# SSDI – Sustainable Software Defined Infrastructure

A joint initiative between Wipro-Bentley-Mapped to decarbonize the corporate and commercial real-estate sector

# Priorities by Industry

| | Office Space | Retail Stores | Malls | Industrial |
|---|---|---|---|---|
| *Regulatory Reporting* | | | | |
| *Energy Efficient Space* | | | | |
| *Optimal Space Utilization* | | | | |
| *Real Estate-as-a-service* | | | | |
| *Virtual Fashioning* | | | | |
| *System Interoperability* | | | | |

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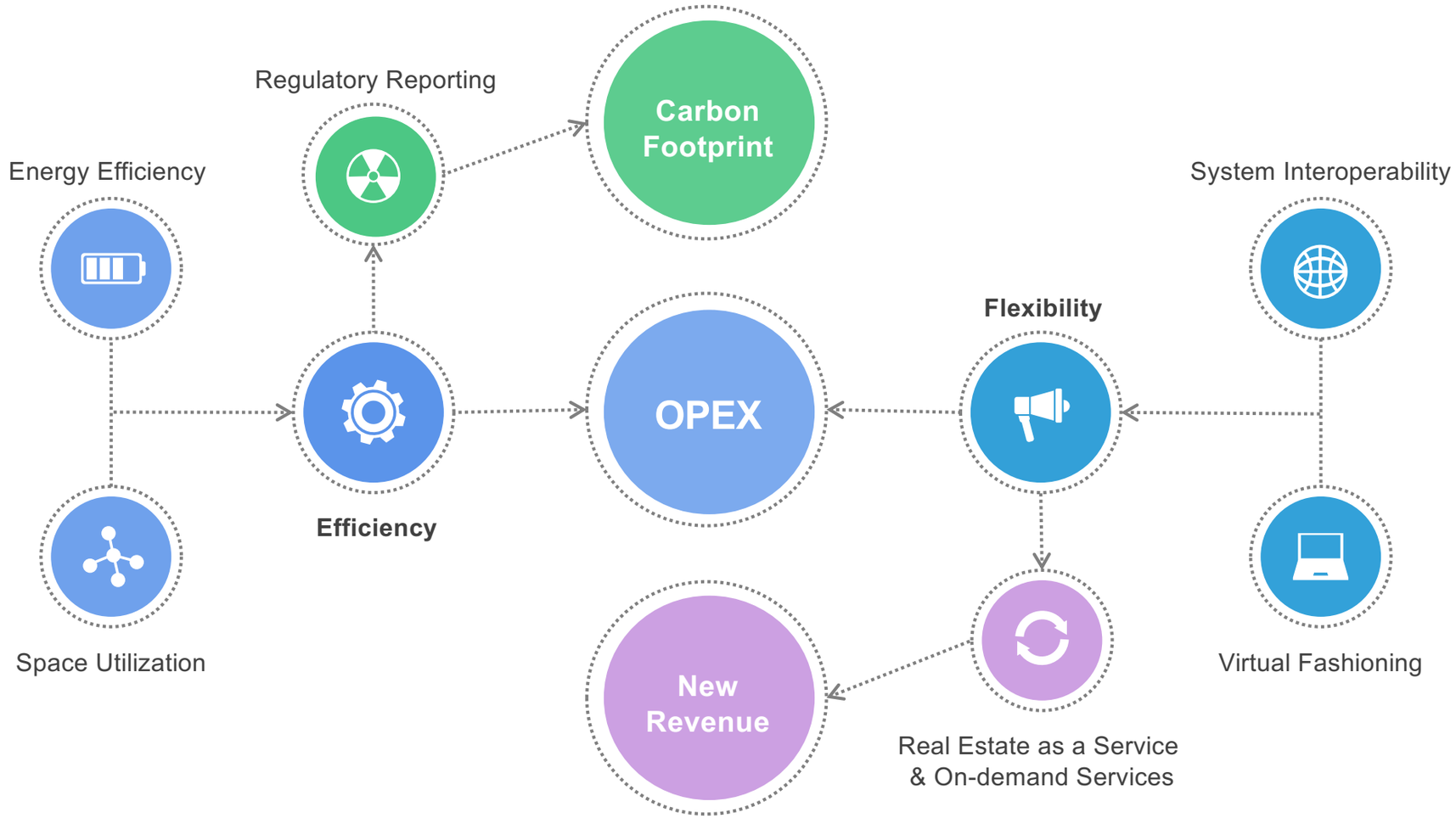
# Needs of an Owner/ Manager

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# The existing Gap

**Building Manager**
Want to identify opportunities to improve operational efficiency and tenant experience

**Situational Awareness**
lack of a cross functional view across systems

**System Intelligence**
legacy systems lacking advanced analytics

**System Inflexibility**
extending existing systems for new apps

**Building Owners**
Want to modernize their building portfolio to take advantage of new market dynamics

**Data Access**
multiple systems with different access policies

**Scale and Standardization**
heterogeneous nature of building systems

**Cyber Security**
multiple legacy technology limited security controls

# A representative Building Manager's journey

**John Doe is a Building Manager and has the difficult job of balancing Occupant Experience with Operational Expenditure and Sustainability Metrics.**

**Check Building Performance**

**9:00 am** – Reaches the site and looks at all the building sub-systems to get a feel of how the building is performing, and what are the urgent jobs

**Schedule Maintenance**

**10:00 am** - Notices a complaint from some occupants about cooling not working. So he schedules a maintenance job and proceeds with his day-to-day tasks

**Smart Applications**

**2:00 pm** – Attends an online building managers seminar, and get lots of new ideas on how he can use intelligent applications to do his job better

**Data driven Decisions**

**4:00 pm** - wants to do an analysis to know how occupancy rates impact energy usage. So he talks to the BMS vendor to get the data. But then realizes he doesn't have a granular hour-by-hour usage, so cannot do the analysis.

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# The Solution Construct

We give you a cognitive platform to track, analyze, optimize and lay the foundation for next generation infra-as-a-service

### A Unified Data Fabric

*unifies IT, engineering and operational information and provides open APIs on top of it for future flexibility*

### Automated Regulatory Reporting

*simplifies the process of reporting embodied and operational carbon associated with the building construction and its operations*

### Smart Applications

*uses artificial intelligence to recommend actions which drive operational excellence and tenant experience*

### Cognitive Interface

*to provide a spatial context to building spaces and operation with BIM models*

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Dashboards
Operational Data
4D Value
15.40
IoT Information
Environment humidity (PYRA0102)
Environment humidity (PYRA0102)
4D Value
97.60
IoT Information
Solar radiation (PYRA0102)
No Data Available
More IoT Information
Ambient temperature (SEN50700)
Even More IoT Information
Ambient temperature (PYRA0102)
Module temperature (PYRA0102)
Tree View
IoT Devices
Name
Status
TimeTag
Value
Ambient temp
High Alarm
2021-11-20 23:
15.4°C
Solar radiatior
OK
2021-11-20 19:
0w/m²
Environment h
High Alarm
2021-11-20 19:
97.6%
Module tempe
OK
2021-11-20 19:
5.8°C
Solar radiatior
OK
2021-11-20 19:
0w/m²
Ambient temp
OK
2021-11-20 19:
6.6°C
Wind velocity (
OK
2021-11-20 19:
1.9m/s
Module tempe
OK
2021-11-20 19:
4.3°C
Battery charge
OK
2021-11-20 20:
19%
Battery voltage
OK
2021-11-20 20:
28.5V
Solar PV 14 Co
OK
2021-12-13 17:
0none
Properties
Attributes
Data History
Data Trend
Ambient temperature (PYRA0102)
Ambient temperature (PYRA0102): High Alarm
1. Nov
8. Nov
15. Nov
Messages
Identify point on element to rotate about
Snap Mode
Scope:
Top Assembly
0

# Smart Applications (Corporate & Commercial Real Estate)

**Whole Life Carbon Emissions Management**

Embodied and Operational Carbon Emissions Management through performance reporting and Green Certifications – LEED, BREEAM, ISO 50001

**Energy Optimization**

Optimizes energy consumption in real-time across building spaces and equipment through anomaly detection and building/ HVAC simulations

**Lean Waste & Water Management**

Optimizes resource consumption through waste minimization, water consumption, water leakage, etc. with data from IOT devices and sensors

**Space/ Layout Optimizer**

Manages and improves space utilization and occupancy with data from IOT devices and sensors

**Equipment Performance Optimizer**

Create predictive and condition based maintenance schedules with AI/ Machine Learning

**Performance Cockpit**

Visualizes building performance in Cognitive Dashboards with KPIs

[Link to Sustainability KPIs]

iTwin Mapped Wipro IPs

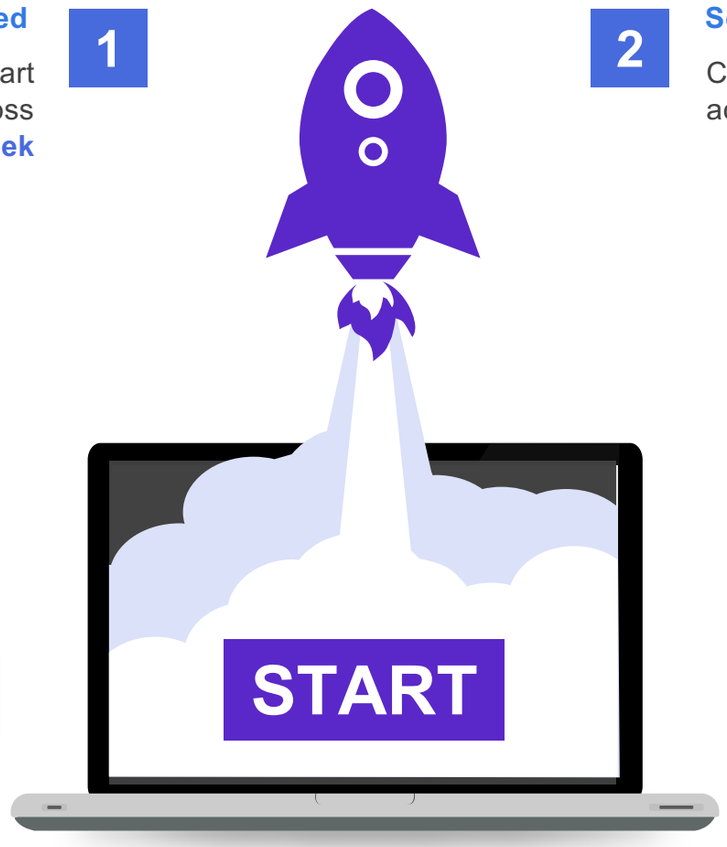
# We differentiate with speed, scale, and innovation

**Speed** 1

Hit the ground running and start monitoring building performance across the portfolio in **less than a week**

**Scale** 2

Capitalize on **global delivery capacity** across 100+ countries




**Zero-trust Security** 6

Neutralize cyber-security risks with advanced security controls

**Flexibility** 3

Future Safe with **flexibility to build new apps** and intelligence with Open APIs or onboard new partner solutions

**State-of-the-art Technology** 5

Proven tech platforms with a modular and secure architecture that provides control and data ownership to customers

**Best-of-the-breed ecosystem** 4

Three is greater than One. Leverage the power of Wipro-Bentley-Mapped to transform your Building Portfolio

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# The Ecosystem Construct

**Mapped**
Mapped | Data infrastructure for IoT, powering the API economy

- Data infrastructure for Commercial and Industrial IoT
- Simple, seamless, and secure data accessibility

**Bentley**
iTwin Platform (bentley.com)

- Seamless Access to Engineering Data
- Cognitive 3D Visualization and Simulations

**Wipro**

- Smart/ Green app development
- Data Analytics and AI

**Microsoft Azure**

- Hyper-scalar Infrastructure

**Bolt-on Partners**

- IBM (Tririga & Maximo)
- Here Maps (Indoor Navigation)
- ENTRNCE (Energy Transparency)

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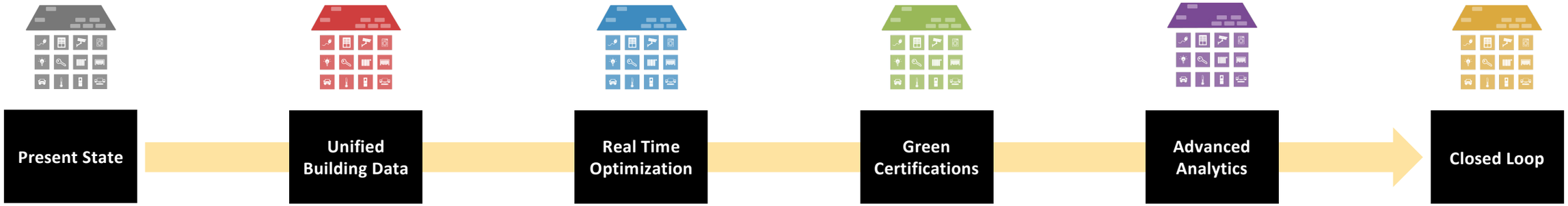
# Customer Benefits

**LOWER OPEX** — On-demand rollout of real-time smart apps to drive operational excellence with granular visibility & actionable insights

**SUSTAINABLE OPERATIONS** — Reduce the emissions from property operations and contribute to organizational sustainability goals

**FUTURE PROOF SOLUTIONS** — A flexible infrastructure to drive future enhancements and development of smarter applications

# Phases of SSDI Journey




- Manual Operations
- Lack of data and actionable insights

- Operational Data aggregated by Mapped
- Engineering Data Aggregated by Bentley iTwin

- Rule based optimization models
- Real time streaming data with Spatial Context

- Auto-generated data for reporting and certification

- AI/ ML & Simulation models for optimization

- Autonomous operations based on predictive/ prescriptive models

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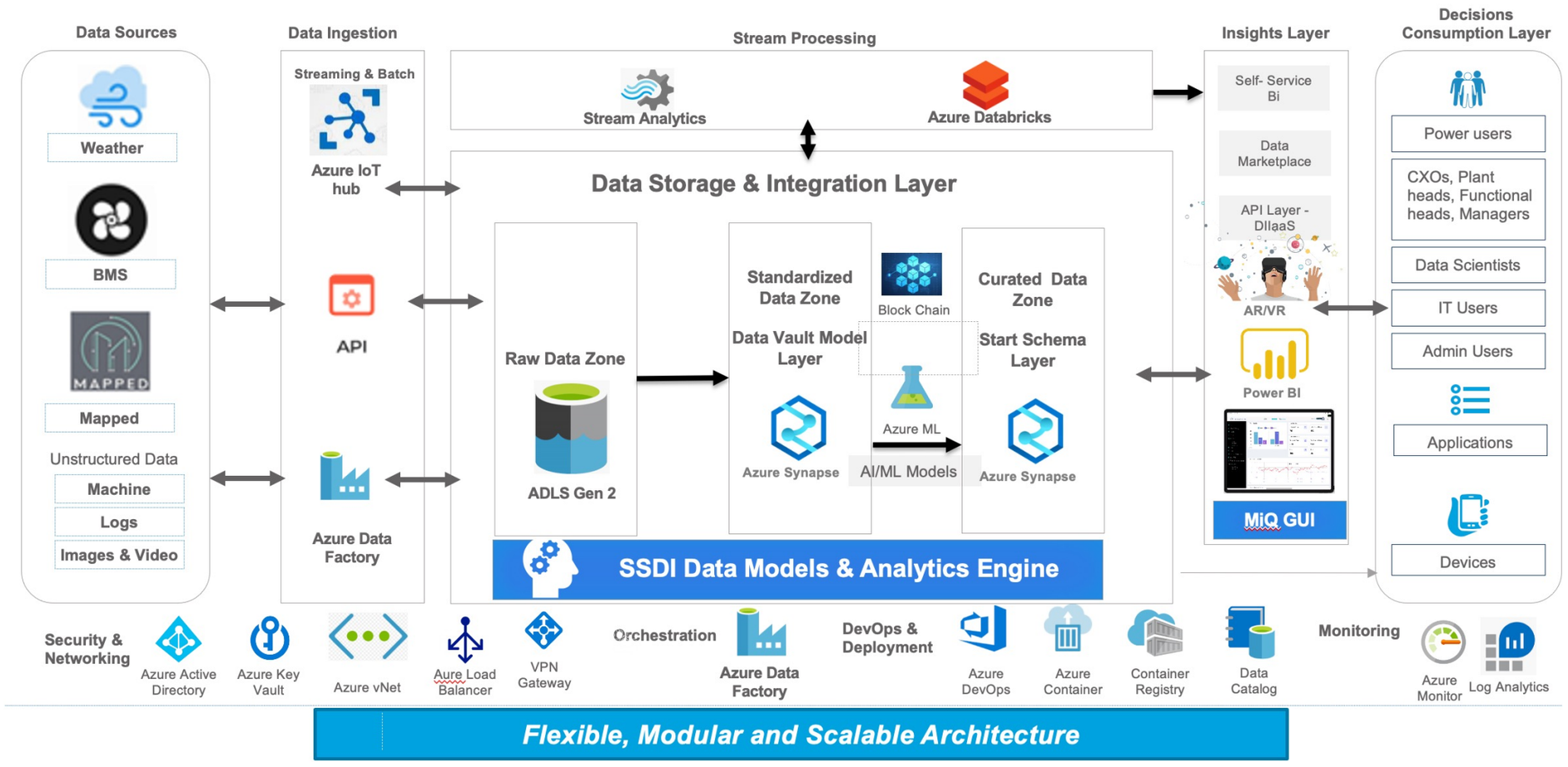
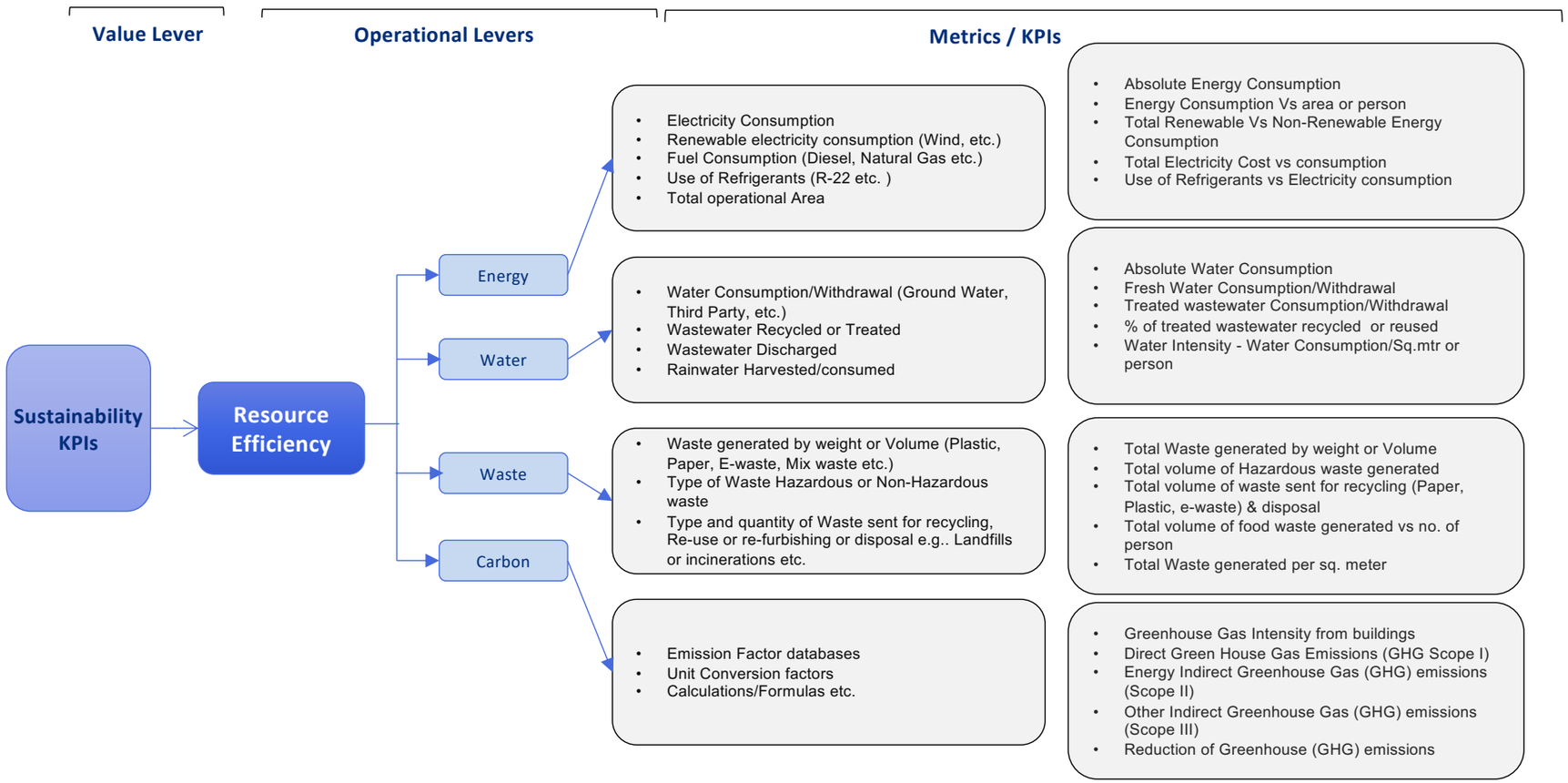
# Solution Architecture

Integrated Mapped Data Infrastructure, Azure PaaS



# SSDI Sustainability KPIs




[Link to Smart Applications]

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