

Assisting Smart Cities and Communities in ISO 37120 Certification and Smart Sustainable Governance

International Program 2019-2020

1. INTRODUCTION



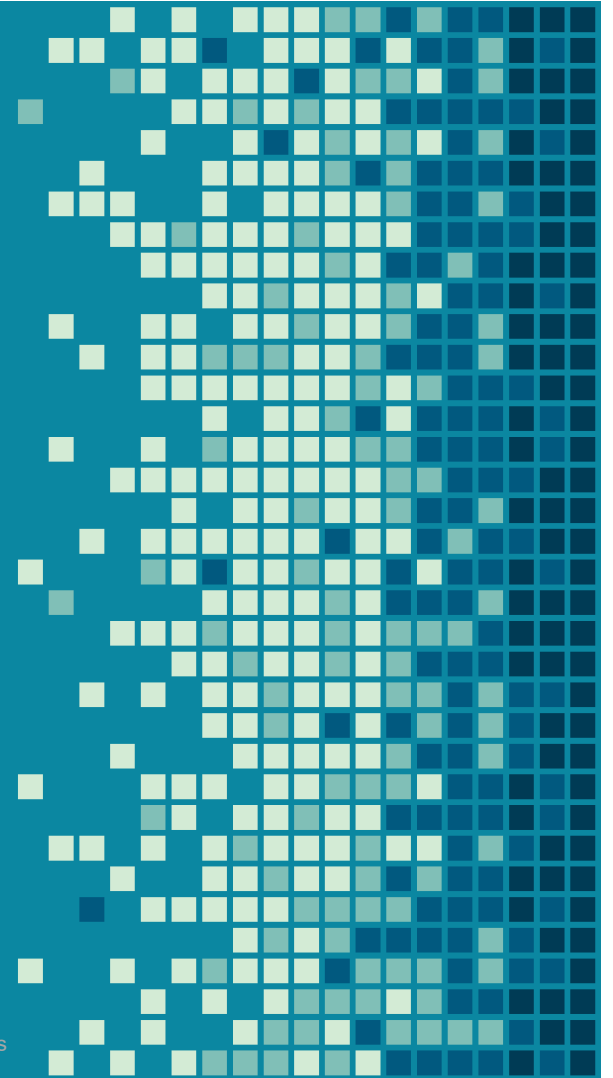
ISO 31720:2018 Certification Assistance Program for Smart Cities and Communities

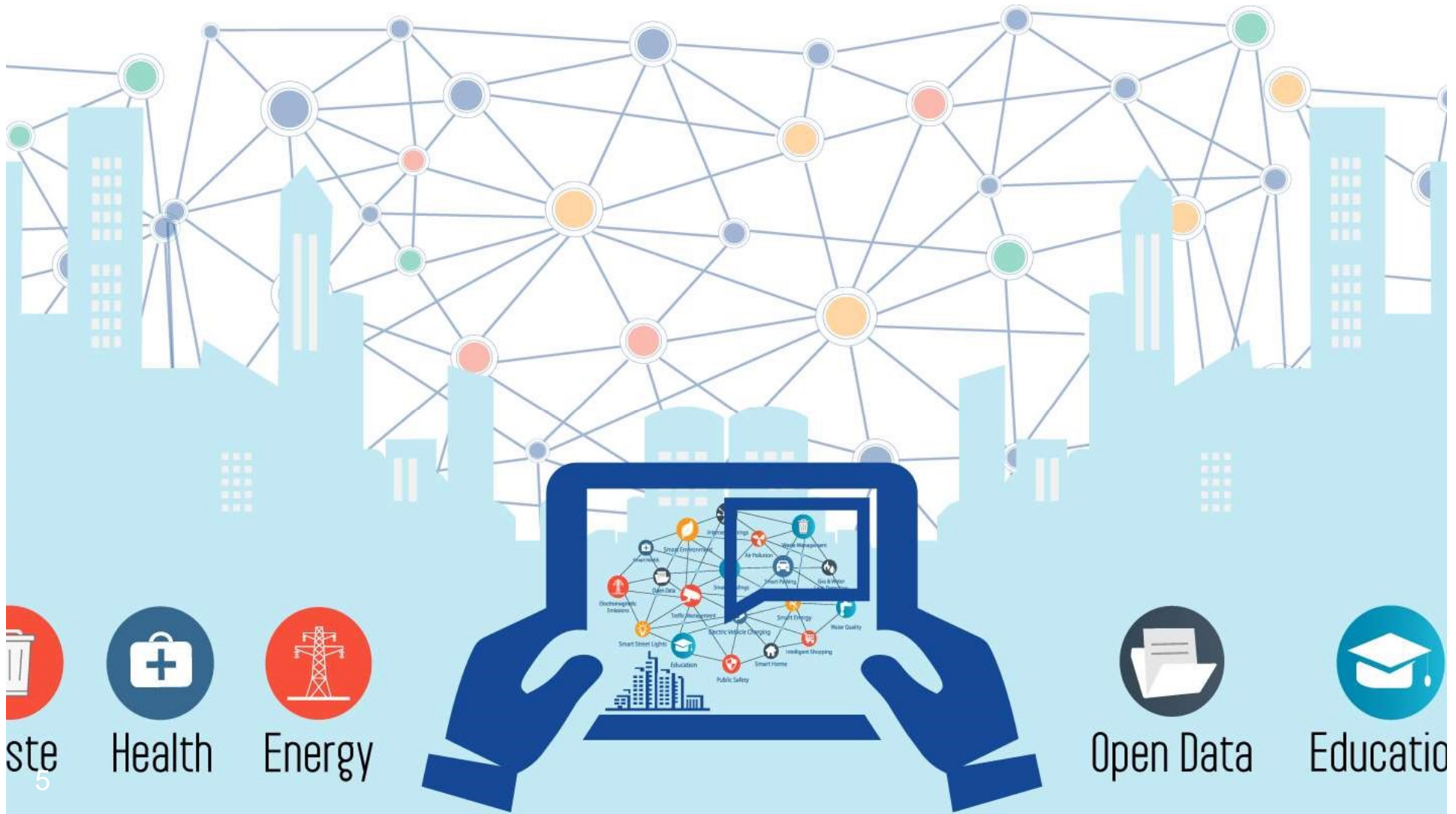


OBJECTIVES

- Support certification needs of city administrations with novel digital transformation technology Smart City Monitor with easy presentation of city performance in compliance with key international standard ISO 37120 Sustainable development of communities - Indicators for city services and quality of life
- Simplify and decrease costs of the certification in compliance with the standard and increase its practical value for cities
- Make the standard working in daily life to assist community administrations in smart sustainable management and governance and transparency of its achievements

“ *International Standard ISO 37120:2018 Establishes a set of standardized Core, Supporting and Profile indicators that provide a uniform approach to what is measured, and how that measurement is to be undertaken (iso.org)*





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Health



Energy



Open Data



Educatio

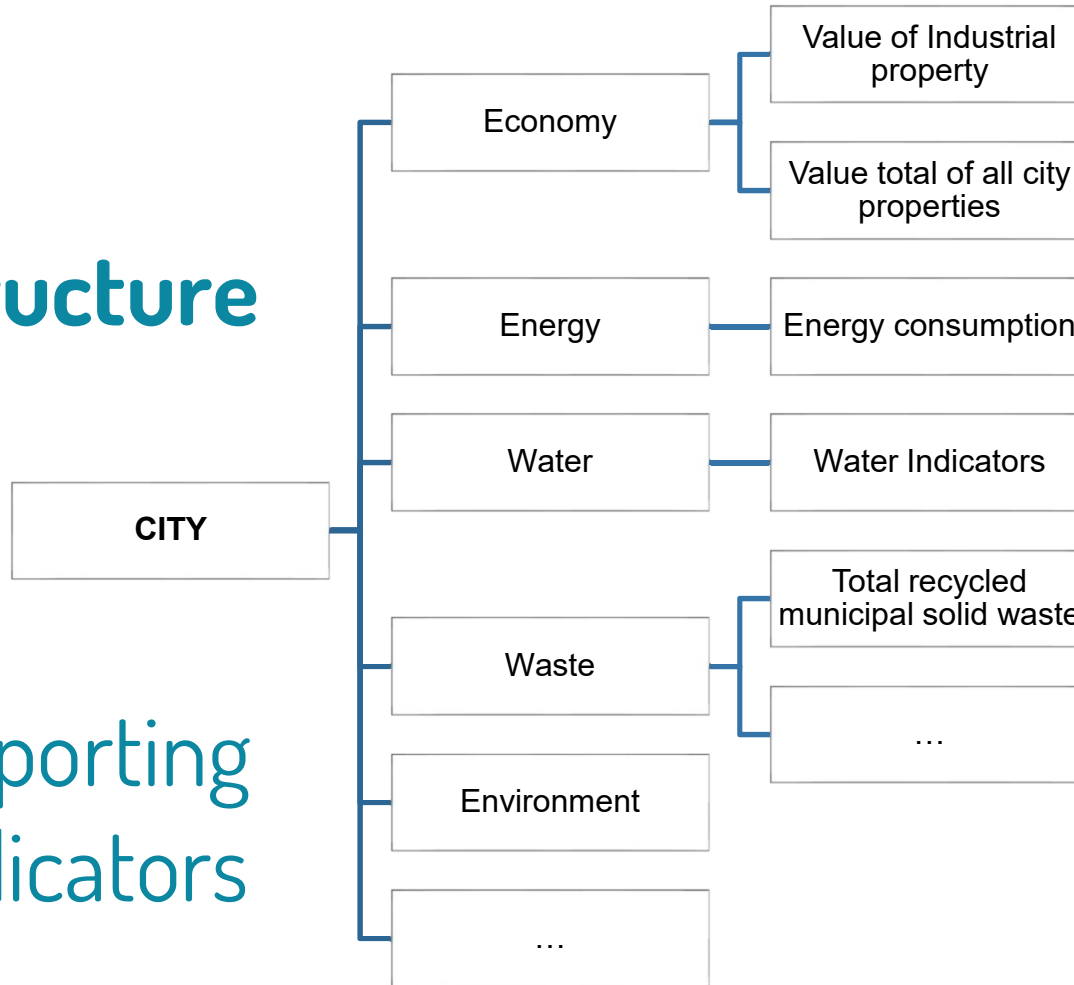
ISO 37120 Themes as Objects of Monitoring

Economy
Education
Energy
Environment and climate change
Finance
Fire and Emergency Response
Governance
Health
Housing
Population and social conditions
Recreation

Safety
Solid Waste
Sport and culture
Telecommunications
Urban Planning
Transportation
Urban/local agriculture and
food security
Urban planning
Wastewater
Water

ISO 37120 Structure

19 themes
as focus areas
with core, supporting
and profile indicators



Performance, Sustainability, Transparency in real time

In assisting cities in steering and assessing the performance management of city services and all service provisions, the novel Digital Twin **CityMonitor 37120** runs on technology platform **Smart City Monitor** and presents comprehensive performance results for all 19 theme-objects. It is **open to adding and upgrading** with any necessary local indicators and city infrastructure objects that are required to assist in smart city management effectively.

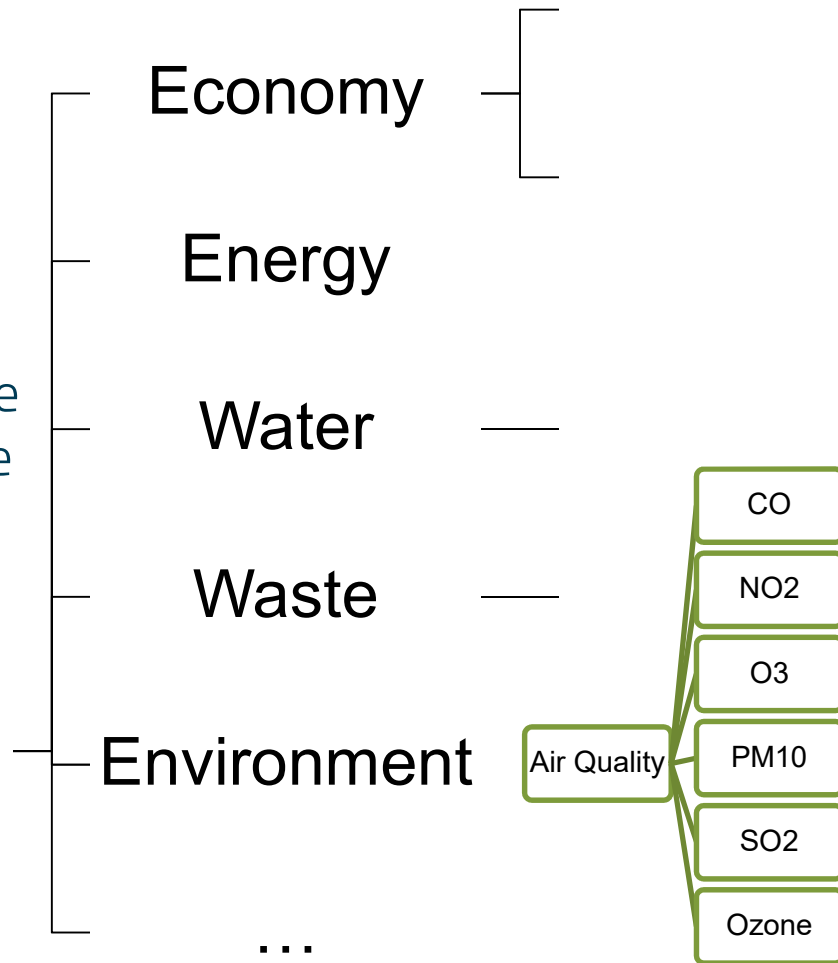


Monitor ISO 37120			
Object Name	Status		
Smart City Municipality			
Urban Planning			
Fire and emergency response			
Shelter			
Energy			
Transportation			
Education			
Water and Sanitation			
Wastewater			
Telecommunication and innovation			
Solid waste			
Safety			
Health			
Governance			
Environment			
Economy			
Finance			

Example:

Air Quality indicators in CityMonitor 37120 report for Environment calculate and present real time data that is received from diverse sensors distributed over the urban area and installed on mobile vehicles (busses, trains, etc)

CITY



CityMonitor 37120 Environment

Provides citizens and administrations with environmental information in real time linked to specific locations and the city as a whole

Calculates optional KPIs for side effects and costs

Report for "Environment"

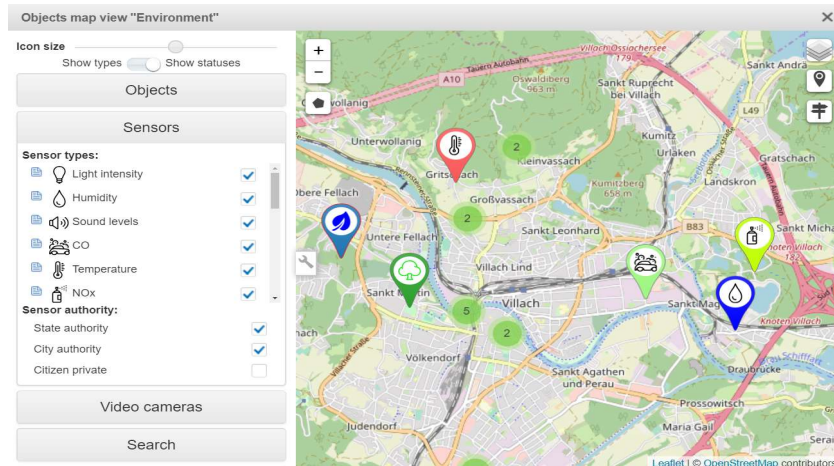
Overview Descriptors Indicators Data Elements Sensors Video cameras Constants

Current status of indicators

Indicator	Status	Date	Time	Value
Particulate matter (PM10) concentration	Optimum	2018-10-24	14:21:54	49.85 micrograms per cubic meter
Equivalent carbon dioxide (CO2e) units generated within a city	Optimum	2018-10-24	13:30:02	1.279 tons
Greenhouse gas emissions measured in tonnes per capita	Optimum	2018-10-24	13:30:02	3.060e-5 tons
Fine particulate matter (PM2.5) concentration	Optimum	2018-10-24	14:01:40	20.17 micrograms per cubic meter

Indicator relations to other indicators in the object

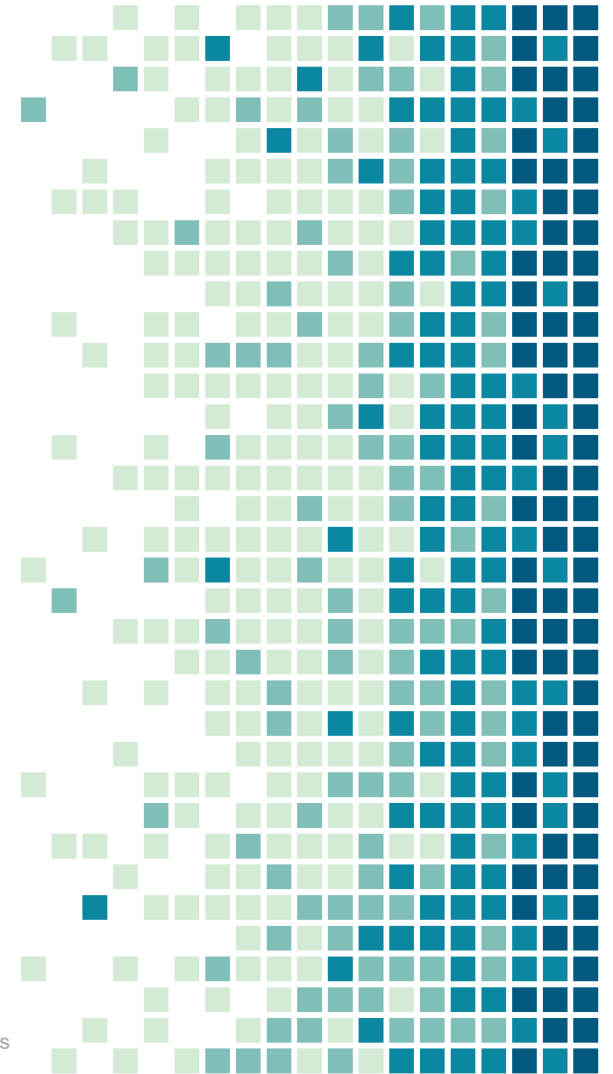
- Particulate matter (PM10) concentration
- Equivalent carbon dioxide (CO2e) units generated within a city
- Greenhouse gas emissions measured in tonnes per capita
- Fine particulate matter (PM2.5) concentration



2. THE TECHNOLOGY



ISO 31720:2018 Certification Assistance Program for Smart Cities and Communities



Smart City Monitor 37120 Dashboard & Reports

- Principally new powerful interactive tools assisting in smart management by administrations and utility providers
- Present of achievements and verifiable evidence data online to let continuing auditing and smart governance
- Foster continuous timely improvements and transparency
- Introduce and support compliance with standards in daily operations

TECHNOLOGY COMPONENTS

CITY TWIN MODEL

by ISO 37120 represents all major urban processes and typical infrastructure in 19 schematic themes above 60 indicators offering holistic and integrated approach to sustainable governance and development

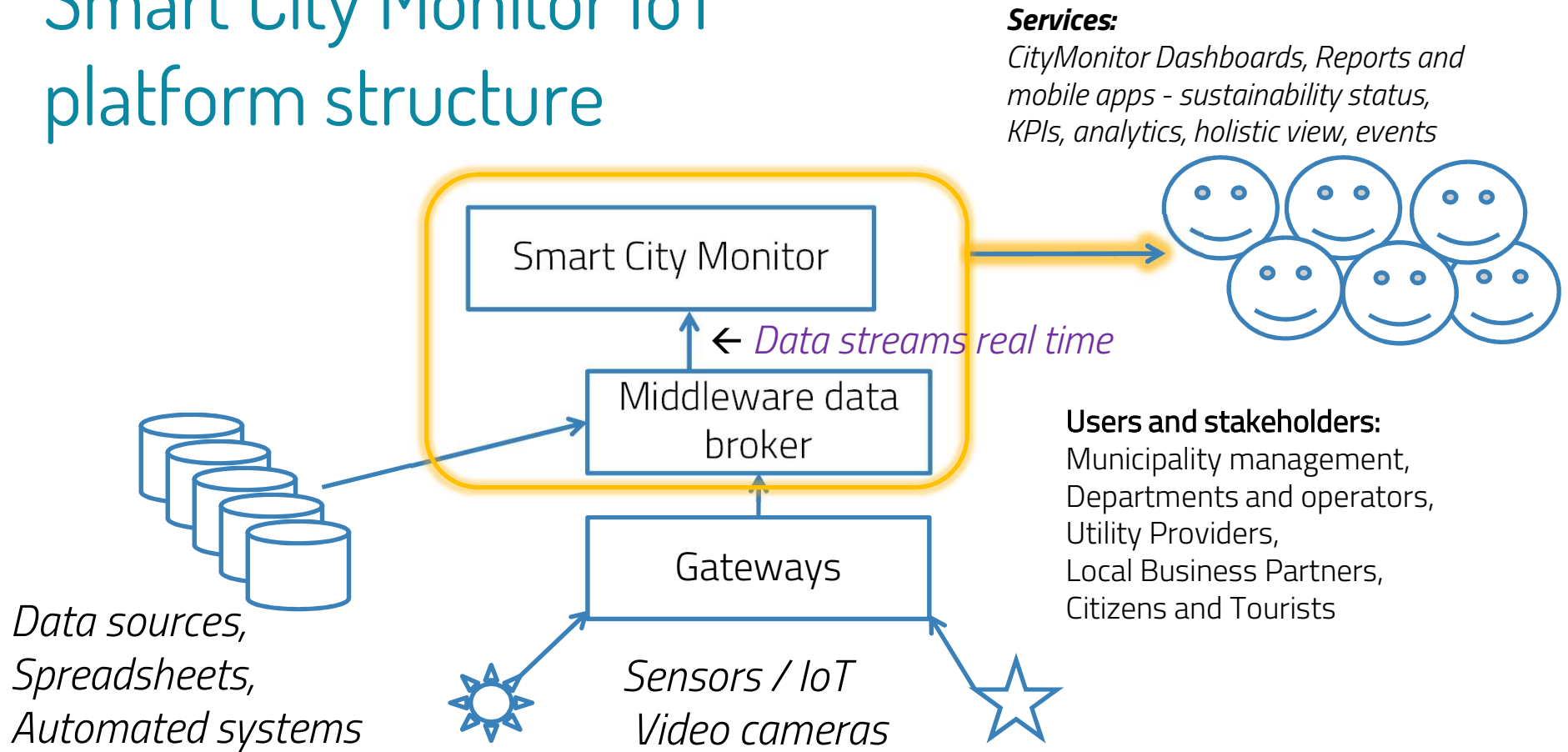
CITY DATA

is prepared by the responsible city departments and organisations in MS Excel files in necessary periods (monthly, weekly, daily) accordingly to ISO 37120 requirements

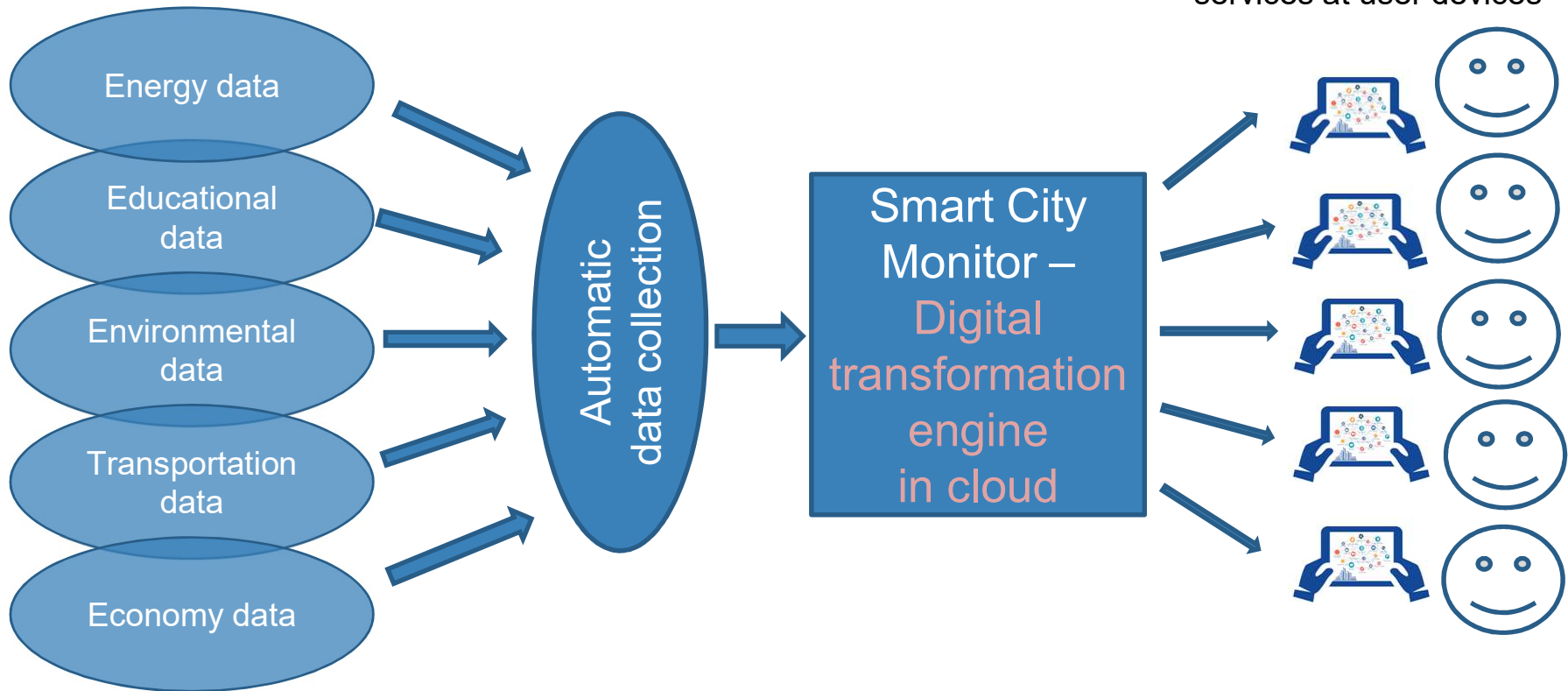
SMART CITY MONITOR

High level AI-driven IoT technology platform automatically collecting big data from large number of data sources and its digitally transforming into rich custom information services for stakeholders in real time

Smart City Monitor IoT platform structure



Holistic core operations



* * * Various heterogeneous urban data sources

Analytics on common user devices!

Notebooks



Tablets



Mobiles



Practicality and simplicity of the solution

1. Municipality assigns responsible people and organisations to manage and periodically update 20 specific MS Excel spreadsheet files related to ISO 37120 themes i.e. Economy, Energy, Education, Finance, Water ,Waste, etc
2. Files are kept in relevant storage in cloud (Dropbox, GoogleDocs)
3. Digital CityTwin ISO 37120 automatically
 - Imports all new data from the files
 - Calculates all KPIs and sustainability statuses of each Theme – Object
 - Saves results in the city databases for Big Data analytics
 - Deliver real time updates to each stakeholder who has web apps Monitoring Dashboards and Analytc Reports
 - Notifies users about events and specific performance changes

Example of source data in MS Excel file

Waste water
city data
entered by
ISO 37120 in
spreadsheet

	A	B	C	D	E	F	G
1	Date	Total amount of wastewater collected (data)	Total amount of wastewater undergoing no treatment (data)	Total amount of wastewater undergoing primary treatment (data)	Total amount of wastewater undergoing secondary treatment (data)	Total amount of wastewater undergoing tertiary treatment (data)	Total number of people served by wastewater collection (data)
2	01.01.2017	1594176446	90866636	1578909730	1094983798	69494952	75200
3	01.02.2017	1395724049	112444385	1381383160	1256725111	73460591	75194
4	01.03.2017	1339004633	87745538	1608803349	1315048304	73472893	75514
5	01.04.2017	1470272928	93074418	1471399800	1138110975	80099333	75503
6	01.05.2017	1321225534	88041963	1304687241	1311709287	63438276	75527
7	01.06.2017	1544380740	97297217	1457020305	1381808201	67232818	75542
8	01.07.2017	1454915159	95664025	1579359140	1345393441	62308471	75567
9	01.08.2017	1557539521	93918667	1452190054	1196863725	74304411	75584
10	01.09.2017	1304507473	109830430	1270446543	1098606066	75829266	75571
11	01.10.2017	1492904489	88304399	1441153819	1130573768	72005078	75643

- The spreadsheet data files are made accordingly to ISO 37120 requirements
- CityTwin processes incoming data as data streams in real time
- The data streams can imported from a spreadsheet or received from a sensor
- No matter how these data were obtained, they are used to calculate indicators
- KPI combinations define Theme Object status presented at Monitoring Dashboard

The implementation: Easy and Simple to Start

- Smart City Monitor is licensed as a cloud subscription service
- CityTwin 37120 is installed automatically in the same cloud and runs the sample city ~60 000 citizens
- 20 spreadsheet files provide data samples for the sample city
- After data replacement with the relevant data for the specific municipality CityTwin calculates the City performance and Status
- The results are promptly available online at Monitoring Dashboard
- CityTwin model is open for adding custom KPIs and City Objects

Administrations have trustful answers at any time and in any place and in real time

*How are
you now
my city?*

- Monitoring dashboard presents the holistic object statuses and indicators for city services and quality of life by ISO 37120. It is open for adding any locally defined custom indicators to measure performance management and sustainability.
- CityTwin supports policy development, priority setting applicable to any local government that wants to measure its performance in a comparable and verifiable manner, irrespective of size and location enabling continuous improvements and audit of quality of life.

Welcome to begin your journey to Smart
Sustainable Governance and ISO 37120
certification for your city !

You can find us by:
info@asides.org
<http://asides.org>

CREDITS

Special thanks to all the people who made and released these awesome resources for free:

- Presentation template by [SlidesCarnival](#)
- Photographs by [Unsplash](#)
- Photographs from the municipalities sites.

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- Titles: **Dosis**
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Pastel green #d3ebd5 • Green #80bf7 • Teal #0b87a1 • Navy #01597f • Dark navy #003b55

ASIDEES

ISO 31720:2018 Certification Assistance Program for Smart Cities and Communities

