Town Planning, Planning Department, Municipal Corporation, Census tables Government of India (Please browse slums from table to get the required information), District Census Handbook Denominator: Please refer to serial # 2 of this table for required information.	Secondary	To assess the young children living in vulnerable conditions – relevant to designing ITC-related services which can be adopted in informal settlements

12 Birth to 3 years of age

13 All types of slums in the city, as defined by the Census of India.

#	Indicator	Value	Response	Benchmark	Beneficiary	Source	Type of Data Source	Expected output from the indicator
6	Young Children with Disabilities: Percentage of young children with disabilities by types of Disabilities[14] (based on certificates)	%	Numerator: Number of children in 0-6 years age with disabilities multiplied by 100. Denominator: Total number of children in 0-6 years age in the city	NA	ITC	Numerator : Department of Social Justice or equivalent, Municipal Corporation/ Municipal Council/other urban local bodies Census tables Government of India (Please browse table series 'disability' to get the information), Education Department, Official Website of Samagra Shiksha[15], Integrated Child Development Services (ICDS) Denominator: Please refer to serial # 2 of this table.	Secondary	To understand the varying development needs of ITC – relevant to the design of facilities for young children
7	Gender Distribution of Young Children with disabilities: Percentage of female young children with various forms of disabilities (based on certificates)	%	Numerator: Number of female children in 0-6 years age with disabilities multiplied by 100. Denominator: Total number of children with disabilities in 0-6 years age in the city	NA	ITC	Department of Social Justice or equivalent, Municipal Corporation/Municipal Council/ other urban local bodies Census tables Government of India, (Please browse table series 'disability' to get the information) Education Department, Official Website of Samagra Shiksha[16], Integrated Child Development Services (ICDS)	Secondary	To understand the varying development needs of ITC by gender – relevant to the design of facilities for young children

14 Refer https://www.swavlambancard.gov.in/cms/about-persons-with-disability : locomotor disability; visual impairment; hearing impairment; chronic neurological conditions; persons affected with blood related disorders; developmental disorders; mental illness; and multiple disabilities;

15 https://ssa.uk.gov.in/pages/display/95-disabled-children

16 https://ssa.uk.gov.in/pages/display/95-disabled-children

#	Indicator	Value	Response	Benchmark	Beneficiary	Source	Type of Data Source	Expected output from the indicator
8	Gender Distribution of Young Children with disabilities: Percentage of male young children with various forms of disabilities (based on certificates)	%	Numerator: Number of male children in 0-6 years age with disabilities multiplied by 100. Denominator: Total number of children with disabilities in 0-6 years age in the city	NA	ITC	Department of Social Justice or equivalent, Municipal Corporation/Municipal Council/ other urban local bodies Census tables Government of India (Please browse table series 'disability' to get the information), Education Department, Official Website of Samagra Shiksha[17], Integrated Child Development Services (ICDS)	Secondary	To understand the varying development needs of ITC by gender – relevant to the design of facilities for young children
9	Orphan Young Children: Registered orphan young children as percentage young children in the age group 0-6 years	%	Numerator: Number of registered orphans under the age of 0-6 years in the city Denominator: Total number children under 0-6 years age in the city	NA	ITC	Numerator: Central Adoption Resource Authority, State Adoption Resource Agency, District Police, District Child Protection Unit, Department of Women and Child Development Denominator: Please refer to serial # 2 of this table.	Secondary	To understand the varying development needs of ITC – relevant to planning the capacity of orphanages and related social facilities
10	Orphan young children with disabilities: Percentage of orphan young children with disabilities	%	Numerator: Number of orphan children in the age group 0-6 with disabilities Denominator: Number of orphan children in the age group 0-6 years in the city	NA	ITC	Central Adoption Resource Authority, State Adoption Resource Agency, Department of Women and Child Development, District Police, Department of Public Health, Municipal Corporation/ Municipal Council/other urban local bodies, Census tables Government of India (Please browse disability from table series to get the data).	Secondary	To understand the varying development needs of ITC – relevant to the design of orphanages and related social facilities

17 *https://ssa.uk.gov.in/pages/display/95-disabled-children*

#	Indicator	Value	Response	Benchmark	Beneficiary	Source	Type of Data Source	Expected output from the indicator
11	Homeless People: homeless population as percentage of city's population	%	Numerator: Number of homeless people in the city Denominator: Total population of the city	NA	ITC	Numerator: Department of Town Planning, Department of Poverty Alleviation; Municipal Corporation/ Municipal Council/other urban local bodies Urban Development Department Denominator: Please refer to serial # 2 of this table for city population.	Secondary	To understand the varying development needs of ITC – relevant to planning the capacity and design of night shelters and related social facilities
12	People in Untenable Slums: percentage of city's population living in untenable slums	%	Numerator: Number of people living in untenable slums Denominator: Total population of the city	NA	ITC	Numerator: Department of Town Planning, Department of Poverty Alleviation; Municipal Corporation/ Municipal Council/other urban local bodies, Slum Free City Plan of Action developed under Rajiv Awas Yojana, City Level Surveys, Slum Improvement Board[18] Denominator: Please refer to serial # 2 of this table for city population.	Secondary	To understand the varying development needs of ITC – relevant to planning, implementing rehabilitation and redevelopment of slums
13	Slum Concentration: percentage of city's population living in slums	%	Numerator: Number of people living in slums Denominator: Total population of the city	NA	ITC	Numerator: Department of Town Planning, Municipal Corporation/Municipal Council/ other urban local bodies, District Census Handbook Census table, Goverment of India (Please browse slum from table series to get the required data), PCA slum primary census abstract data PCA SLUM: Primary census abstract data for slum, India & States/UTs - Town Level - 2011 Denominator: Please refer to serial # 2 of this table for city population.	Secondary	To understand the varying development needs of ITC – relevant to planning, implementing rehabilitation and redevelopment of slums

18   e.g. Delhi Urban Shelter Improvement Board

#	Indicator	Value	Response	Benchmark	Beneficiary	Source	Type of Data Source	Expected output from the indicator
14	Pre-school Enrolment: Percentage of children in the age group 2-6 years registered through the last year enrolments in Pre-schools, Pre-schools running in Primary Schools and Aanganwadis	%	Numerator: Sum of number of children registered in pre-schools, pre-schools running in primary schools, Aanganwadis in each neighbourhood/ locality multiplied by 100 Denominator: Number of children in the age group of 2-6 in city	100% according to (MoWCD, GoI, 2013)	TC (Toddlers and Caregivers)	Municipal Corporation (Education Department), Department of Education (State Government), Integrated Child Development Services (ICDS)	Secondary	To estimate the unmet demand/need for pre-school education at the city level and spatial distribution of preschools.
Built-Environment Indicators								
15	Childcare Facilities: Availability of crèches (government, NGO supported and private) for young children (0-6 years) in the city	Yes/No If yes, then: Map	Map of crèches in the city	As per the guidelines related to Rajiv Gandhi National Creche Scheme for the children of working mother	ITC	List of Crèches Available - ULB-Public Health Department, Town Planning Department(GIS Map if available), Municipal corporation	Secondary	To assess the spatial distribution of caregiving infrastructure in the city and identify deficient areas where infrastructure needs to be augmented.
16	Health Care Facilities: Availability of health care facilities[19] (public and private) for young children in the age group 0-6 years and their caregivers	Yes/No If yes, then: Map	Map of dispensaries, AWCs, paediatric, UPHC and Unani centers Nursing home, child welfare and maternity centres, Family Welfare Centres in the city	Table 8.4.3, (URDPFI Guidelines, 2014, p. 360)	ITC	Health Department, Municipal Corporation, Health and Family Welfare Department	Secondary	To assess the spatial distribution of health infrastructure in the city and identify the deficient areas where health infra needs to be augmented

19 (URDPFI Guidelines, 2014, p. 360): Nursing home, child welfare and maternity centre; Dispensary, AWCs, Family Welfare Centre

#	Indicator	Value	Response	Benchmark	Beneficiary	Source	Type of Data Source	Expected output from the indicator
17	Early Childhood Educational Facilities: Availability of Early Childhood educational facilities (public and private) for young children in the age group 3-6 years in the city	Yes/No If yes, then: Map	Map of Aanganwadis, nursery, pre-schools and pre-schools running in primary schools in the city	Table 8.48, 8.51, (URDPFI Guidelines, 2014, pp. 361, 362)	ITC	Municipal Corporation (Education Department), Department of Education (State Government), Municipal Corporation / Municipal Council / Other Urban Local Bodies, Department of Women and Child Development, District Website, District at a glance book[20]	Secondary	To assess the spatial distribution of educational infrastructure in the city and identify the deficient areas where educational infrastructural needs to be augmented
18	Child Care Institutions: Availability of Child Care Institutions (Refer Page 6, pt. 11) in the Toolkit	Yes/No If yes, then: Map	Map of Child Care Institutions in the city	Table 8.48, 8.51, (URDPFI Guidelines, 2014, pp. 361, 362)	ITC	Central Adoption Resource Authority (CARA), State Adoption Resource Agency, Department of Women and Child Development	Secondary	To assess the availability of child care institutions in the city and to take necessary action to fill the gaps, if any.
19	Parks and playgrounds: Availability of public parks in the city, as per the planning norms, that have facilities[21] for young children in the age group 0-6 years and their caregivers	Yes/No Map		Table 8.54, (URDPFI Guidelines, 2014, p. 363); (PART 3 Development Control Rules and General Building Reuirements - National Building Code, 2005, p. 61)	ITC	Municipal Engineering Department, Horticulture Department, Town Planning Department, Development Authority	secondary	To assess the availability and access to play spaces for children and setting understanding and real use capacity of these play facilities.

#	Indicator	Value	Response	Benchmark	Beneficiary	Source	Type of Data Source	Expected output from the indicator
20	Access to Piped Water: Percentage of wards in the city having 100% coverage of piped water supply	%	Numerator: No. of wards having 100% coverage of piped water supply Denominator: Total number of wards in the city	100%, SBM, AMRUT Guidelines	ITC	Municipal Engineering Department, Jal Jeevan Mission, Water Supply Department	Secondary	To assess the access to basic services for city population
21	Access to Safe Sanitation Facility: Percentage of city population with access to safe toilets	%	Numerator: Number of households having access to toilets in the city Denominator: Total number of households in the city	100%, SBM AMRUT guidelines	ITC	Municipal Engineering Department	Secondary	To assess the access to basic services for city population
22	Solid Waste Collection: Percentage of wards in the city having 100% coverage of door-to-door solid waste collection	%	Numerator: No. of wards with 100% coverage of door-to-door solid waste collection Denominator: Total number of wards in the city	SBM, AMRUT Guidelines	ITC	Municipal Health Department, Swachh Bharat Mission (SBM), City Sanitation Plan developed by Municipal Corporation	Secondary	To assess the access to basic services for city population
Safety Indicators								
23	NMT Penetration: Availability of closed street for NMT (temporary or permanent) in City with their Locations	Binary (Y/N)		(SLBs for Urban Transport, 2014)	ITC	Traffic Police Department	Secondary	To assess the safe access to city spaces
24	Safety of Young Children: Percentage of wards in the city with Crime Rate against children greater than the City Crime Rate	%	Numerator: No. of wards with crime rate against children higher than the average city crime rate Denominator: Total number of wards in the city	NA	ITC	Numerator: Neighbourhood Police Station / Stations in the concerned Ward, City Police Headquarters Denominator: Municipal Corporation / Municipal Council / Other Urban Local Bodies	Secondary	To identify areas which require additional safety interventions for children

#	Indicator	Value	Response	Benchmark	Beneficiary	Source	Type of Data Source	Expected output from the indicator
25	Safety of Women: Percentage of city wards with Crime Rate against women greater than the average City Crime Rate	%	Numerator: No. of wards with crime rate against women higher than the average city crime rate. Denominator: Total number of wards in the city	NA	ITC	Neighbourhood Police Station / Police stations in the concerned Ward, City Police headquarters, National Crime Records Bureau (NCRB) (Please go to publication section to access the data)	Secondary	To identify areas which require additional safety interventions for caregivers
26	Footpaths: Percentage of road length having footpaths in the city	%	Numerator: Road length with footpaths. Denominator: Total road length	NA	ITC	Public Works Department , Road and Traffic Department, Municipal Corporation / Municipal Council / Other Urban Local Bodies	Secondary	To assess safe access to city spaces
27	Traffic Junctions: Percentage of intersections around schools which have traffic signals	%	Numerator: Number of junctions around school which have traffic signal. Denominator: Total number of junctions around school	NA	ITC	Town & Country Planning Department/ Traffic Department, Engineering Department, Municipal Corporation / Municipal Council / Other Urban Local Bodies	Secondary	To identify areas around pre-primary, primary schools having pre-primary wing, and Anganwadi centres which have traffic signals
28	Percentage of parks covered with street lights	Binary (Y/N)	Numerator: No. of parks covered with street lights. Denominator: No. of parks in the city	NA	ITC	Municipal Corporation / Municipal Council / Other Urban Local Bodies	Secondary	To identify if the areas are navigable during night time
	Governance and Planning Indicators							
29	ITC-focussed data collection in City Development Plan: Does the city master plan/ development plan/ local area plan focus on collecting ITC-related data	Binary (Y/N)		NA	ITC	District Town and Country Planning Office, Municipal Town Planning Department, Municipal Commissioner Office, Development Authority	Secondary	To assess the city's sensitization towards the ITC needs
30	Planning tools: Does the ULB have a digitized GIS-based map of the city planning area?	Binary (Y/N)		NA	ITC	District Town and Country Planning Office, Municipal Town Planning Department	Secondary	To assess the city's ability to adopt GIS-based tools for multi-stakeholder consultations and plan revisions

#	Indicator	Value	Response	Benchmark	Beneficiary	Source	Type of Data Source	Expected output from the indicator
31	City Vision: Does the city have vision documents addressing early childhood development issues in the city? (smart city vision[22] in smart city proposal)	Binary (Y/N)		NA	ITC	Smart City SPV[23], Municipal Commissioner Office	Secondary	To assess the city's preparedness to identify areas of immediate concern and to assess the prioritization of ECD issues in the city's long-term vision and for advocacy on the need to focus on ITCN to achieve its stated vision
32	Institutional Stakeholders Consultation Process: Does the city have a mechanism for engaging with caregivers of young children amongst key stakeholders in preparing development plans and programmes? (Eg. Municipal Committees with representatives of CSOs)	Binary (Y/N)		NA	ITC	Municipal Commissioner Office, Women and Child Development Department and any other relevant Department	Secondary	To assess the city's ITCs' participation in the project cycle – planning, implementation of development programmes, and monitoring and evaluation

#	Indicator	Value	Response	Benchmark	Beneficiary	Source	Type of Data Source	Expected output from the indicator
33	ITC-related Infrastructure: Infrastructure projects undertaken specially for young children (0-6 years) and their caregivers as percentage of projects implemented by ULB, Smart City, AMRUT and other schemes[24] during the last 5 years	%	Numerator: Number of infrastructure projects for ITC in the last 5 years Denominator: Total number of infrastructure projects in the last 5 years	NA	ITC	Smart City SPV, Municipal Commissioner Office , Municipal Engineering Department, development Authority, and any other relevant Department	Secondary	To assess the infrastructure planned for ITC
34	Capacity Building on ECD: Does the city train the service providers on the importance of Early Childhood Development in urban planning?	Binary (Y/N)		NA	ITC	Municipal Commissioner Office , ICDS, Women and Child Development Department, development Authority, and any other relevant Department	Secondary	To assess the capacities of service providers for catering to ITC needs

24 Children Parks, Place Making, Beautification of walls, Paintings on public spaces, Interactive Streets, Shading of Streets, Seating infrastructure, Street Lighting, etc.

Photograph by: Priyanka Krishnan

2.
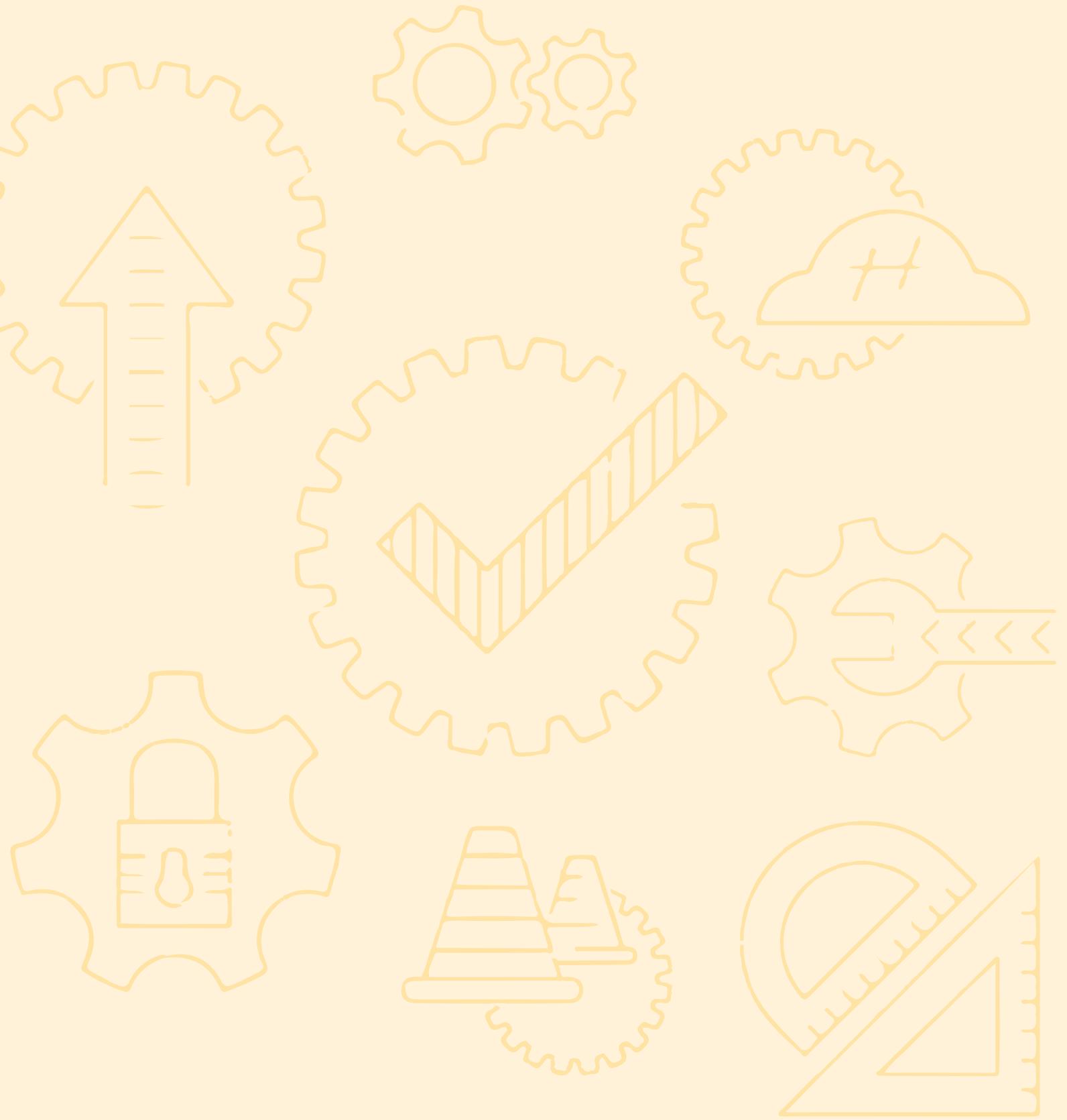
2. Benefits of Building a City Level Dashboard

City planning processes in India are slowly transitioning to a bottom-up approach. The efforts are to position people at the core and make planning citizen-centric. The participatory approach results in a better understanding of the needs of the communities and the roadblocks while planning investments, concurrent monitoring during the implementation phase, and user-led O&M lending sustenance to the initiative – a complete engagement and ownership by the community of the assists created. The city-level dashboard is an enabler of wider citizen participation, amongst various stakeholders, in the project cycle – from planning to implementation to O&M. Wide stakeholder participation also helps in developing the city database and its regular updating. City dashboard will enable collaboration amongst city stakeholders to create a nurturing eco-system for ITC friendly cities. The identification of specific areas of improvement through the indicators on the dashboard will enable cities to create replicable models. In addition, this will address the governance challenges from the ITC perspective as gaps in the existing governance system can be easily identified through comparative analysis of collected disaggregated data on a common platform.

2.1 City Wide Data Policy

Projects under Smart Cities Mission in India — a US$100 billion programme for techno-centric urban regeneration – demonstrate the data efficiency and technological advances in urban administration. The idea of smart cities promotes data-driven decision making while supporting emerging technologies in urban infrastructure using sensors, mobile phones, and satellites. This has resulted in institutional and policy systems for governing the data created through various mission initiatives.

The National Urban Innovation Stack, for instance, aims to provide a collection of protocols and technologies that may be used by both commercial and public institutions as information infrastructure. Mechanisms like the Urban Data Exchange, has verticals of data including government databases, detailed information obtained from reliable sources that may be accessed as per the context. Essentially, the Urban Data Exchange is intended to create markets for urban data, allowing private firms and urban stakeholders to innovate existing portal of civic services, such as grievance resolution, identity verification and authentication, payments and billing, or geographic mapping.

Other smart city initiatives, such the DataSmart City Strategy and associated model frameworks for City Data Policies, reflect back the same goals. They envision centralised information systems, such as municipal surveillance's Integrated Command and Control Centres. Executive authorities are in-charge of executing and managing governance mandates, such as what data should be made available, to whom, and in what format.

The mentioned platforms are working with data-related aspects to culminate diverse sectoral initiatives in city development, at one common platform. The need to have aggregated data on a common platform is felt highly in data- driven planning.

2.2 How Does City Dashboard Enable Informed and Improved Governance?

The ITC centric dashboard presents multiple benefits to cities in planning and implementing programmes for the young children, who form a significant proportion of the urban demographics. Built as an open public resource, the dashboard helps foster innovation and collaborations among various urban stakeholders including the communities, and helps to raise awareness about the multiple benefits and contribution of ITC-friendly neighbourhoods to India's urban transformation. Sociable cities, age friendly cities, Urban 95, Happiness Development Index and other such emerging urban aspirations are all indicators of a growing concern for ease of living in cities. 'Cities for people' concept has acquired acceptance globally. In India, cities are increasingly focusing on citizen-centric sectoral interventions. India is attempting to address the challenges of fast urbanisation at unprecedented scale through various urban missions such as Smart Cities Mission, AMRUT, HRIDAY, National Urban

Box 1: Dashboard benefits

The dashboard enables:

1. Monitoring, Tracking and Reviewing City Performances over time.
2. Forging partnerships, forming network and allocating resources for supporting city level interventions and programmes.
3. Regular progress update and addressing specific challenges, needs and requirements of communities.

Livelihood Mission, Pradhan Mantri Awas Yojana (Housing for All), and Swachh Bharat Mission. These missions collectively aim to aspire and strengthen cities in achieving, designing, planning and managing a vision. City dashboards help to foster active participation of stakeholders in the ecosystem over time and across geography, and helps incubate the cycle of demand and timely supply to ensure satisfaction across the ecosystem and an exponential growth in the numbers of beneficiaries.

ITC database at city level faces the challenges of inconsistent formats, missing data, data duplication, among others. The ITC baseline toolkit will help ULBs to address such challenges through collaborative efforts of various stakeholders. The City dashboard will facilitate the data aggregation through collaborative efforts. The ITC-centric dashboard would help monitor the progress in meeting the needs of the ITC, through intertemporal assessments. Such ITC-centric dashboards may be setup in the smart cities and learnings may be used to expand the initiative to Tier I, II and III cities. The dashboards will support the transition from output-based to outcome-related assessment of progress; and, performance measurement to performance management, by feeding into operational review and central decision-making processes. The performance level will highlight the importance of value judgements and investment decisions to ensure milestones are achieved and challenges are addressed. Dashboard would therefore be a dynamic tool, capable of integrating evolved benchmark over time. The dashboard could be used by the city stakeholders for periodic review of benchmarks, ITC indicators, data systems and priorities. The dashboard provides a consistent baseline against which outcomes are calculated. An annual review of the dashboard would align with data collection for periodic monitoring. The ITCN indicators would be comprehensive to touch upon different sectors playing a role in ITC friendly city.

As an international best practice, in Ontario, Canada, the Child Well-being Dashboard for the Waterloo region has been used to inform region-wide expansion plans for early childhood centres (Figure 2). The working group behind transformation plans are relying extensively on the dashboard, which displays results geographically by neighbourhood, on key child well-being indicators across the domains of fundamental needs, relationships, health and learning.   Another instance of data infrastructure implementation can be seen under 'Urban 95' mission in Greater Istanbul - it uses base maps to create legible data which enabled the creation of a legible dashboard. The static maps of greater Istanbul and each 39 district municipalities based on neighbourhoods were prepared and presented in January 2017. Since then, the Turkish Economic and Social Studies Foundation collected data on district municipalities' social services as attribute data aligned to the maps. The primary objective and motivation was to enable decision makers to better plan and target their communities with resources and services, such as parks, playgrounds, service centers and social

welfare initiatives. Such instances on targeted interventions for young children and families position data dashboards as an effective approach to addressing cross-sector challenges by increasing information flows between agencies and local partners for family friendly cities.

Figure 2: Best International Practices in Waterloo Region at the Neighbourhood level through mapping
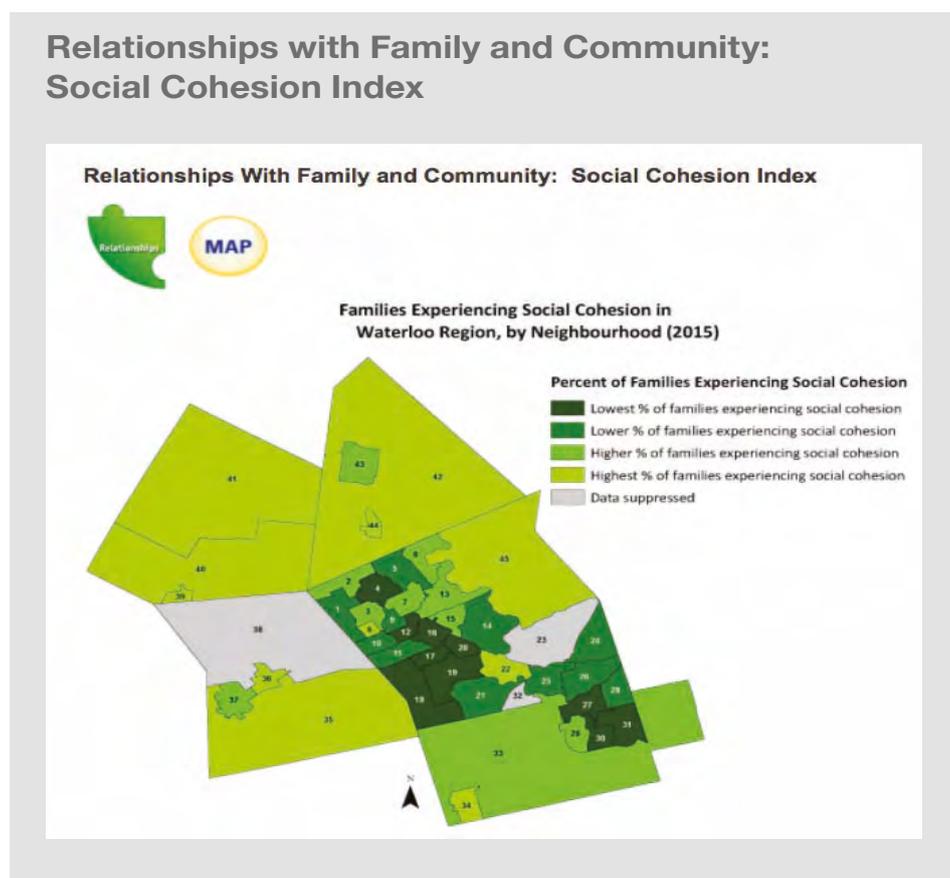
Source: ODI Dashboard for ITCN, BvLF

2.3 Intended Audience & Increasing Collaborations between City Stakeholders

The city dashboard should be designed by keeping in view the profile of the intended users and their interests in the dashboard. Many city dashboard creators assume that they know and understand who their users will be and what tasks they will want to perform using a dash-board without ever formally engaging with them. This process inevitably introduces a false consensus bias where the creators of city dashboard systems assume much more commonality between themselves and the users[25]. In the case of ITC-centric dashboard, for instance, mapping and integrating primary and secondary research methods on diverse ITC parameters for understanding the voice of young children and their caregivers becomes important. This will help reflect their needs and aspirations for cognitive and physical development and improved caregiver facilities.

Designing an optimal dashboard requires more informed awareness of how specific users – government agencies, CSOs, communities, amongst others - learn, think, and answer questions. This will help to improve the design, utility and overall user experience. By acknowledging different requirements and constructively applying informed knowledge at a formative stage, it will be possible to build a city dashboard based on data literacy and skills of prospective user groups. The knowledge on user groups at the design stage will show their preference for cross-tabs vis-a-vis graphs, words against numbers and structured or open-ended systems – the query builders. The dashboard designing may start with an ideal scenario that could effectively meet the users' individual requirements. However, as is no precision in the 'ideal' execution in the existing city

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dashboard literature, formative research is required to thoroughly explore and map the problem space, to analyse and gain direction within it, and to identify potential outcomes or solutions in advance of redesigning the dashboard.

The ITC-centric dashboard will be populated with ITC-related indicators, with the data sourced from various stakeholders as shown in Figure 3. Table 2 presents the prospective use of the dashboard by various stakeholders. Stakeholder mapping at the city-level is an important input for designing, planning and creating the dashboard. The table outlines the value chain it creates for various stakeholders including academic institutions, civil society organisations and researchers.

Figure 3: Stakeholders for data collection on ITC indicators

Muncipal Corporation (Health, Engineering, Town Planning, Poverty Alleviation/Social Welfare, Education, Horticulture/Parks & Garden) **Urban Local Bodies**	Urban Development Authority **Planning Agencies**	State Departments (Women and Child; Statistics; Health; Education; Housing and Urban Planning; Poverty Alleviation etc.) **State Department**

Table 2: Utility of the ITC-centric dashboard for city stakeholders

Caregivers, Young Children & Families	Urban Local Bodies	Cities & States	Central Government	Research, CSOs & Urban Academicians
• Ease of Living • Thriving public space creation for young children administered focusing on specific demands • Agency and voice of ITCs represented	• Increasing automation with sectoral focus • Identify gaps in sectors, populations, and services • Enabling focus on service delivery • Monitoring progress and compare the city with self and against annual goals set in development plans. • Support systems to manage governance	• Reforms and Policies delivered in time-bound manner • Strategic planning for mayors and municipal commissioners	• Policy, schemes and Missions • National Level Advocacy for ITC and creation of ranking systems for strengthening percolation	• Access to data for researchers, CSOs and urban academicians to study and create pool of knowledge base • Participatory planning practices enabled for CSOs in decision making

Standardized procedures and inter-operability across stakeholders is required, especially since formulating technology management policies and strategies is vital and necessary. Institutional coordination is required amongst stakeholders by establishing mechanisms for information-sharing and having defined protocols. Support is required by cities to work with international partners to develop the framework by adopting international best practices. Data governance and deployment of Artificial Intelligence solutions facilitate to address critical issues especially including privacy, trust, ethics, regulation and policy-making.

3.

3. How to Build an Effective Dashboard?

This chapter focuses on the granularity of identified indicators in the Baseline Toolkit. The ITC-centric City Dashboard will provide the indicators at disaggregated level, assessment of availability and access to datasets, data generation and value chain besides best practices along with case references for data structuring framework. The other important issues discussed are development of effective dashboards from city profile, models of data governance in the perspective of varied city typologies and the key enablers for ICT-centric data management.

3.1 Building a Strong City Level Strategy

To leverage city data for the envisaged benefits in planning and governance, institutions across the world have stressed the necessity of evolving a culture of data sharing in governance machinery. Recognizing the need for encouraging a data-driven culture, India's MoHUA has launched a guidance and framework document in the form of the DataSmart Cities Strategy (DSC) to enable key urban stakeholders, i.e. city authorities, citizens, academia and industry, to embrace a data-driven governance paradigm. The strategy is built on three foundational pillars, namely people, process and platform, which act as key enablers to inculcate a data culture at the city level. These are facilitated by City Data Policies (CDP) which prescribe processes for the overall management of city data throughout their life cycles, along with mechanisms to create awareness and foster collaboration among various stakeholders in order to harness the power of city data.

The DSC recommends a designated City Data Officer (CDO) should be appointed with ULB, and be responsible for data governance at the city level and to formulate the CDP. In addition, as a supportive action, it is vital to create a network of data champions and coordinators in various city departments and governing agencies. The CDO may also be mandated to establish a city data office/cell that functions as the city-level data analytics and management unit staffed with requisite skills in data science, ICT, network technology etc. To promote enhanced participation of non-state stakeholders (i.e. citizens, industry, academia), the strategy recommends the formation of city data alliances (CDA) to create data-led partnerships, build muscle for innovation and create collaboration on city data. The DSC strategy also recommends a similar governance structure at the state and national levels. These structures are non-hierarchical and intended to complement each other, while functioning with the desired level of autonomy to achieve their stated purpose. The network and alliance members would need continuous capacity-building through hands-on data collation for assessment, online learning modules and expert support through partner networks.

The process component of the strategy lays down processes with respect to data standardization, categorization and classification in line with the National Data Sharing and Accessibility Policy (NDSAP). The policy requires the city authorities to adopt a privacy-first approach while collecting, processing and sharing city data. The CDP defines how to collect, store and manage data for cities. Under the platform component, the objective is to create digital infrastructure as a public good. The creation of National Urban Innovation Stack (NUIS, a digital infrastructure built with a deep understanding of the urban ecosystem undertaken by MoHUA) is a key step towards achieving the same. The NUIS is envisaged as a shared digital infrastructure that will be available for use by citizens, entrepreneurs, academics, administrators, governments, and NGOs across the country. It comprises a set of building blocks developed as a "common public good" to avoid duplication of efforts, provide equitable access and successfully achieve convergence. This is expected to accelerate and amplify solutions and innovations that are underway and enable the rapid development of diverse new solutions by cities and states. Such a model enables creation of city wide data policy.

Box 2: Climate change & Its impact on young children

Case of Climate Change & Implications on Young Children
Cities have a vital relationship with climate change in terms of both, cause and consequence. As per estimates, Surat, Agra, Bengaluru, Hyderabad are among the rapidly urbanising cities. With 31% of India being urbanised in 2011 and the figures rising to 40%, it becomes a cause of concern; as urban areas account for ever increasing energy demand and are responsible for 70% of greenhouse emissions. Cities also experience the impacts of climate change most acutely, given their concentrated and dense population, and should be prioritized for climate mitigation and adaptation efforts. Close to half a billion people live in coastal urban areas that are vulnerable to storms and rising sea levels. As these challenges come to the fore, it becomes vital that interventions targeting cities for the future with sustainable and responsible action are undertaken. For young children living in cities, these underlying threats of climate change are multiplied. Environmental hazards related to climate change will continue to impact urban service delivery and infrastructure, exacerbating existing conditions and undermining disaster response and relief efforts. Young children not having access to better environment will prove detrimental for future course of action.

3.2 Institutional Setup

The institutional set up for the dashboard may be driven by the principles of data governance, such as transparency, standardisation, auditability, responsiveness etc. The data governance principles would help guide the key issues - where, who and how: institutional anchor of the dashboard and the supporting institutions; key members of the advisory and audit committee, the nodal person in the anchor institution and the coordinators in the support institutions; and, the protocols for data pooling, standardization and uploading on the dashboard. Capacity building and training of personnel in data generation and data pooling is required to support inputting information, regular upkeep and maintenance of data.

A sustainable institutional set-up would ensure:

- Coordination amongst various city stakeholders including state departments and city agencies, CSOs, community groups, academia, media, among others.
- Operations and protocols for smooth vertical and horizontal data pooling at different levels of governance.
- ULBs will develop a detailed workplan best suited for their cities. Tentative list of departments to be involved is added as annexure 01.

The Institutional setup for the ITC-centric Dashboard would help strengthen the city database for urban planning and management through:

- Creation of a city wide data sharing network.
- Creating an indicators-based framework for data collection, aggregation and sharing including quantitative and qualitative data from primary and published and unpublished secondary sources.
- Collaboration with various stakeholders/agencies/networks/alliances to ensure the incorporation of relevant indicators and data sets.
- In-built cross check mechanisms for data validation, which build user confidence in the dashboard interface.
- Ensuring privacy compliance and non-disclosures of information to ensure integrity and confidentiality of data information.
- A city level data hub created which upgrades and facilitates the platform. There can also be supporting discussions with smart city mission to get an overall perspective of the available data.
- Creation of a knowledge repository team - Network of government departments and civil societies.

Roles and Responsibilities for the Institutional Set-Up
- Cities can appoint an officer in-charge who will be coordinating with city data centres, and any other municipal data platforms.
- Anchor Institute – A nodal person can be appointed to coordinate, overview and facilitate smooth data handling on the dashboard. The appointed person can be responsible for ensuring that there are no deviations from the dashboard framework. Uploading, auditing and monitoring data on the dashboard will be key responsibility of the person.
- Supporting institutions – Appointed coordinators from the institutes can be responsible for ensuring viable exchange of data between nodal agency and the respective institute.
- Advisory and audit committee – The committee will be responsible for adopting technological advances towards essential data sharing and seamless working of user interface.

A city wide alliance would help to identify key actors in policy making. The network would include government departments, agencies, and leading academic research institutions in the city. The sectoral and thematic data integration of ITCs at the respective city data dashboard level would need handholding through the common data platform. This will be carried out gradually with standard data protocols suggested by the anchor institute, supporting institutions, and advisory and audit committee. Sharing of best practices, both inter- and intra-city, along with development of a standard data template and standard operating procedures on the dashboard with monitoring and tracking mechanisms.

3.3 Learnings from the Pilot Testing OF Baseline Toolkit
An on-field test of Data baseline toolkit will be conducted in select cities to assist the relevance of indicators used in the toolkit and the published/unpublished data available in the cities. The pilot testing of the baseline toolkit would testify the parameters of public spaces/service facilities, especially for ITC, to create a comprehensive understanding of indicators and help monitor and evaluate surveys. It is to be conducted at all the public spaces and activity centres of ITC (Refer Survey Formats in data baseline toolkit) in the neighbourhood to develop a comprehensive understanding of their needs and challenges. In a neighbourhood, ITC activity centres could be any allocated or unallocated place of gathering that is being utilized for interaction and play, and can be identified through activity mapping during transect walks. If the neighbourhood has multiple activity centres surveyor may choose to select a survey sample based on transect walk findings. The ITC centric dashboard will also be pilot tested in selected cities. Learnings from these two toolkits will help in developing a guideline/checklist for institutionalising city-level documents focusing on ITCs.

3.4 Selecting Indicators
While developing a dashboard, identification of indicators is the stepping stone. ITC centric dashboard will have indicators focusing on presenting a comprehensive database for young children & caregivers. The indicators require categorisation based on spatial features, as mentioned in the ITCN evaluation and monitoring metrics. Dashboard may adopt indicators recommended in the data baseline toolkit. The indicators have been framed corresponding to one of the 5 ITC objectives (safety, inclusivity, playful, accessibility and green).

ITC data indicators contribute towards creating an evidence based repository for city management and support a clear understanding of the needs and challenges faced by ITCs. These indicators help quantify the influence of surroundings on ITCs experience, directly impacting their overall wellbeing. Following a measured overview, potential area can be identified and frame the next steps in the desired direction.

ITC benchmarks: Benchmarks help measure the performance of cities in achieving ITC objectives against targets. They provide a clear score of how effective decisions and actions have ben, ranging from Thriving (high) to Striving (average) to Surviving (low). Measuring performance in this way enables progress to be calibrated and monitored across projects and over time. The benchmarks need to be defined locally based on the city vision and targets may be phased out keeping in view the challenges and available resources. Figure 4 shows an example of allocating benchmark value to each data indicator proposed.

Figure 4: Benchmark Value & Design for Data Indicators

DATA INDICATOR (CORE)	BENCHMARK VALUE		
	THRIVING	STRIVING	SURVIVING
% of buildings within 300 m. distance of a green space above 125 sqm	100% of buildings within 300 m. distance of a green space and at least green space of 125 sqm	50-100% of buildings within 300m. distance of a green space and atleast green space of 125 sqm	<50% of buildings within 300 m. distance of a green space and green space < 125 sqm
DATA INDICATOR (CORE)	BENCHMARK VALUE		
	THRIVING	STRIVING	SURVIVING
Presence of affordable health clinic inside (Anganwadi) in the neighbourhood	There is more than 1 Anganwadi in area of 15,000 population and it meets model quality criteria.	There is 1 Anganwadi in the area of 15,000 population and it meet model Anganwadi quality criteria.	< There is 1 Anganwadi in the area of 15,000 and does not meet model quality criteria.

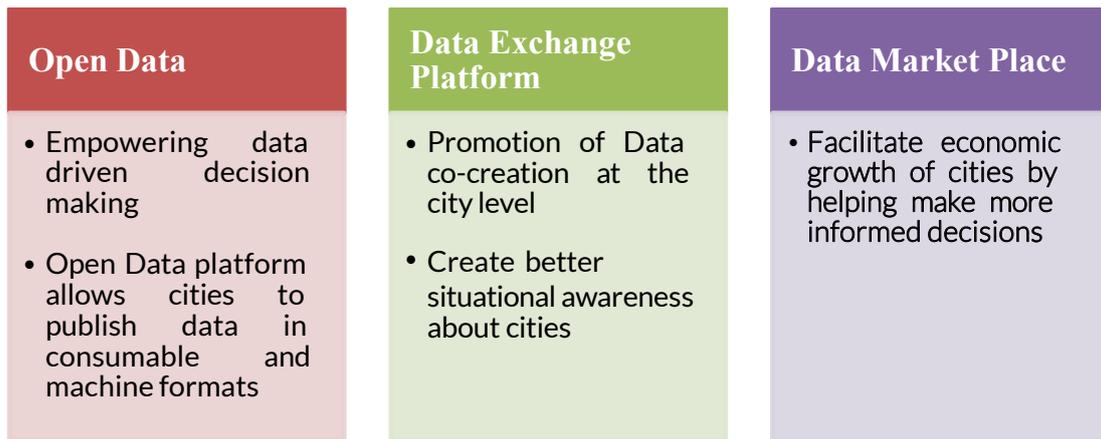*Source: ITCN Evaluation & Monitoring Metrics, Smart Cities Mission*

3.5 Methodology

Data Collection for the Dashboard
Data can be primarily collected from two sources – primary and secondary sources, at two levels of assessment – rapid and in-depth. The data collected from these sources can be broadly categorised into quantitative data and qualitative data. The data collection method to be employed depends on the intent of the assessment. As part of rapid assessment, data will be mined from secondary sources online and as per the requirements, may be collected on ground also. Frequency of data collection along with granularity of collected data and verification techniques needs to be identified at the start of data collection. Moving forward with the in-depth assessment, detailed on-site data will be collected through various engaging data collection methods.

For the data cleaning bit, eye-balling through data, going through statistical data sets, outliers and formulating analysis based on the gathered data would be the next steps. These steps have been detailed out in previous data baseline toolkit. Figure 5 reflects on the utility of data platforms. The section on data collection and data cleaning processes in 'Data Baseline Toolkit' can be referenced for comprehensive understanding of the subject.

Open Data	Data Exchange Platform	Data Market Place
• Empowering data driven decision making • Open Data platform allows cities to publish data in consumable and machine formats	• Promotion of Data co-creation at the city level • Create better situational awareness about cities	• Facilitate economic growth of cities by helping make more informed decisions

Steps for development of dashboard(updated as per the requirement of toolkit)

- Appointment of anchor institution and nodal officer
- Finalization of Advisory and audit committee
- Engagement with support institutions and finalizing coordinators
- Identification of the ITC research components
- Defining the parameters of development
- A story will be conceptualised through the collected datasets
- Grouping and sub-grouping the data thematically
- Identification of usage and targeted participants
- Inter-linkages in the data needs to be represented in comparative analysis
- Data needs to be presented in a captivating manner, including graphical representation, data visualizations, understandable formats, etc.
- Framing structure for data management with defined roles and responsibilities which will be highlighted in the operations and maintenance sections
- Evaluation of the legacy created and envisaged with the dashboard creation that needs to be documented after wards as well (whether documentation, platform and business model etc.)

3.6 Dashboard Design & Maintenance

A dashboard design cannot be a 'one size fits all' and static, instead it has to be dynamic enough to incorporate changes in the indicators-based data framework, in response to the changes in city vision and priorities for investment. Aggregation of city level data at one interface sparks the opportunity to overlap the services being provided in parallel sectors of development, and frame a comprehensive picture of existing gaps and potential areas of development at sub-city level. Zoomed in picture of sub-city services provides equal benefits to end users and developers to identify with the city in depth. The user interface would allow spatial and intertemporal analysis through a query builder using multiple indicators. This can help user to understand their city and its services better, while utilising the spaces as per the availability of services required by them. A dashboard intended to reach public domain will need to take into account technical literacy and different levels of comprehension of stakeholders. The analysis may be presented to the user both as cross tabs and graphically including on maps. Dashboards can help make, as well as demonstrate progress towards goals. Figure 6 shows an example of data visualization in a captivating manner.

As an example, National Institute of Urban Affairs, is in the process of designing a data wall which would look at reaching various thematic areas across urban local bodies in India. The design of the dashboard would largely depend on the dashboard widgets, edited and created in a graphical representation through primary and secondary sources. The programmers and customisations would be used through pre-built template and guided steps.

The collection of widgets available in the Dashboard wall would include the following

- Different kinds of charts and graphs, tables, time trends, time trend comparison.
- Multi-data maps for visualizing geo-referenced data or tool that could be also be linked to CCTVs to generate data, such as an open street map, health spaces, educational facilities, available parks in the neighbourhood.
- The wall would be customised through an edit grid view modality; the dashboard would also act as data viewers and actuators, or they can be interconnected to other widgets.
- The design in-builds cloning and versioning of secondary, primary and real time data sources.
- The backend management along with city stakeholders would ensure that the creation and visualisation is public or private as delegated to the target audience.
- In addition, the dashboard would be connected to applications, allowing for the integration of viewing data across multiple applications.

Figure 6: Data Visualisation on Young Children and Cities
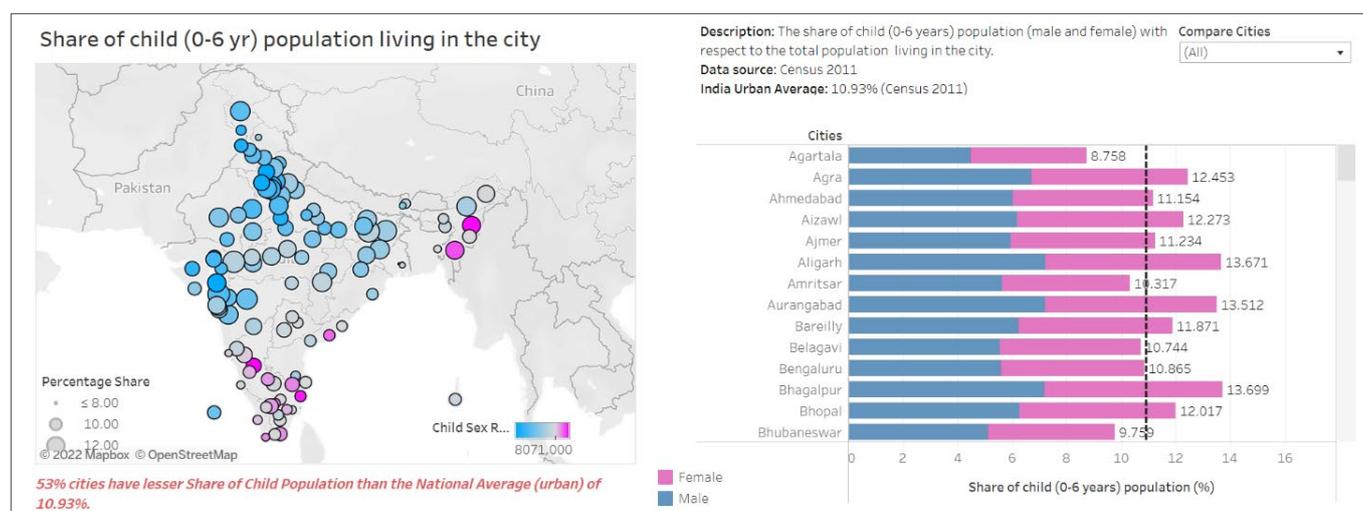
Source: Infant, Toddlers and Caregivers-Friendly Cities (Indicators Across 25 Cities), Smart City Mission

3.7 How to incorporate ITC into existing dashboards?

Cities have been actively adopting data-driven approach in the urban development sector. Dashboards are the most convenient way to store, analyse, and compare data, to come up with viable initiatives required. A city dashboard can have indicators related to different approaches of development. List of ITC indicators can be readily added to existing indicators; this will allow understanding of ITC related services and initiatives covered in the various sectors of development. Data collected over city dashboards can further be collated on a national level. This can pave way to relative understanding of cities and plan investments accordingly. National aggregation of city-level data would be more agreeable if there is uniformity maintained in the proposed indicators, against which data is collected. ITC centric dashboard proposed a comprehensive list of dedicated indicators that may be used by cities in collecting data related to ITC group. This can either be added in existing city dashboards or developed separately as well, though sustenance of dashboards enhances on cross-sectoral data availability.

The Urban Outcomes Framework by MoHUA and NIUA, published in 2021, is an initiative to look at datasets in a comprehensive cross-city and cross-sectors manner, with an outcome driven approach. It looks at the sector such as demography, economy, education, energy, finance, environment, governance, ICT, Health, Housing, Mobility, Planning, Safety, Security, Sanitation, Water and Solid Waste Management. The central objective of the platform is to generate a robust database so that time series analysis and progress tracking can be conducted in order to achieve aspired social and economic progress through generating data that will

drive evidence-based policymaking.26 The integration of ITC indicators within some of the sectoral areas could be an alternate methodology. However, this integration would happen for FY 2023-24 as the indicators for monitoring have been frozen for this financial year.

The India Urban Observatory is one of the potential platforms to host the visualizations for the ITC indicators and the data will be available on the Amplifi portal 2.0 which will act as an urban data bank27. Table 3 presents some additional data dashboards available for Urban areas.

Table 3: Additional Data dashboards available for Urban areas

Dashboard	Description	Weblink
Infant, Toddlers and Caregivers-Friendly Cities (Indicators Across 25 Cities)	The dashboard was developed by the smart city mission through DAMU on 10 ITC Indicators.	Click here to get the information
Urban Children (Indicators across 18 States and 2 UTs)	It is a dashboard created by the DAMU Team and available on the India Urban Observatory. It covers five broad categories related to children in urban areas across all states and UTs of India. the 5 broad categories are - Demographics, Health, Living Conditions, Education, and Safety and Security. It produces different insights based on all indicators under the particular category.	Click here to get the information
Urban Census Data Storyboard (Indicators across all States and UTs of India)	Multiple datasets available on the portal from various ministries and departments of India	Click here to get the information
Open Government Dashboard (Various Indicators across all states and UTs of India)	Multiple datasets available on the portal from various ministries and departments of India	Click here to get the information
SDG India Index and Dashboard, iTech Mission (niti.gov.in) (Various indicators across all states and UTs of India)	Showcases rankings of works done towards achieving all SDG Goals in India, across 25 Indian states	Click here to get the information
Ease of Living Index Indicators (Various indicators across all states and UTs of India)	City Rankings 2020 Dashboard based on EoI and Municipal Index Indicators	Click here toget the information
Municipal Performance Index Indicators (Various indicators across all states and UTs of India)		Click here to get the information

## 3.8 City Dashboard: Theory of change

City dashboard will change the dynamics of data handling, data driven planning and informed outcomes at a city wide scale. If all the cities maintain an ITC-centric dashboard, they can feed data at neighbourhood level which can be utilised to identify the lack of ITC services in any particular area. Multilateral comparative analysis of services available will help identify the existing gaps and help frame the way forward in the required direction. Juxtapositioning layers of services available can expose areas in need of urgent attention. If a caregiver to a young child needs to access certain facility, they can consult the data accessible on the dashboard and identify the availability of facilities near their neighbourhood. Consolidated database of gaps and availability of services need to be updated at a periodic interval for the ease of identified users. If this is achieved positively at a neighbourhood and city wide scale then this can be levelled up to compile 'National level data' in the the hierarchy.

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26 https://smartnet.niua.org/uof-2022/pdf/Urban%20Outcomes%20Framework_Part1_print.pdf
27 https://amplifi.mohua.gov.in/

If all the cities maintain a regularly updated ITC centric dashboard then cities can be compared on the ITC services being provided in their cities. They can also be ranked on the ease of living for young children & their caregivers based on the data available on the dashboard. All the cities can use similar set of indicators for having structured comparison criteria. This will expose cities to better practices adopted in other cities and at the same time encourage them to rank better at the National ITC standards. The journey towards this ideallyic change in cities will need to start by taking gradual steps by the cities. Figure 7 lists down the ways in which this can be positively accomplished.

Figure 7: Theory of Change in Design and Planning Cities through Data dashboard at the city level for young children and their caregivers
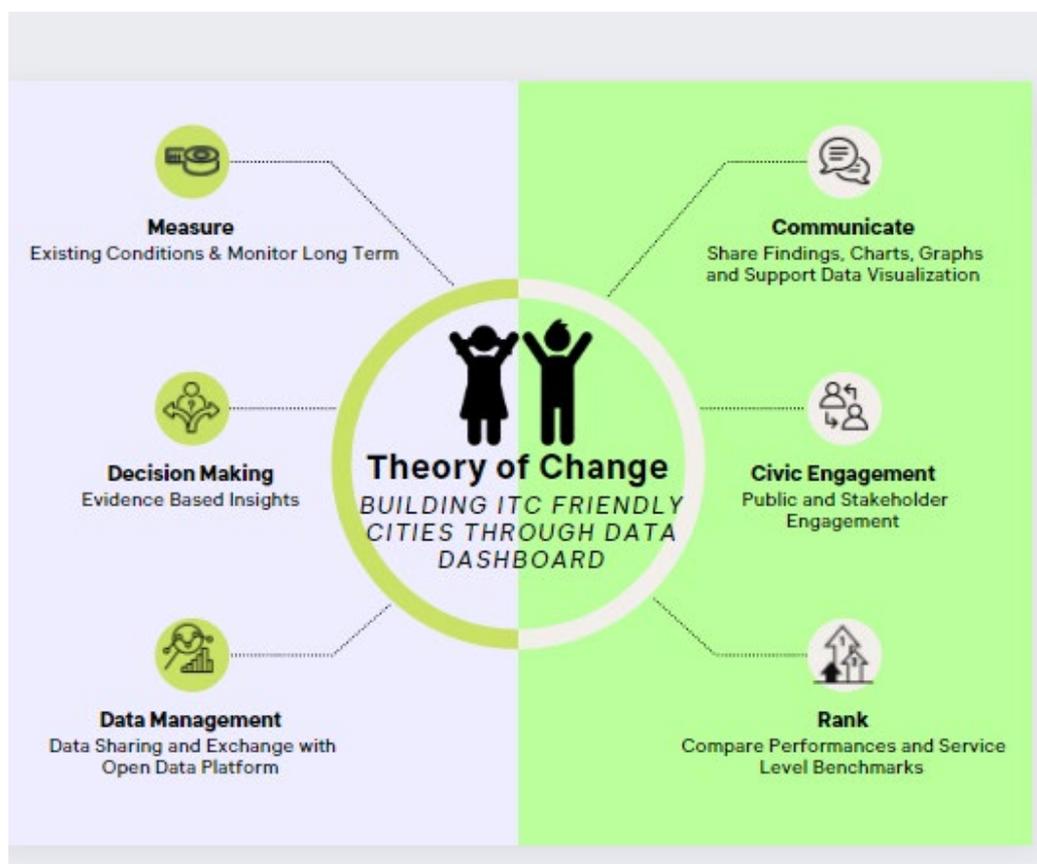
1. **Measure** current conditions and track long-term progress in achieving ITC goals (inclusive, accessible, safe, green and playful public spaces). Data can give a holistic picture of the state of neighbourhood spaces and services that are relevant to ITCs. By comparing service performance to benchmarks, gaps in service delivery may be identified, and interventions can be planned accordingly.
2. **Evidence based Insights/Decision-Making** – Data-based insights can aid in prioritising agendas and allocating resources based on informed choices.
3. **Data Management (Data Sharing and Exchange)** - On open data platforms, experiences and insights from data analysis as well as implementing solutions may be shared as lessons for all stakeholders.
4. **Communicate** – A coordinated effort amongst various city stakeholders is required to plan, develop and implement ITC solutions. Dashboard facilitates data visualisation in the form of charts, graphs, maps and graphics-aids for decision-making, communication of findings, and debate through case studies and interviews with various stakeholders.
5. **Civic Engagement** - Reaching out to the wider community while collecting data and positioning the dashboard in public domain will encourage public participation and give the initiative more awareness and authenticity.
6. **Rank** neighbourhoods/wards/cities– Analyse and see achievements, benchmarks and service level achievements at sub-city level (and across cities in case of national aggregation) in order to create ITC friendly cities especially in contrast to other cities.

3.9 Policy and privacy

Data protection standards relate to information collection, use and dissemination/pooling. In view of wide-ranging concerns relating to personal information being processed by automated means, data privacy has emerged as a legal right across jurisdictions. In order to comprehend these difficulties, it is necessary to evaluate how the use of personal information is an essential activity in society, as it provides numerous benefits while also having the potential to do significant harm. Data protection is thus necessary to prevent such damages and it rests on the question of who should be allowed to use it and how. It is critical to grasp this notion in regard to privacy, because privacy may imply different things depending on the situation. There are two major concerns about privacy: the confidentiality of physical areas, persons and objects i.e. spatial privacy; and the privacy of certain individuals.

Data protection is associated with the security of information confidentiality. The city dashboards would present aggregated data, at city/sub-city level, for the user interface while individual data would be at the backend with controlled access. Data protection policy in this case would define the controlled access to backend data.

4.

Photograph by: Vedangi Deshpande
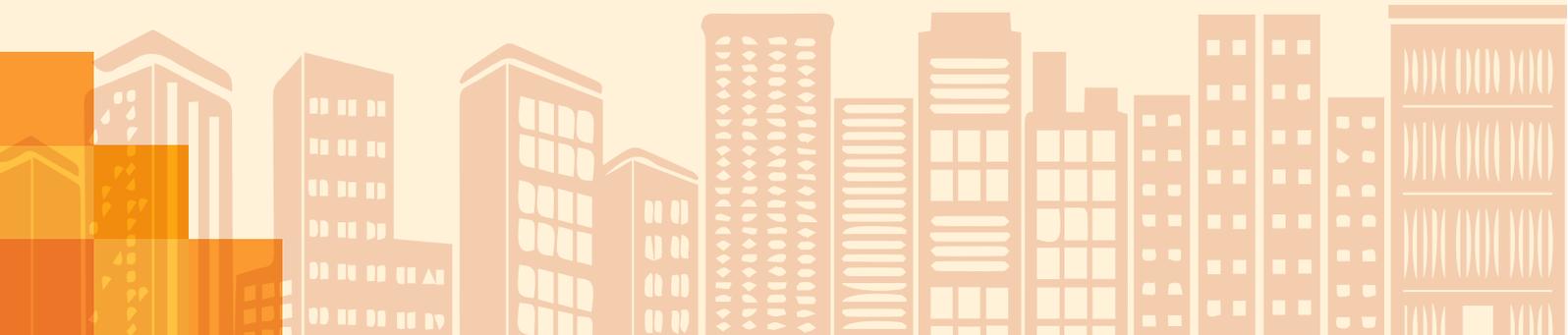
4. Risks and Challenges

This section discusses various challenges to setting up the ITC-centric city dashboard and sustenance of the institutional mechanism for regular data updating and dissemination. The challenges relate to data security, availability of infrastructure and appropriate staffing. The recommendations in this toolkit would need to be adopted keeping in view the cities' governance structure, investment priorities and topography.

Data are usually not available in a user-centric manner. The current data formats are often not conducive for research and innovation. Some departments maintain public dashboards with visualisations and options to download data in analysable formats. However, most datasets are only available in PDF, webpage or as an image, making it difficult for further analysis. If this issue is resolved, researchers and data scientists will significantly save time and resources in cleaning and preparing datasets for analysis which are currently incoherent due to different standards. State departments and local agencies do not use a standard approach for common indicators. Attributes like region and time period are defined differently. This makes it difficult for datasets to complement each other and present a coherent picture.

Identified Risks and Challenges
1. Validation of data collected from indiviuals during informal group discussions can be a challenge.
2. Pre-existing processes may pose delayed implementation of critical solutions. Systemic challenges such as fast tracking processes and getting requisite approvals is required.
3. Cities may face the risk of data breaching. Data security and protection through city data policy needs to be formulated in compliance with national laws and guidelines to ensure citizens' data security and protection, and to ensure that standard operating procedures are followed.

**5.**
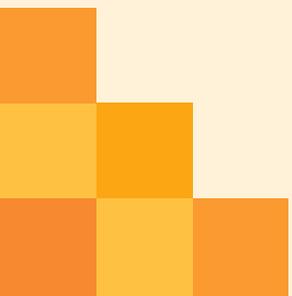
5. Operation and Maintenance of the Dashboard

This section outlines monitoring frameworks necessary for the operation and maintenance of the ITC-centric city dashboards monitored, with focus on the operational aspects. As an example, the operations and maintenance protocols for the dashboard are presented in Table 4.

Table 4: Data Dashboards and Maintenance of Dashboards

| Parameters	Steps taken
Maintenance of Data Sets/Feeds	Ensure that all published data sets and streams are current and appropriate.
Support	Technical and Non-Technical help to users
Archiving	Archiving information or any data feeds and catalogue. Retention of data as per standard policy.
Ownership	Owning of the data will be with the Government Open Data License[28] in order to prevent misuse and misinterpretation of data The publisher, i.e. CDO, retains ownership of all datasets/feeds. (Data Owner: Respective Cities) (Data Custodian: Nodal agency)
Licensing	Government Bodies and Agencies will hold the license for the Platform
Terms of Use	Publication of Terms of Use will be made by MoHUA, NIUA and BvLF to restrict any misuse of data and city administration in case of any misuse from the end user.

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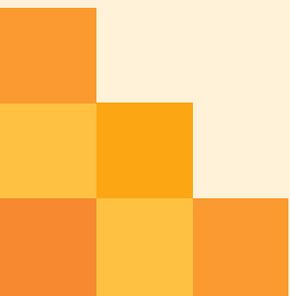
28 https://data.gov.in/
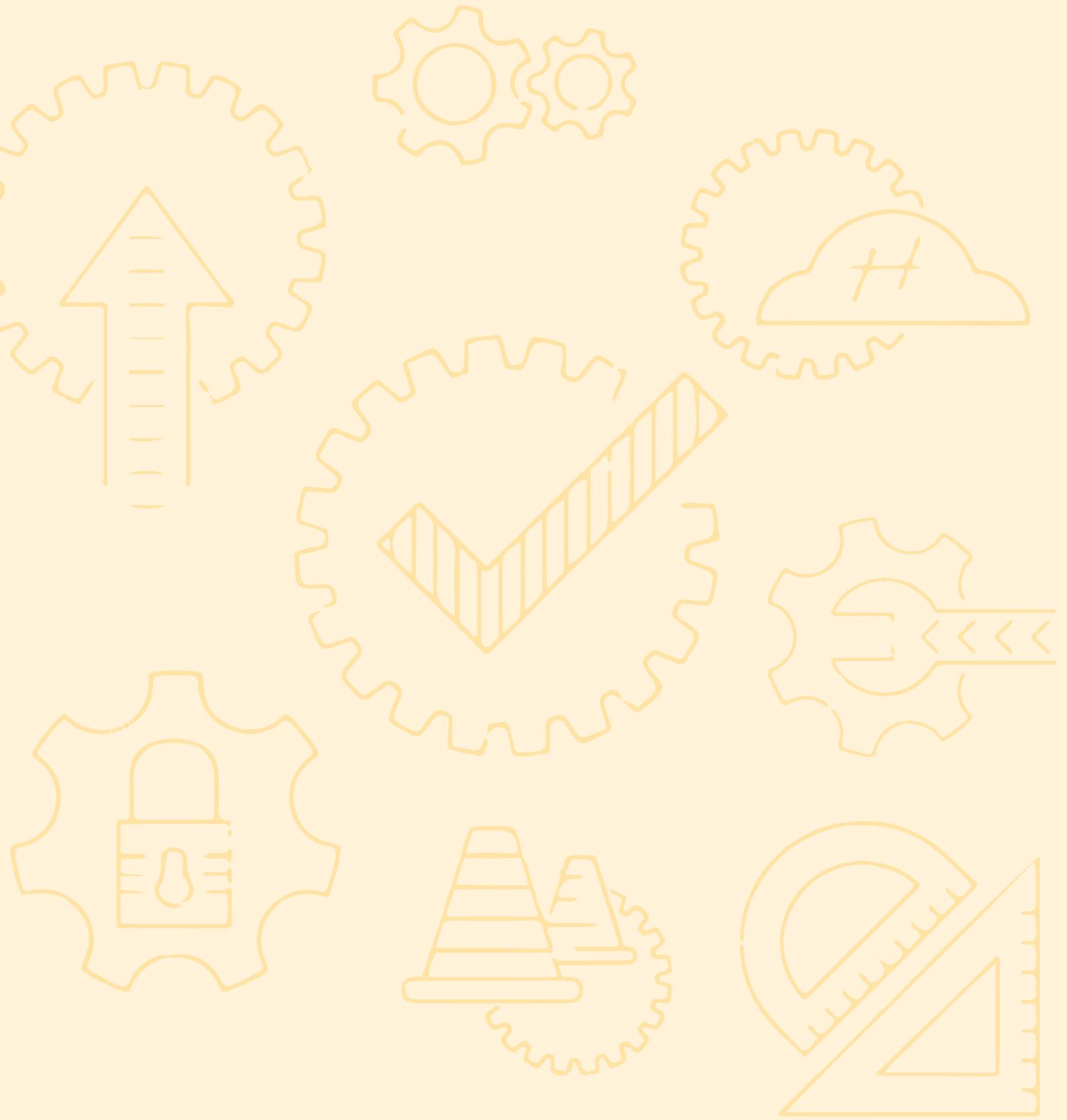
6. How to Use the Data Dashboard for Incorporating Reforms?

City's data holds tremendous potential to shape the lives and living conditions of the youngest residents in the city. A better understanding of the data that is collected across a city can lead to a better understanding of the needs and challenges of target group. With this, better decisions can be made based on insights into problems and the likely impacts of different actions for addressing them. Data-driven, evidence-based planning and management will help create neighbourhoods where infants, toddlers, and their caregivers feel safe, explore, play and engage with their built and natural environment. Objectives of accommodating data in public domain – spread over shorter and longer term – are explained in table 5. Earnestly looking at data can lead to better decisions and more effective actions by simplifying, clarifying and making aggregated information available to policy makers. Evaluation metrics can help to incorporate scientific research into evidence-based decision-making. They can help to measure performance and calibrate progress, and also highlight lessons learnt while reassessing priorities through review. They can come up with an early warning to prevent economic, social and environmental setbacks. They are also useful tools to communicate ideas and values, providing shared and common objectives for different agencies to work towards a common goal. Evaluation metrics measure aspects of the city that influence the daily lives of infants, toddlers and caregivers and give an overview for comparison between cities. Since ITCN is an emerging concept in India, it is crucial to assess and review the effects of its interventions. Data gathering and performance assessment

Box 3: City for Children

A city for children is a city in which children can thrive physically, socially, mentally, which also means a city good for those of ALL ages.

through service level benchmarking, will reveal gaps in availability of infrastructure, design of amenities and service delivery. This will provide specific ideas for interventions and targeted solutions to address the shortcomings. Table 6 highlights how data on specific aspects could advocate for relook at certain interventions and promote policy reforms.

Table 5: Objectives for integration of data into larger network

Category of data management	Short Term objectives	Long Term objectives
Open Data Platform	• To create a better understanding of cities and functioning areas across cities. • To empower the ITC areas identified through data. • To provide insights for data-backed decision making. • To strengthen research around cities. • To provide free and open static and dynamic datasets covering historical data in a consumable format.	• Increased transparency and accountability. • Enhanced collaborations. • ITC audits across city agencies and institutions. • Increased public participation. • Improved decision making thereby leading to age-friendly and child friendly cities which enable spatial, social, digital and economic inclusion. • Deepen open innovation and co-creation.
Data Dashboard	• To gather data based on the identified data parameters on the secure platform. • Create a strengthened eco-system cycle for data collection and frequency. • Stakeholder Management and partnerships fostered. • Free and open exchange.	• Promote data driven decisions through data governance and diverse players in the ITC urban ecosystem. • Development of vibrant app ecosystem. • Lead to advanced research in academic and research institution.
Integration of Data into larger network	• Common network such as Smart City Dashboard, Amplifi to enable data on a larger secure platform. • Established system with publisher and consumer from cities to city stakeholders. • Compliance of privacy policy and identified risks. • Central and decentralized architecture of a larger network for data.	• Helps cities develop new business models that cater to the needs of young children and other thematic areas centred at its young population. • Empowering communities through the sharing of data. • Promoting the development of emerging technologies like Artificial Intelligence (AI), Machine Learning (ML), and Blockchain for the effective technology driven decision making aligning with the Government of India's mandate of improving governance systems.

Source: https://smartnet.niua.org/dsc/pdf/DataSmart_Cities_Strategy.pdf

Table 6: How Data Translates into Policy Reforms?

How Data Translates Into Policy Reforms
Limited Footfall in a park/ access to parks in a ward or neighbourhood requires ITCN friendly design interventions.
Pre-primary schools with access to functional toilet facility may require a re-look at the strategy to address better and gender specific sanitation facilities for young children (0-6 years).
Evidence based decisions and insights making data collection and management has to be systematic and at regular intervals.
Local governance and stakeholders involved including RWAs, citizen groups, caregivers of young children in data gathering processes.

Data Baseline toolkit highlights the ways to include citizens in the data collection section of the toolkit. This includes surveys, community engagement, transect walks, activity mapping and focus group discusions to understand physical and social aspects of the neighbourhood. Citizens and other stakeholders through dashboards would be given a chance to access the results of data collected from them and participate in further taking decisions for their community and make decisions on the place where they live. Table 6 displays ways to translate data directly into policy reforms. Enhancing liveability, notably seeking to minimise social disparity, nurturing environments for young children, inclusivity, and sustainability are the only ways to achieve transformation and ultimately modular cities. Data are able to drive decision making for sustainable cities, contributing to sustainability's environmental, economic, and social goals.

6.1 Possible opportunities to improve liveability for ITCs

Liveability in a city refers to the extent to which a living environment contributes to the physical, social, and mental well-being of all of its inhabitants. The quality of life experienced by citizens living in a city is related to their ability to access infrastructure - water, sanitation, transportation, and communication, healthy food, clean air, affordable housing, good schools, health care, meaningful employment, and green space and parks. The liveability of a city is also determined by the extent to which its residents are able to participate in decision-making about the city. According to the founder of the International Making Cities Liveable Council (IMCLC), Dr Suzanne Crowhurst Lennard[29], a city should facilitate independent access for children if it wants to be truly liveable. It should provide a physical environment that ensures children›s health, develops their faculties, and fosters their love for their healthy life. It should provide an environment that is safe from both traffic and crime, to allow children to move around on their own. Cities that plan with children in mind, can achieve more liveable neighbourhoods for people of all ages. Some of the features that enable child-friendly cities are generally similar for all, specially to create accessible environments that nurture an experiential and enabling social life. For young child-friendly liveability, one could begin by including: (i) designing buildings, roads, parks and street furniture to inspire imagination, invite exploration, and serve multiple uses; (ii) planning social spaces like cafés, shops, and libraries so that they are within walking or cycling distance of residences; and (iii) creating an inclusive environment where people of different income groups can live together and learn to appreciate each other' values and differences. A liveable city promotes mixed-use communities with availability of affordable housing, shopping centres, employment opportunities, and cultural centres. Transportation networks are pedestrian-friendly, leading to a city core with public spaces, green spaces and economic activities. Such an environment will best meet the social needs of children and the broader community. By creating communities that are responsive to the needs of young children and their caregivers, community planning can result in neighbourhoods, towns, and cities that are ecologically and socially beneficial. A healthy community is one that raises healthy children who continue to actively engage in their community, understand the importance of nature and later pass on the same values to their own children. When children are able to move about a city safely, play outdoors with peers, mix with people of different ages and incomes, and appreciate nature, then a city becomes a good one for all of its residents. It is a city in which one can witness children navigating outdoors on their own, not only escorted and supervised by adults. A city which makes available outdoor facilities for its sustainable future, without any typical supervision of young children's caregivers/parents. In addition to parks, this also realises the importance of wide sidewalks for play for children that is a very common practice in many global cities.

6.2 Best Practices of other dashboards

International Practices[30]

The New Zealand State Service Commission's Better Public Services Reform initiative was created in 2012 to address the challenge of developing and delivering policies that fell across multiple departments. Their dashboard is assisting to break down silos between government agencies working to address child wellbeing, and ensure they are using resources most efficiently in the context of financial constraints. (Figure 8) After a consultation process – which included discussions between government departments and cabinet members, helping to focus target areas – the New Zealand government chose 10 priority areas to evaluate progress against. These covered a range of issues, from the rate of vaccinations in children, to the number of people receiving welfare payments. This early buy-in from agencies helped create a shared commitment and feeling of accountability across government. This feeling of accountability was heightened by the government when they made the priorities and progress public. The government publicly assigned a responsible minister to each of the priorities and this unusual step was a strong indication of how serious they were about improving outcomes in these areas. The resulting national-level dashboard monitors the progress of these 10 priorities, and so helps to focus reform initiatives around specific objectives. This example shows how public interest can be harnessed to drive public sector effort on social policy priorities, namely increasing participation in early childhood education and increasing the infant immunisation rate. Incidence of rheumatic fever[31] were

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29   https://plannersweb.com/2013/08/kids-whats-the-matter-with-kids-today/

30   How Dashboards Can Help Cities Improve Early Childhood Development. Open Data Institute/Whitepaper. ODI-WP-2017-002.» Bernard van Leer Foundation (2017).

31   A non-contagious acute fever marked by inflammation and pain in the joints. It chiefly affects young people and is caused by a streptococcal infection.

used as a proxy measure for poverty and for access to health services and appropriate housing. Since the dashboard was introduced, identified cases of rheumatic fever have lowered by 23%, demonstrating the effect of helping agencies to deliver integrated support, including social housing for vulnerable children and their families. By using the data and dashboard to shape constructive debates across the wider government, it was possible to maintain engagement and, in turn, the delivery of positive outcomes. An IBM Center for the Business of Government report examining the progress that New Zealand has made since 2012 also found that better results were seen in areas where agencies had built 'trusting relationships with each other'. Even though some targets were not met, there were significant improvements in all of the priorities. One of the key successes was the drop in infants not receiving vaccinations, which fell by two-thirds.

*Figure 8: The representation is taken from New Zealand' State Service Commission*
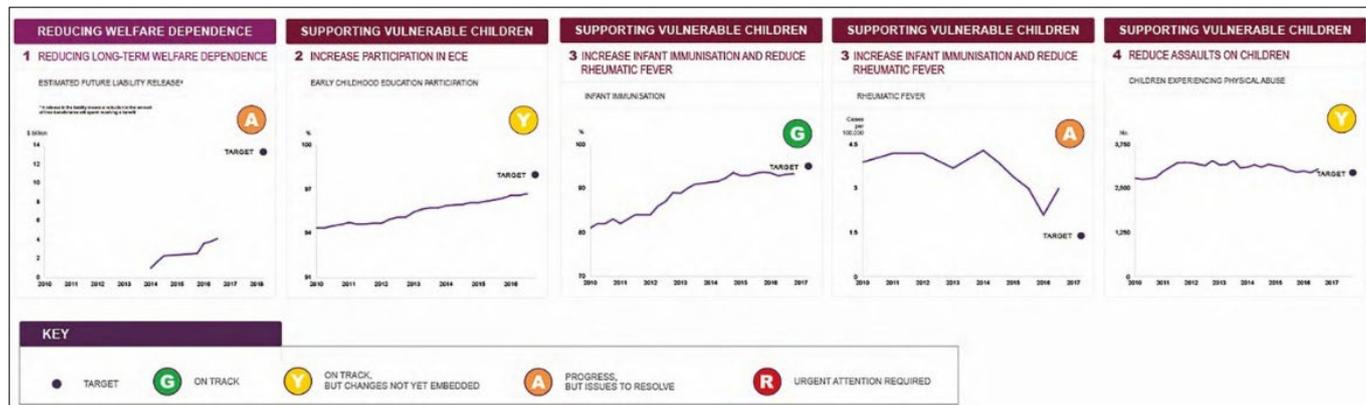
Source: https://files.eric.ed.gov/fulltext/ED582025.pdf , page 16

National Practices

Mapping of socio-economic indicators across smart cities has enabled to create new resources generating revenues with smart initiatives. The smart city dashboard has enabled improvement in urban infrastructure, specially through smart sensors data on citizen's needs and behaviour. As highlighted earlier, data management and decision making is a huge challenge for administration. To address such challenges, business intelligence solution such as creation of a dashboard is a perfect tool to deal with it. Figure 9 shows an example of Amplifi dashboard operated by MoHUA.
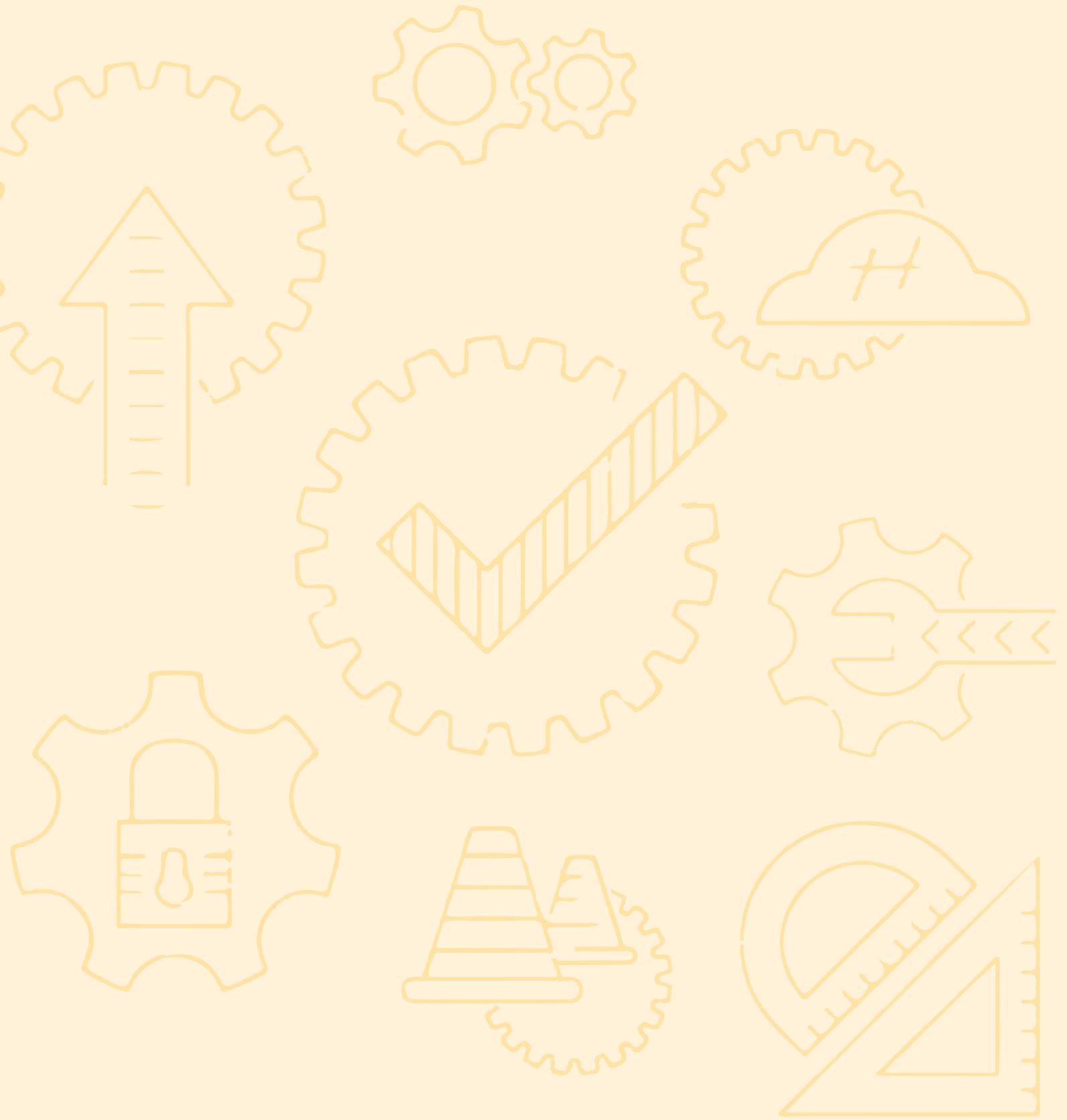
Figure 9: Amplifi Dashboard
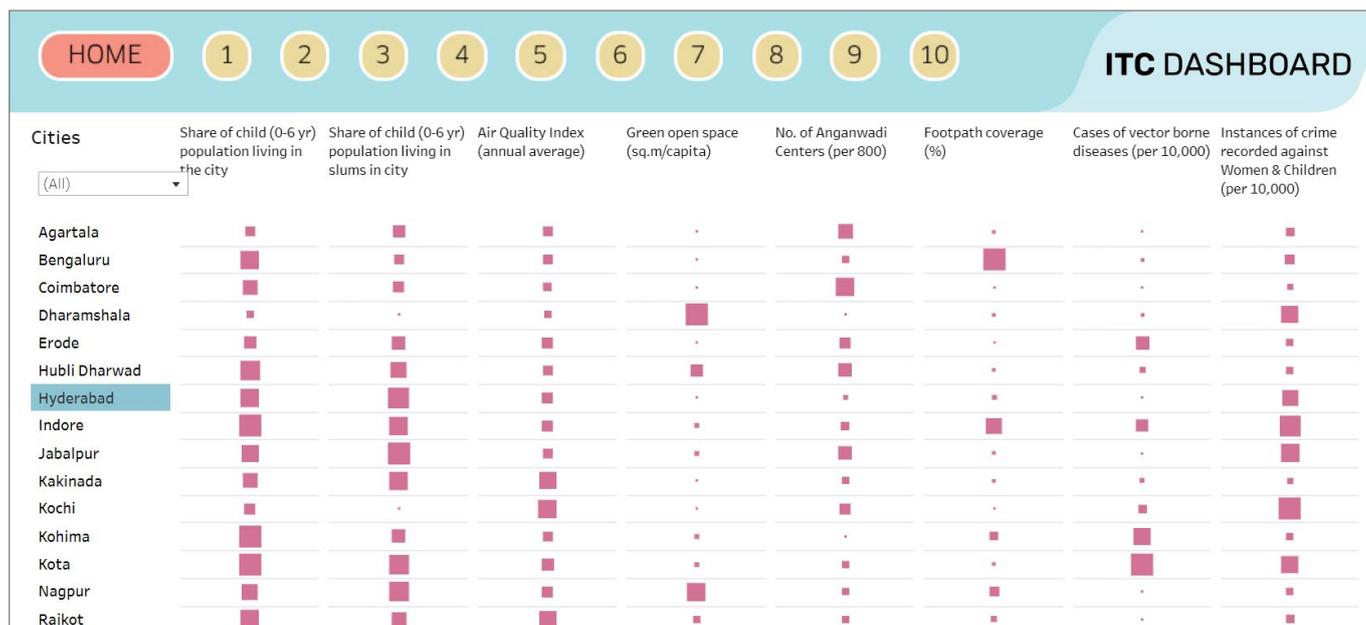
Source: Infant, Toddlers and Caregivers-Friendly Cities (Indicators Across 25 Cities), Smart City Mission (https://amplifi.mohua.gov.in/)

*Photograph by: Radhakrishnan K.*

7.

7. Annexures

**List of suggestive departments for data collection**

1. Municipal Commissioner Office
2. Public Health Department
3. Town planning Department
4. Department of Engineering
5. Department of Horticulture
6. Department of Education
7. Department of Social Justice
8. Department of Women and Child welfare
9. District Child Protection Unit
10. Police Department
11. Revenue Department
12. Any other concerned departments
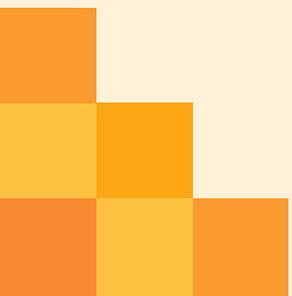
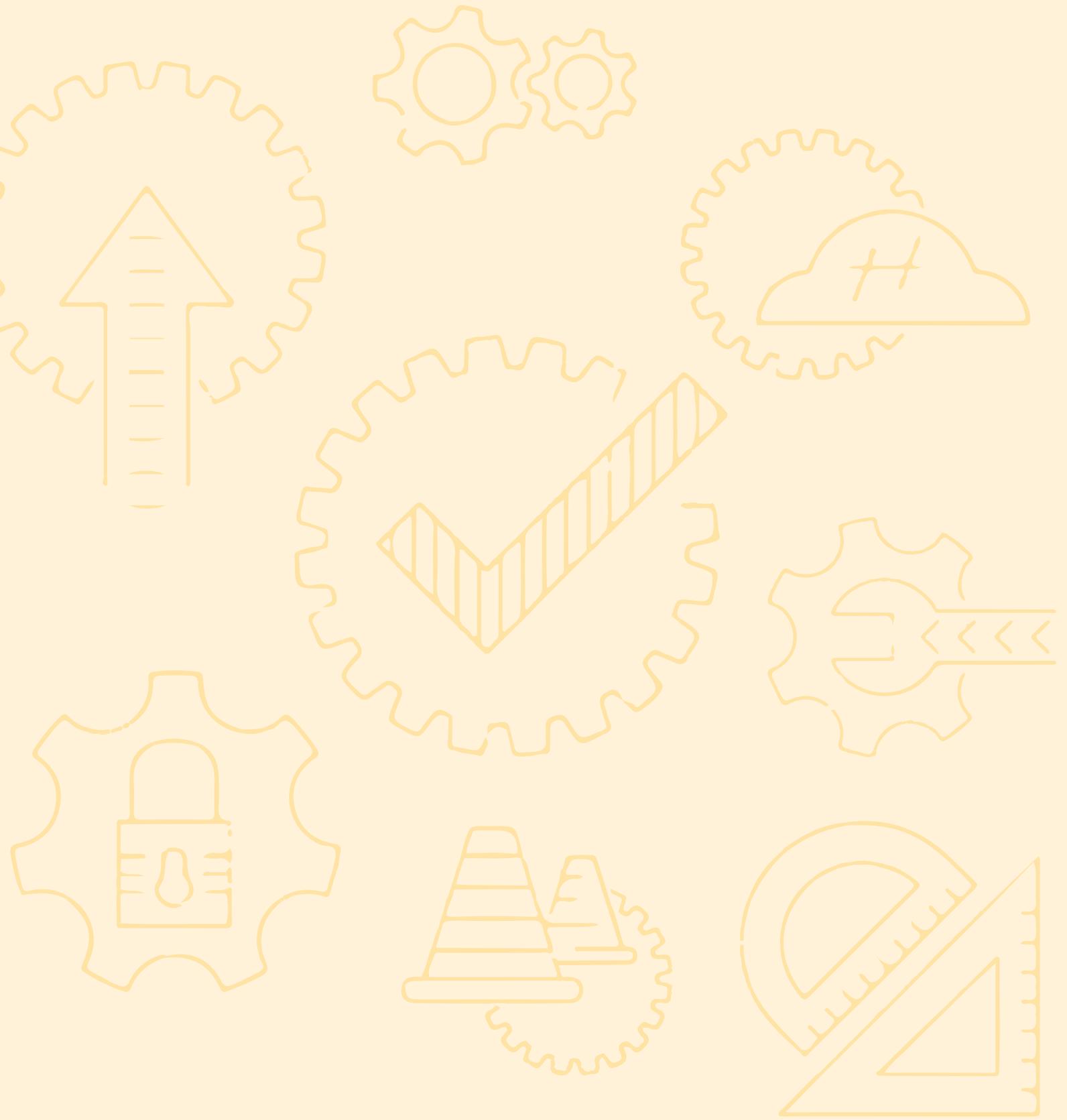*Photograph by: Mervin Rahul Jathanna*
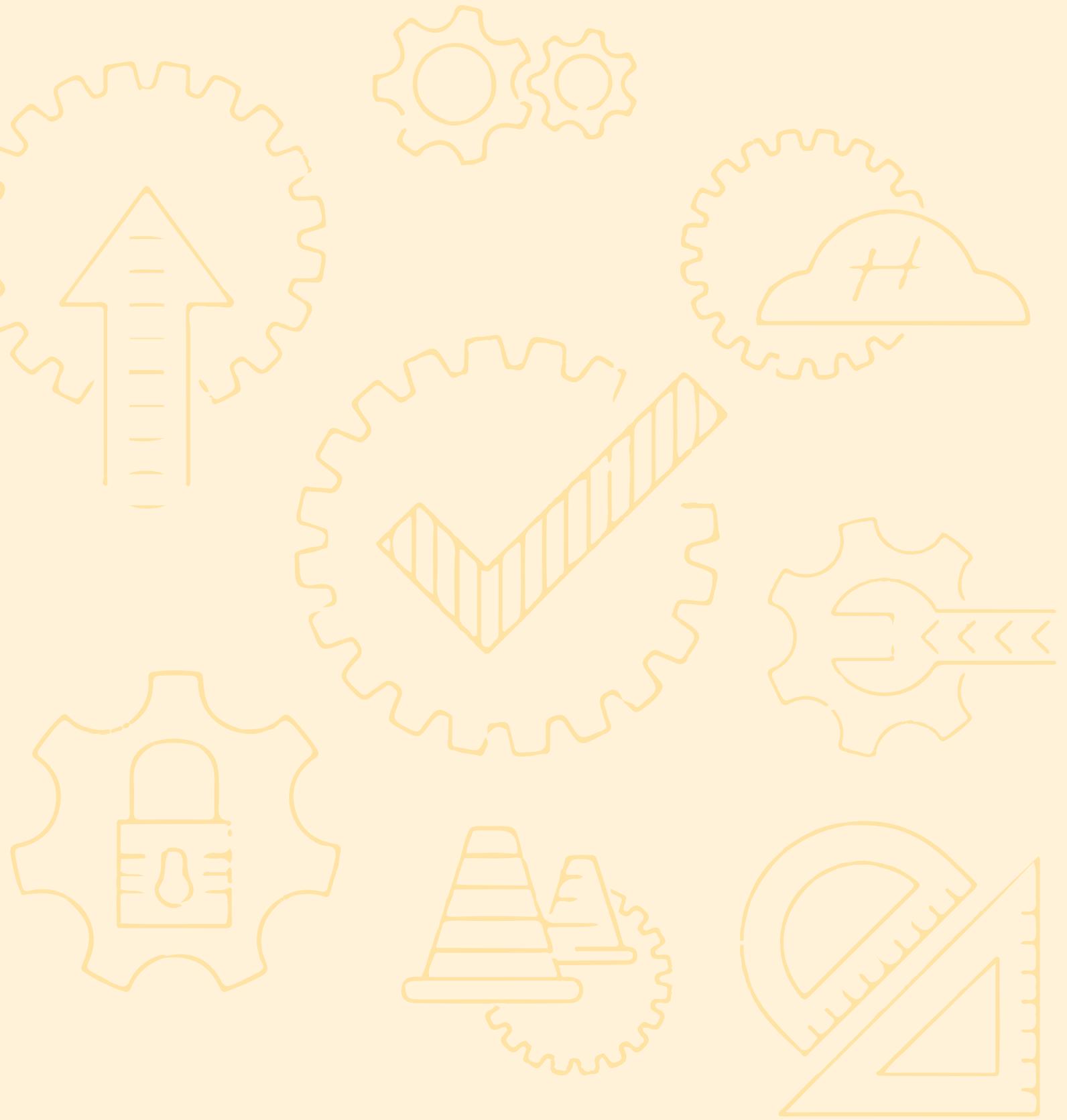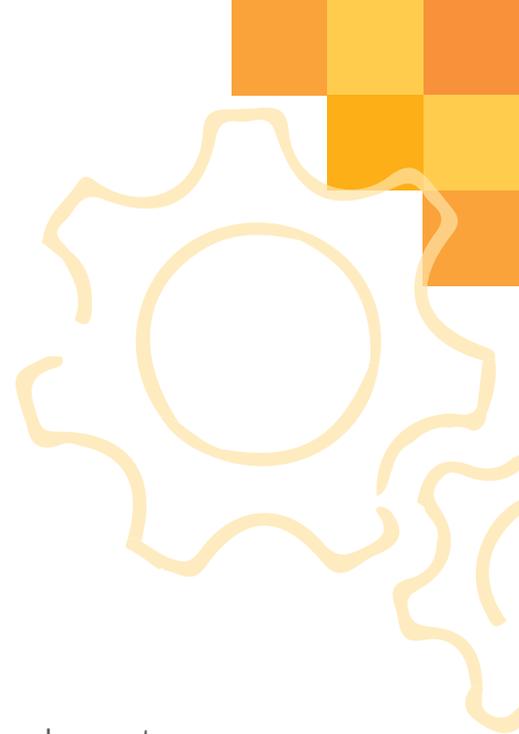
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