



# Designing a Database Platform in Eilat

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What are *Smart Cities* ?



# Smart City

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A city or urban area that collects data which is analyzed and interpreted to allow for changes in the city that can improve resident's quality of life.

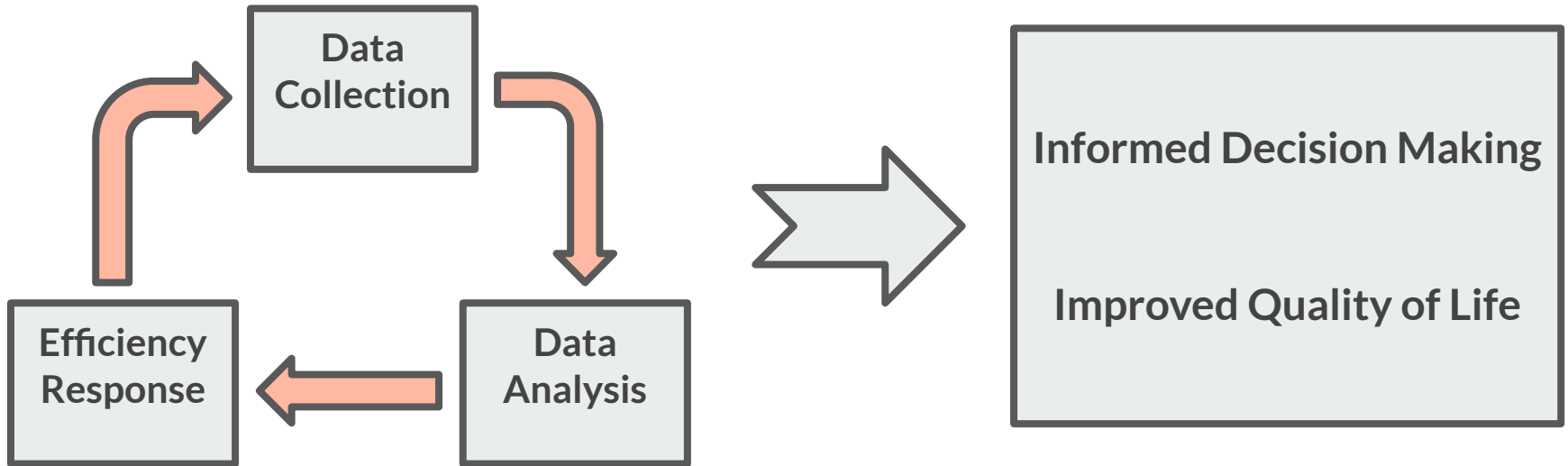
## Common Areas of Focus:

- Energy Management
- Water Usage
- Mobility
- Waste management



# Smart City Initiatives

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# Eilat's Current State

- The city has implemented sensors & is collecting data...
- 98% of this data is currently not being used
  - Unorganized
  - Tedious to retrieve
  - Non-anonymized (privacy protection)

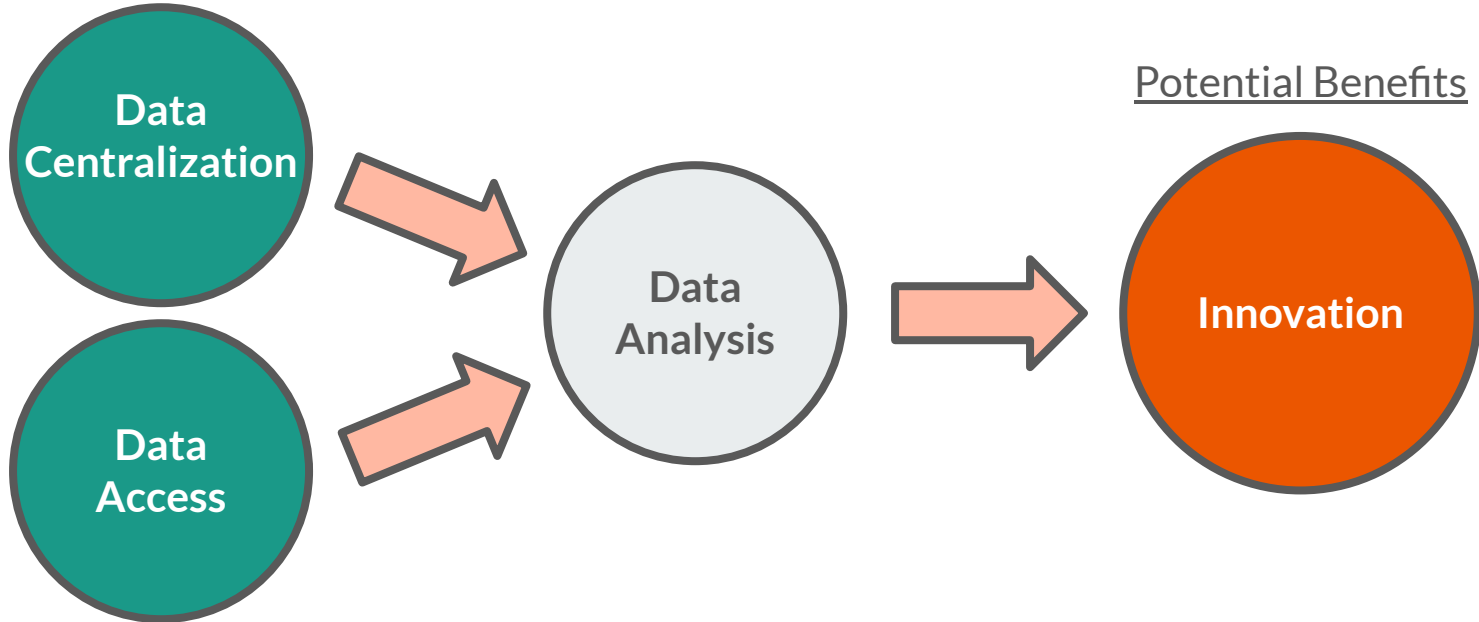


**Our goal was to assist the Eilat Municipality in the design of a centralized database platform that can allow data collected in the city to be used for the innovation and improvement of Eilat.**



# How Database Platforms Aid Smart Cities

## What Platforms Offer



# Database Platforms: Common Themes



1. Organized Access to Data
2. Personalized Data Analysis
3. Community Creation & Opportunities
4. Open Communication Between Admin and Users



# Database in Action: Boston, MA

The screenshot shows the homepage of the Analyze Boston website. At the top left is a blue menu icon and the text "ANALYZE BOSTON". To the right is the City of Boston seal and navigation links: "DATASETS NEWS TIPS LOG IN SIGN UP CONTACT". The main header features a blue-tinted background image of archival boxes with the text "Welcome to ANALYZE BOSTON" and a sub-header: "Analyze Boston is the City of Boston's open data hub. We invite you to explore our datasets, read about us, or see our tips for users." Below this is a search bar with the placeholder text "Search from 160 Datasets" and a magnifying glass icon. A "SHOWCASES" section follows, with the subtext "See what our users are doing with open data." and four featured items: "Our Progress Toward Carbon Neutrality" (with a line graph), "Beantown Solar" (with a 3D map), "Climate Ready Boston Map Explorer" (with a map), and "Imagine Boston 2030 Metrics Dashboard" (with a dashboard interface).

**ANALYZE BOSTON**

WELCOME TO  
**ANALYZE BOSTON**

Analyze Boston is the City of Boston's open data hub. We invite you to explore our datasets, read about us, or see our tips for users.

Search from 160 Datasets

**SHOWCASES**

See what our users are doing with open data.

- Our Progress Toward Carbon Neutrality**
- Beantown Solar**
- Climate Ready Boston Map Explorer**
- Imagine Boston 2030 Metrics Dashboard**

**Our Design:**

**What Does The Platform Offer?**



# Main Platform Concepts



Data That  
Matters



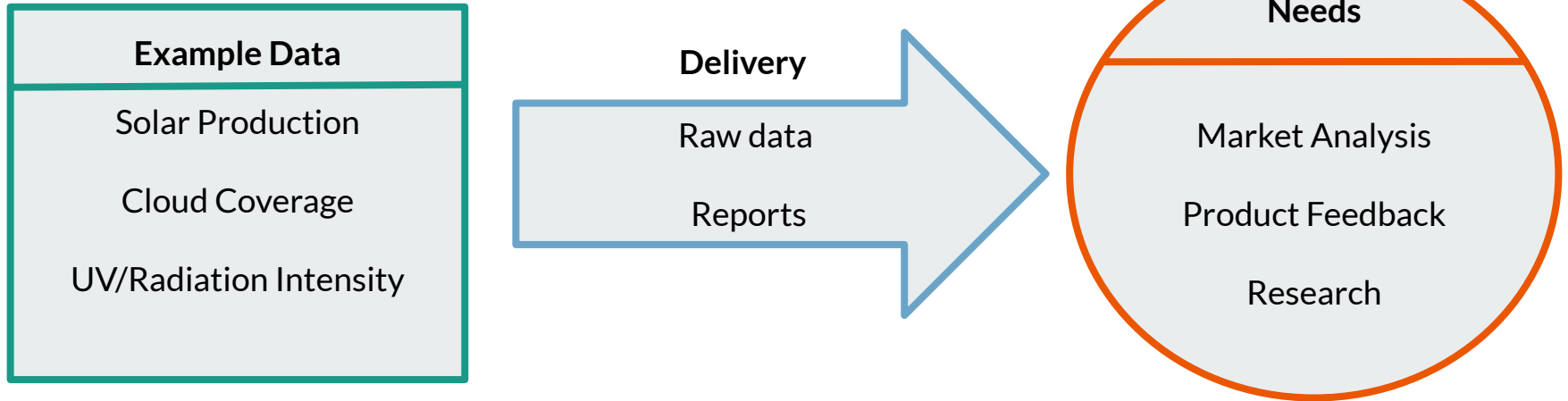
Open  
Communication



Community  
Features

# Data that Matters

“I want to know if I can install solar systems in a given building” ~CEO, Green Insight LTD



# Open Communication with Municipality

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Personalized Access



Contact Us



Data Request

# Community Features

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Opportunities



Project Showcase



Data on Demand

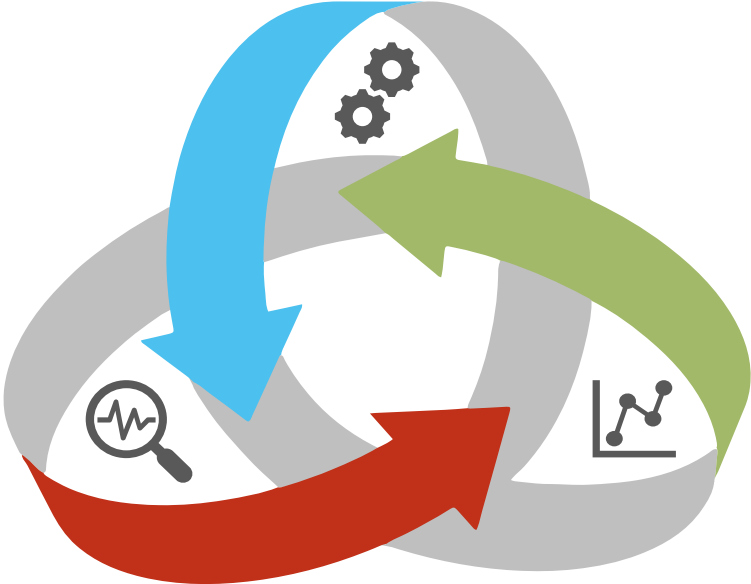
# Fostering a Community of Innovation in Eilat



# Community of Innovation



Showcase Smart City Initiatives



Attract Startups and Researchers to the City



Advertise Calls for Action



# Community of Innovation

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## Showcase Smart City Initiatives

- Inform users
- Generate excitement
- Ask for contribution

# Community of Innovation

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## Advertise Calls for Action

- Address issues
- Outlines challenges
- Fosters collaboration

# Community of Innovation

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## Advertise Calls for Action

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## Attract Startups and Researchers to the City

- Access to database
- Provide support services
- Brings new tech & ideas
- Exposes areas for improvement

# Eilat Database Platform Navigation Tool





Municipality of Eilat

data

community

Contact us



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< Highlight Project Showcase! or Facts & Statistics, etc. 70% Energy Independent >

o o o o o

Learn More

Search from \* datasets

Browse Data by Topic:

- icon Renewables
- icon Production
- icon Consumption
- icon meteorology
- icon Building

Featured Reports:



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Filter by:

+ Type

+ Topic

+ File Format

+ Publication date

Suggested:

+ datasets

+ Reports

+ Projects

"keyword" Search

Sort



Selected filters: [wavy line] [wavy line] [wavy line]

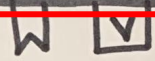
Results: ✖



Title of Data/File

Small Description

•year •author •file type •tags



Title of Data/File

Small Description

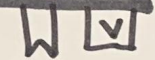
•year •author •file type •tags



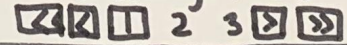
Title of Data/File

Small Description

•year •author •file type •tags



Showing: 1-25





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[data](#)

[Community](#)

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Env



# Community Opportunities!

## Projects

Past

New

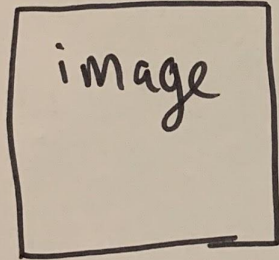
Featured



icon
Title

icon
Title

icon
Title



Title of Above Project  
description ~~~~~



...

[Learn More >](#)

Data on Demand

[Publish Data](#)



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# Contact Us!

The municipality appreciates your feedback...

## Contact Info:

Electricity Sector

email: email here

phone: phone here

Transportation Sector

email: email here

phone: phone here

Other Sectors Here

email: email here

phone: phone here

Feedback

Data Request

Publish Data

Name:

Email:

Phone:

Reason:

- general feedback
- interface issue
- complaint
- other

if other, explain:

Comments:

type comments here.

Submit >



**Thank you!**  
**Questions?**



# References



Slide 3: [https://www.google.com/url?sa=i&url=https%3A%2F%2Fsmartcity.brussels%2Fthe-project&psig=AOvVaw3PSmgVW4Ves1TL\\_LY5YJbO&ust=1583067452686000&source=images&cd=vfe&ved=0CAIQjRqxqFwoTCNDz8fvngucCFQAAAAAdAAAAABAE](https://www.google.com/url?sa=i&url=https%3A%2F%2Fsmartcity.brussels%2Fthe-project&psig=AOvVaw3PSmgVW4Ves1TL_LY5YJbO&ust=1583067452686000&source=images&cd=vfe&ved=0CAIQjRqxqFwoTCNDz8fvngucCFQAAAAAdAAAAABAE)

Slide 4: <https://jewishbusinessnews.com/2014/11/03/eilat-eilot-renewable-energy-international-conference-and-exhibition-dec-7/>

- Slide 11:
1. [https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.flaticon.com%2Ffree-icon%2Fhandshake\\_281428&psig=AOvVaw1fA0nR2OZxK1bTBajRtGKp&ust=1582924432447000&source=images&cd=vfe&ved=0CAIQjRqxqFwoTCMDA79bV8ucCFQAAAAAdAAAAABAD](https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.flaticon.com%2Ffree-icon%2Fhandshake_281428&psig=AOvVaw1fA0nR2OZxK1bTBajRtGKp&ust=1582924432447000&source=images&cd=vfe&ved=0CAIQjRqxqFwoTCMDA79bV8ucCFQAAAAAdAAAAABAD)
  2. <https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.freepik.com%2Ffree-photos-vectors%2Fproject-icon&psig=AOvVaw08RasVklItGksDDW39H5zY&ust=1582924753027000&source=images&cd=vfe&ved=0CAIQjRqxqFwoTCNiGtrrU8ucCFQAAAAAdAAAAABAE>
  3. [https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.kindpng.com%2Fimgv%2FJoixbm\\_clip-art-analytics-icon-png-data-analytics-icon%2F&psig=AOvVaw1rvP2TiI0EIZMSPwFbhv8t&ust=1582925148295000&source=images&cd=vfe&ved=0CAIQjRqxqFwoTCNjesvTV8ucCFQAAAAAdAAAAABAK](https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.kindpng.com%2Fimgv%2FJoixbm_clip-art-analytics-icon-png-data-analytics-icon%2F&psig=AOvVaw1rvP2TiI0EIZMSPwFbhv8t&ust=1582925148295000&source=images&cd=vfe&ved=0CAIQjRqxqFwoTCNjesvTV8ucCFQAAAAAdAAAAABAK)

- Slide 12:
1. <https://www.google.com/url?sa=i&url=http%3A%2F%2Fwww.iconarchive.com%2Fshow%2Fsilky-line-user-icons-by-custom-icon-design%2Fusers-icon.html&psig=AOvVaw0-jSrQKmyM4yXaYWNPsotZ&ust=1582927023785000&source=images&cd=vfe&ved=0CAIQjRqxqFwoTCNi1hbXe8ucCFQAAAAAdAAAAABAD>
  2. [https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.kindpng.com%2Fimgv%2FIRTimJJ\\_transparent-contact-icon-png-contact-us-icon-png%2F&psig=AOvVaw30y1LeI63dOYiJAHhjt84&ust=1582927111703000&source=images&cd=vfe&ved=0CAIQjRqxqFwoTCMDeoaje8ucCFQAAAAAdAAAAABAD](https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.kindpng.com%2Fimgv%2FIRTimJJ_transparent-contact-icon-png-contact-us-icon-png%2F&psig=AOvVaw30y1LeI63dOYiJAHhjt84&ust=1582927111703000&source=images&cd=vfe&ved=0CAIQjRqxqFwoTCMDeoaje8ucCFQAAAAAdAAAAABAD)
  3. [https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.kindpng.com%2Fimgv%2FwmThb\\_request-service-request-icon-png-transparent-png%2F&psig=AOvVaw2vZjMNQRyW4-ag9gdDWmh4&ust=1582927181271000&source=images&cd=vfe&ved=0CAIQjRqxqFwoTCJCV1r\\_d8ucCFQAAAAAdAAAAABAD](https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.kindpng.com%2Fimgv%2FwmThb_request-service-request-icon-png-transparent-png%2F&psig=AOvVaw2vZjMNQRyW4-ag9gdDWmh4&ust=1582927181271000&source=images&cd=vfe&ved=0CAIQjRqxqFwoTCJCV1r_d8ucCFQAAAAAdAAAAABAD)



Page Analytics:

views: \*

bookmarks: \*

interactions this week: ▲ \*%

Suggested:

Title of Report  
description ~~~~~

Title of Dataset  
description ~~~~~

Title of Project  
description ~~~~~

Title of Data / File

back to results

description



File name .....

preview

download



Additional Info:

Title: ~~~~~

Data type: ~~~~~

Description: ~~~~~

Collection Frequency: ~~~~~

Date Started: ~~~~~

Publisher: ~~~~~

Contact Information: ~~~~~

Publications:



# Potential Users



- Citizens
- \*Companies
  - Nonprofit
  - **Startups**
- \*Researchers
- \*Municipalities
- \*NGOs
- \*Universities
- \*Accelerators/Hubs
- Tourists
- Reporters/Politicians

# MVP Features



1. Filtering of datasets
2. Basic searching and browsing
3. The ability to log-in through user accounts
4. A showcase page for current/future projects
5. The ability to submit feedback on the platform

While not mandatory to be included in the first release, seven additional important features were identified:

1. The ability to request missing data
2. A “call to action” page for needed datasets or initiatives to participate in
3. A survey page for opinions on future expansion
4. A “recommend to a friend” page
5. The ability to save/bookmark datasets
6. The collection of user analytics such as views and clicks
7. The ability to submit personal datasets

# Scalability

## Second Release

<ul style="list-style-type: none"> <li>● “Call to action” for collaborative projects / initiatives</li> <li>● History tab for recently searched datasets and reports</li> </ul>	<ul style="list-style-type: none"> <li>● Analytics on how many times a dataset was viewed, downloaded, or mentioned in publications</li> <li>● Recommended or suggested datasets and reports when viewing a result</li> <li>● Recommending contacts on a dataset</li> <li>● Upvoting in the Data on Demand files</li> </ul>	<ul style="list-style-type: none"> <li>● Improved keyword search algorithm</li> <li>● Verification from the municipality for a published data set</li> <li>● Report options for datasets which are unverified by the municipality</li> <li>● An interactive map with multiple data sets</li> </ul>	<ul style="list-style-type: none"> <li>● In site data viewer with basic graphing</li> <li>● Ability to select multiple data sets for comparison</li> <li>● Basic statistical analysis tools (trends, mean, etc.)</li> </ul>
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## Third Release

<ul style="list-style-type: none"> <li>● Ad page for people who need projects/data or projects who need people</li> <li>● Pilot project inquiry page for start-ups interested in working in Eilat</li> <li>● Quick view of search/filter results</li> </ul>	<ul style="list-style-type: none"> <li>● Dataset/report sharing (email, copy link, etc.)</li> <li>● Customizable download of specific graphs or part of data, or file formats</li> </ul>	<ul style="list-style-type: none"> <li>● Ability to upload personal datasets for use within the comparison tool</li> <li>● Forums under datasets for commenting</li> </ul>	<ul style="list-style-type: none"> <li>● Personalized landing page</li> <li>● Ability to publish surveys on the site</li> <li>● Full studio analysis tool with multiple types of graphing, comparison, statistical analysis, etc.</li> </ul>
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# Data Categorization



**Energy consumption** includes energy data at all levels of consumption such as household consumer, industrial, transportation, and public buildings.

**Energy production** includes highly focused renewables, specifically solar energy production both commercially and residential, as well as generation by fossil fuels, which are slowly being phased out.

**Dynamic descriptive data** includes meteorological data such as solar radiation and UV, cloud coverage, weather patterns and temperature, as well as other information that relies on changing factors such as maintenance of equipment, transmission efficiency, and efficiency of production.

**Constant descriptive data** includes building specifications such as roof size and orientation, building size, and year of construction, as well as others that should remain the same such as consumer or user information, sectors based on geographical data (residential neighborhoods vs. tourist areas), and maximum energy storage.