CONNECTING
THE WORLD

Niagara AI Tools

Presented By

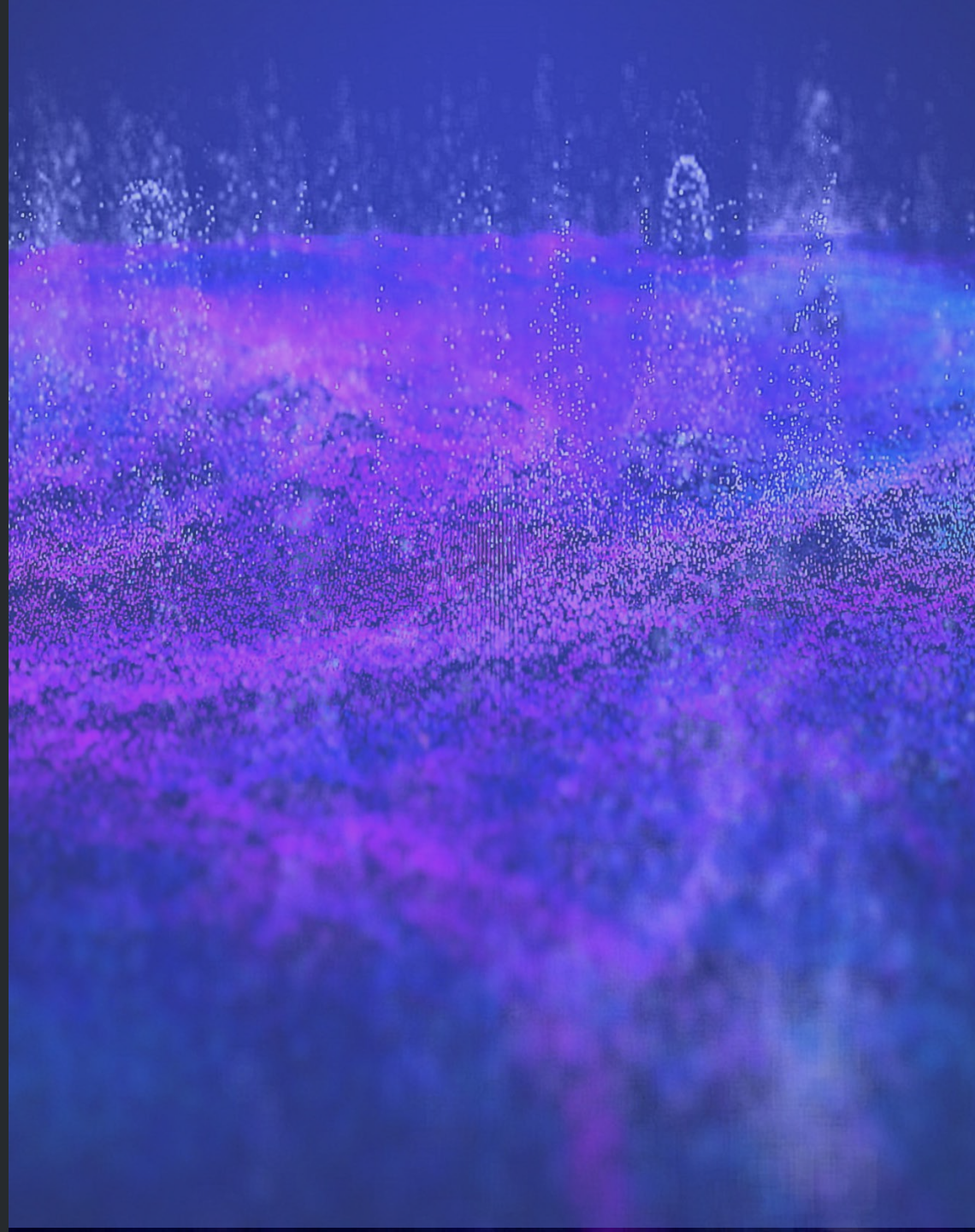
Kamal Nair, CEO,

Conexao Technology Solutions

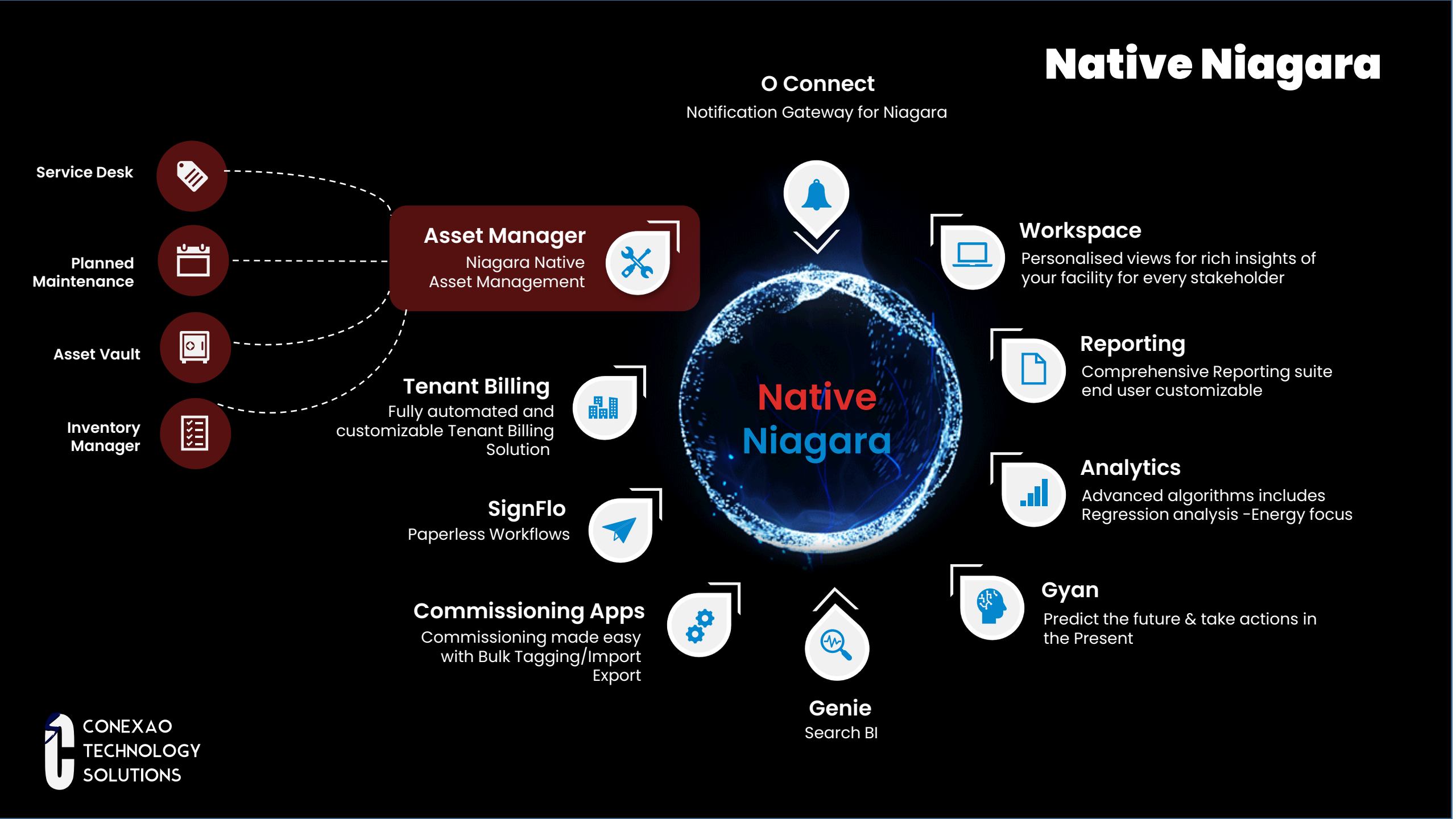
About Conexao Technology Solutions

WHO WE ARE

- At Conexao, our vision is to create products to help buildings and cities become smart, safe and sustainable for their people.
- We believe that technology and automation can co-exist with sustainability and our endeavor is to be carbon neutral as we continue to design products and solutions that have been extremely well received globally.
- The products/solutions are configured to cater to a wide gamut of verticals like Healthcare, Pharmaceutical, Education, Datacentres, Hospitality, Financial, Mining, Transportation, Retail, Warehousing, Industrial and Smart City among others. Our products complement the sustainability and digital transformation goals for our clients while ensuring innovative technology.
- Headquartered in Goa, India, Conexao has deployed products in 21 countries and counting, in addition to a robust and growing global distribution and partner network.



Native Niagara



O Connect
Notification Gateway for Niagara

Service Desk

Planned Maintenance

Asset Vault

Inventory Manager

Asset Manager
Niagara Native Asset Management

Workspace
Personalised views for rich insights of your facility for every stakeholder

Reporting
Comprehensive Reporting suite end user customizable

Tenant Billing
Fully automated and customizable Tenant Billing Solution

Analytics
Advanced algorithms includes Regression analysis -Energy focus

SignFlo
Paperless Workflows

Gyan
Predict the future & take actions in the Present

Commissioning Apps
Commissioning made easy with Bulk Tagging/Import Export

Genie
Search BI

CONEXAO TECHNOLOGY SOLUTIONS

Obix

Gnan

Create Model

vav_pantry_setpoint

Planner_16

energy_model

vav_setpoint

AI Model

Select Forecast Type — 2 Choose Algorithm — 3 Configure Model — 4 Configure Dataset

Sequential

Sequential provides training and inference features on this model

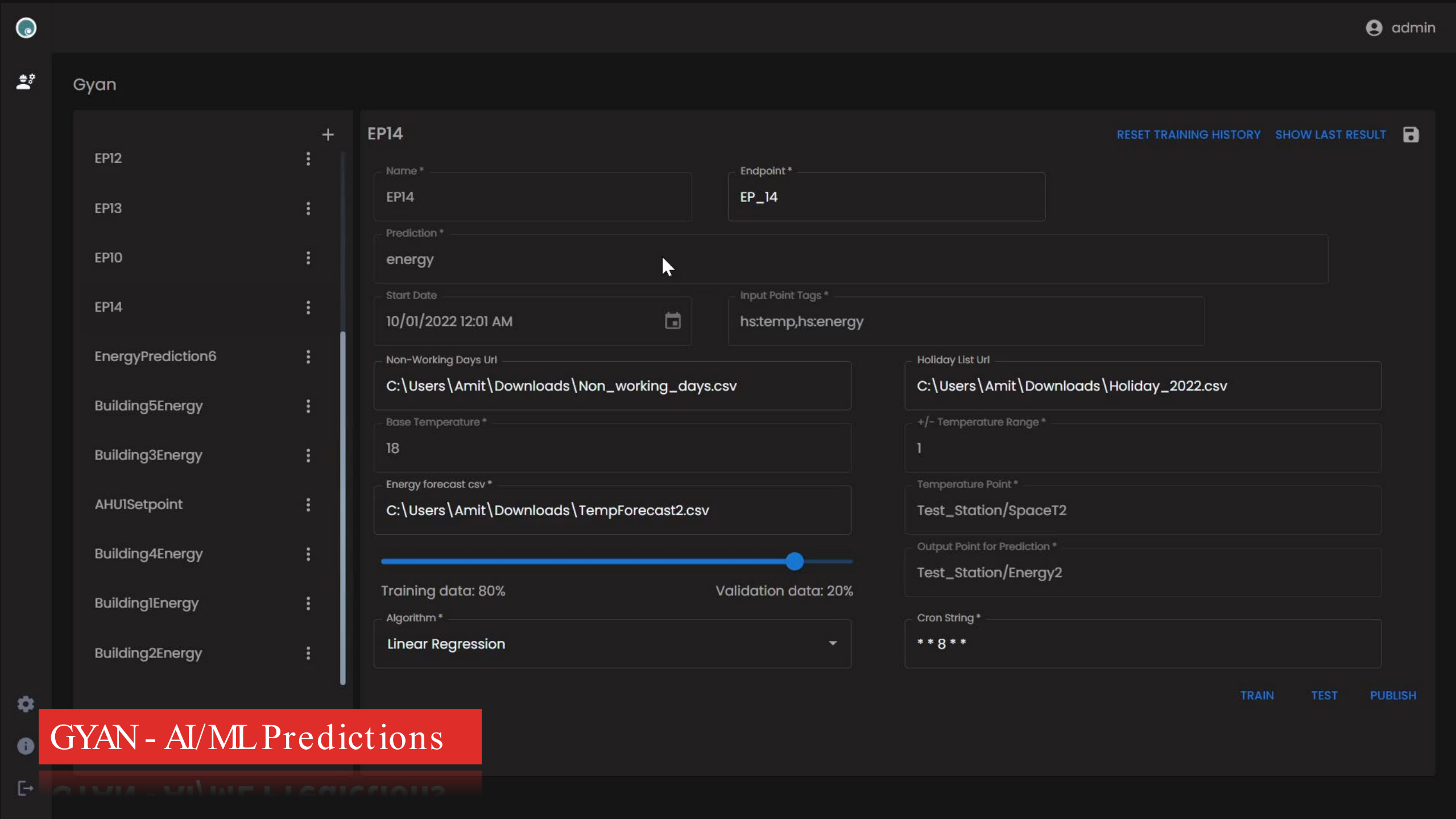
Linear Regression

LinearRegression fits a linear model with coefficients w = (w1, .., wp) to minimize the residual sum of squares between the observed targets in the dataset, and the targets predicted by the linear approximation

BACK

NEXT

GYAN - AI/ML Predictions


admin
Gyan
EP12
EP13
EP10
EP14
EnergyPrediction6
Building5Energy
Building3Energy
AHU1Setpoint
Building4Energy
Building1Energy
Building2Energy
EP14
RESET TRAINING HISTORY
SHOW LAST RESULT
Name *
EP14
Endpoint *
EP_14
Prediction *
energy
Start Date
10/01/2022 12:01 AM
Input Point Tags *
hs:temp,hs:energy
Non-Working Days Url
C:\Users\Amit\Downloads\Non_working_days.csv
Holiday List Url
C:\Users\Amit\Downloads\Holiday_2022.csv
Base Temperature *
18
+/- Temperature Range *
1
Energy forecast csv *
C:\Users\Amit\Downloads\TempForecast2.csv
Temperature Point *
Test_Station/SpaceT2
Output Point for Prediction *
Test_Station/Energy2
Training data: 80%
Validation data: 20%
Algorithm *
Linear Regression
Cron String *
* * 8 * *
TRAIN
TEST
PUBLISH
GYAN - AI/ML Predictions

Contoso | ENERGY PREDICTION

admin

Bengaluru, India - Weather Information

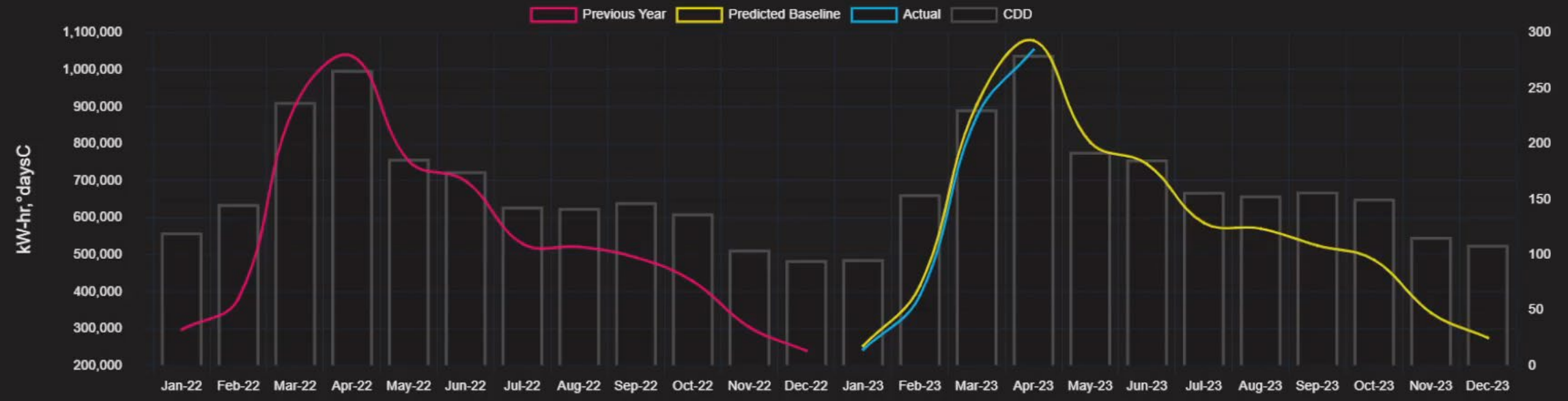
27.1 °C Ambient Temperature

58 %Rh Ambient Rh

10 km/hr Wind

8 % Clouds

Energy Prediction



GYAN - AI/ML Predictions

Contoso | ENERGY SAVINGS

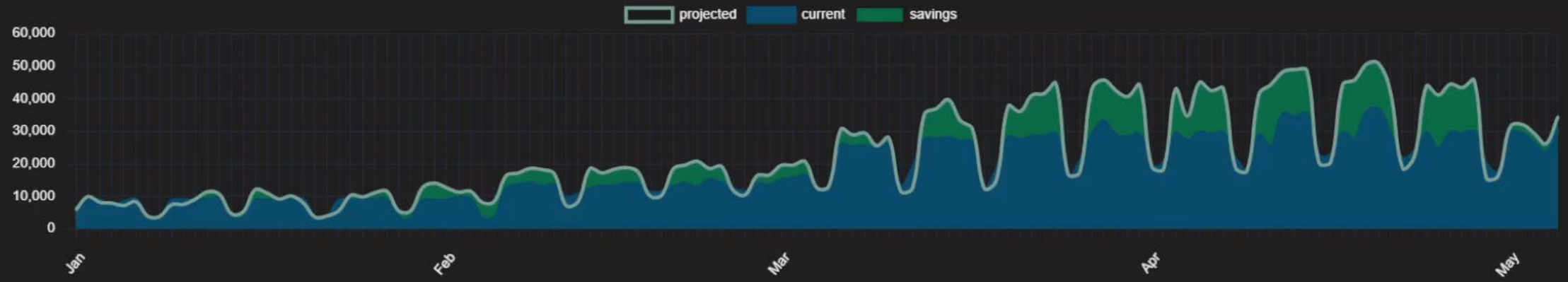
admin

Bengaluru, India - Weather Information

27.1 °C	58 %Rh	10 km/hr	8 %
Ambient Temperature	Ambient Rh	Wind	Clouds

Energy Saving - Jan to April 23

$400139.46 ● 20.82%



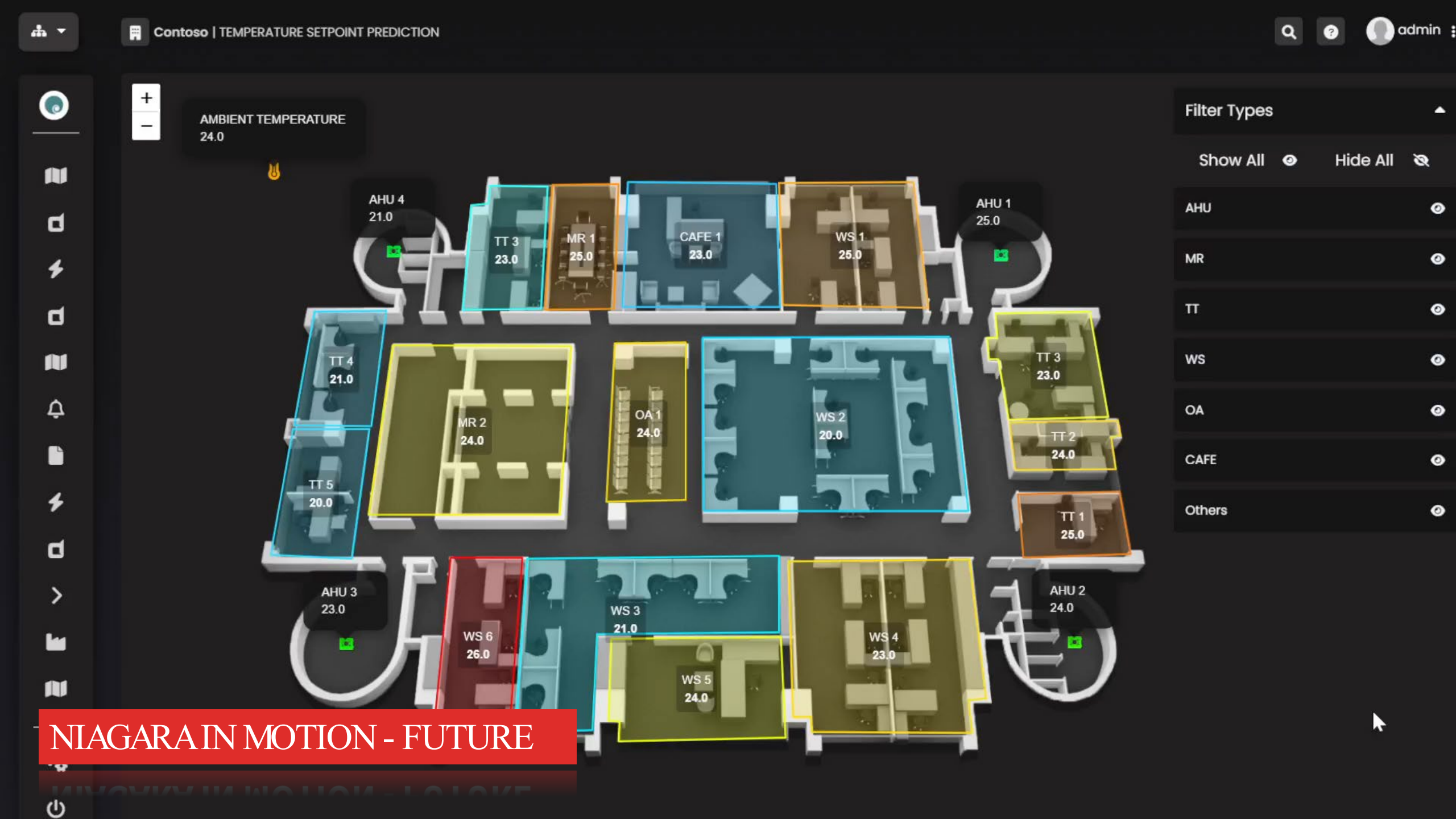
GYAN - AI/ML Predictions

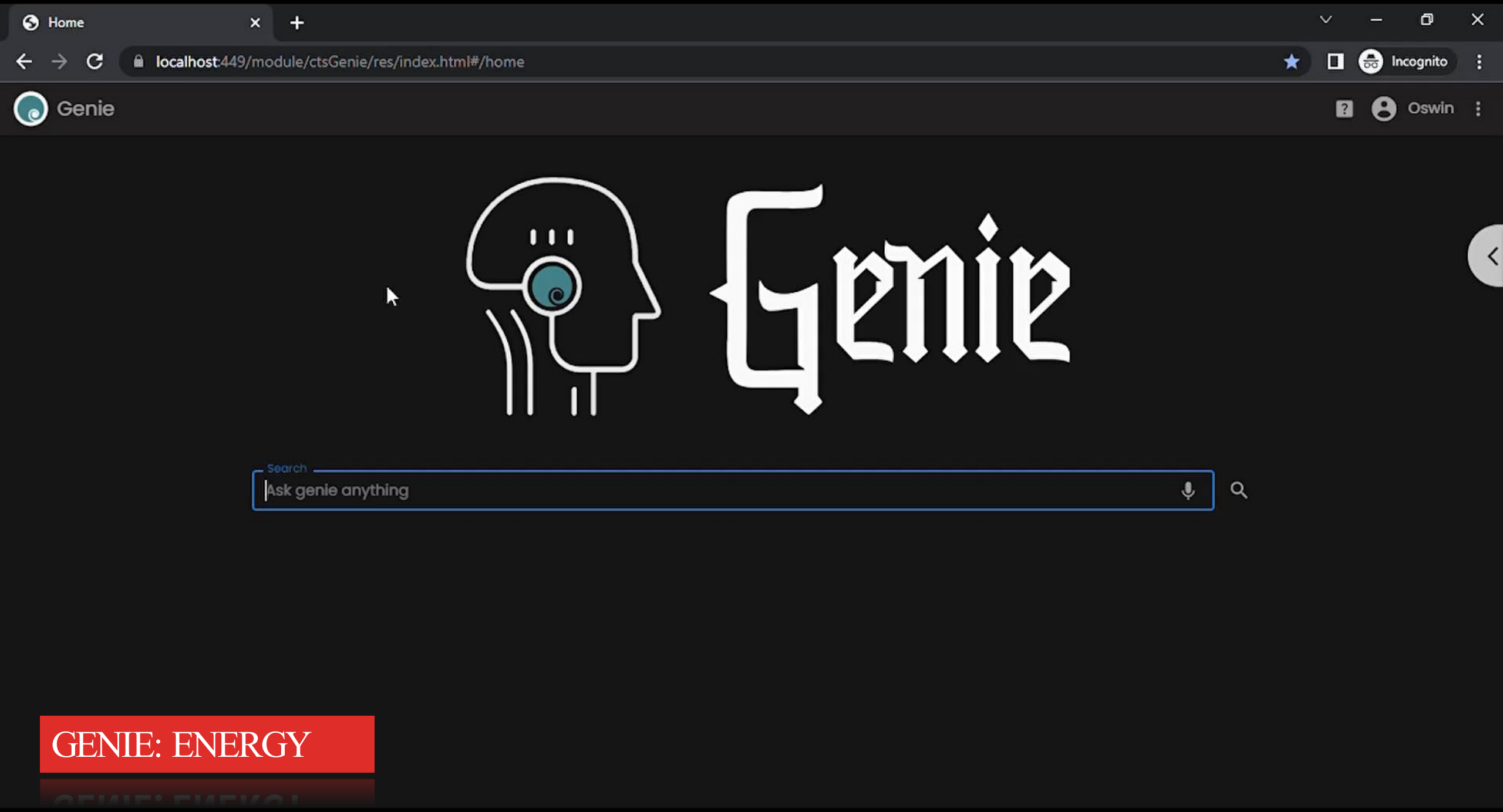
Filter Types

Show All | Hide All

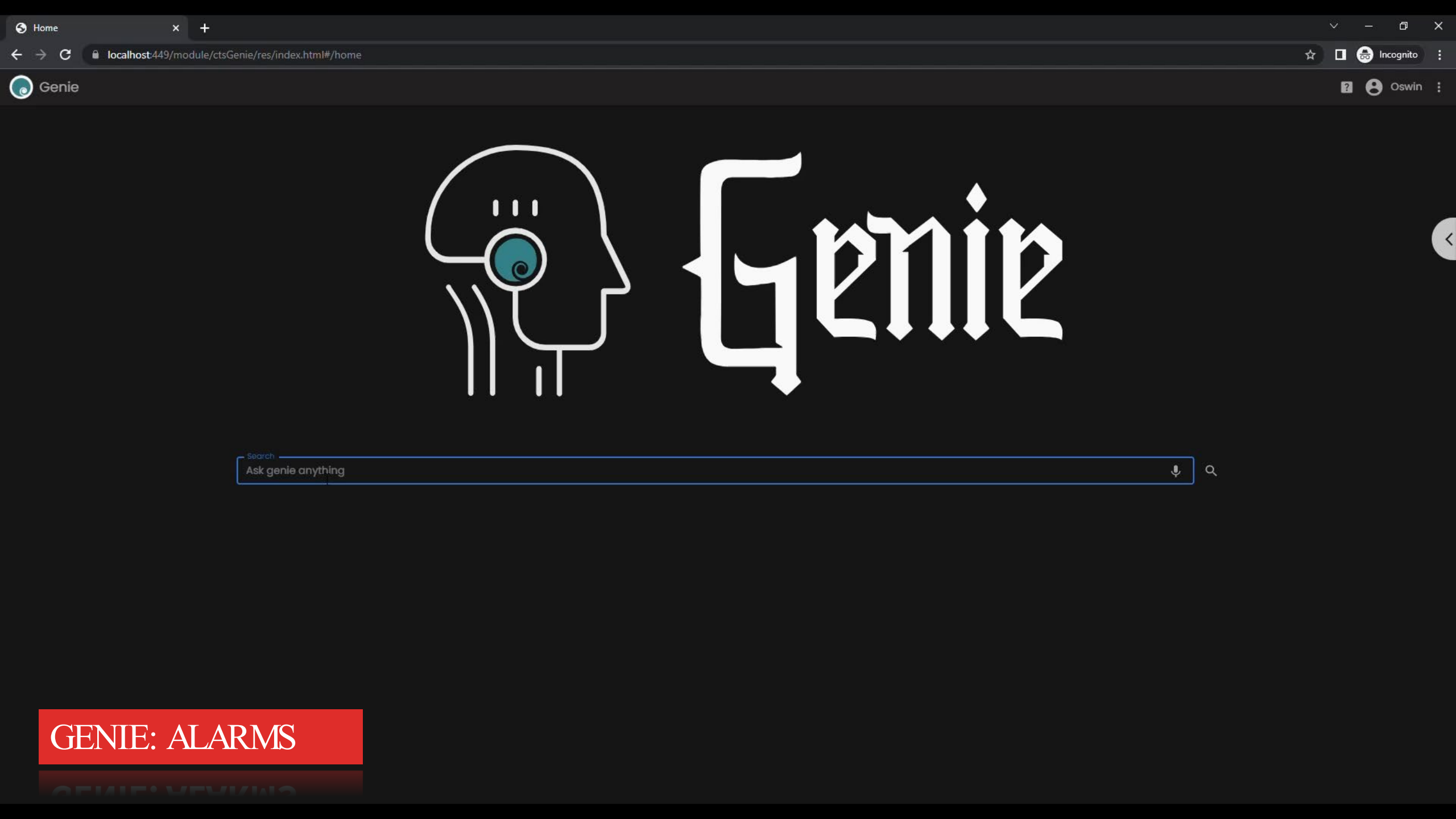
- AHU
- VMS
- MR
- TT
- WS
- OA
- CAFE
- Others

NIAGARA IN MOTION - PAST


Contoso | TEMPERATURE SETPOINT PREDICTION
admin
AMBIENT TEMPERATURE
24.0
AHU 4
21.0
AHU 1
25.0
TT 3
23.0
MR 1
25.0
CAFE 1
23.0
WS 1
25.0
TT 4
21.0
MR 2
24.0
OA 1
24.0
WS 2
20.0
TT 3
23.0
TT 2
24.0
TT 5
20.0
TT 1
25.0
AHU 3
23.0
AHU 2
24.0
WS 6
26.0
WS 3
21.0
WS 4
23.0
WS 5
24.0
Filter Types
Show All
Hide All
AHU
MR
TT
WS
OA
CAFE
Others
NIAGARA IN MOTION - FUTURE



GENIE: ENERGY



GENIE: ALARMS

Genie

admin

Genie

Search

GENIE: N4 INFO

POWER

Thank You!

Website: www.conexaotechsolutions.com

Email: contact@conexaotechsolutions.com

LinkedIn: linkedin.com/company/conexaotechsolutions

CONNECTING
THE WORLD

ACCRUENT
Unifying The Built Environment

VX OBSERVE

REMOTE MONITORING, PREDICTIVE MAINTENANCE & CONTROL ACTIONS

Presented by:

Thomas Dolby
IoT & Energy Lead EMEA & APAC

UNIFYING THE BUILT ENVIRONMENT

Non-Building Infrastructure
Public spaces and walkways like parking and transportation

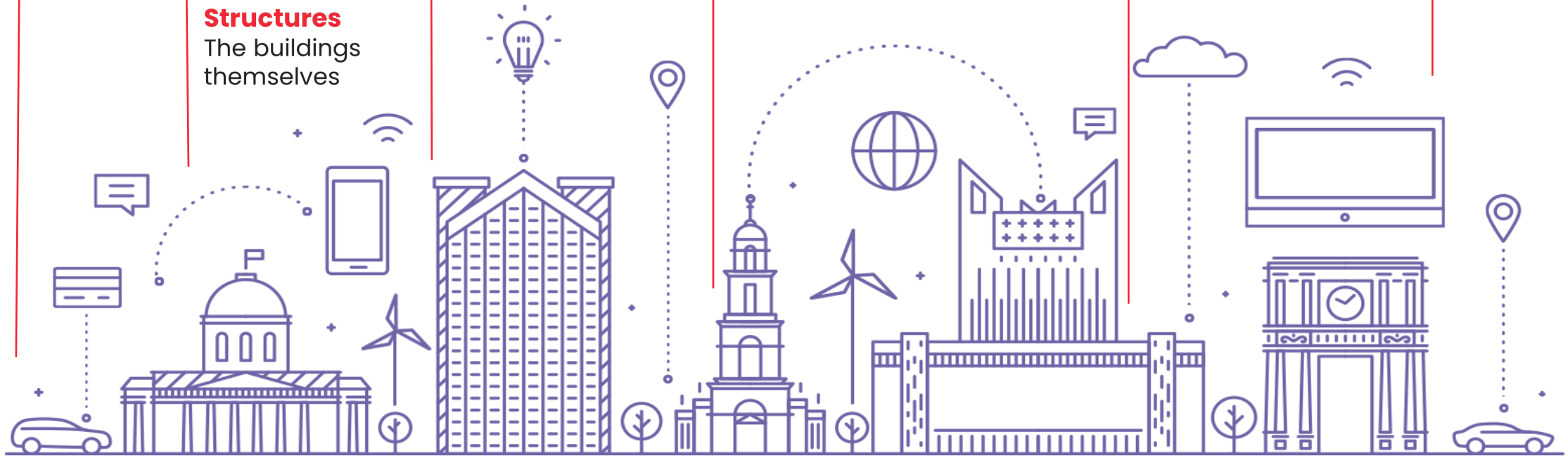
Man-Made Structures
The buildings themselves

Embedded Building Technology
Building Systems (HVAC, electric, refrigeration, lighting, reservation system)

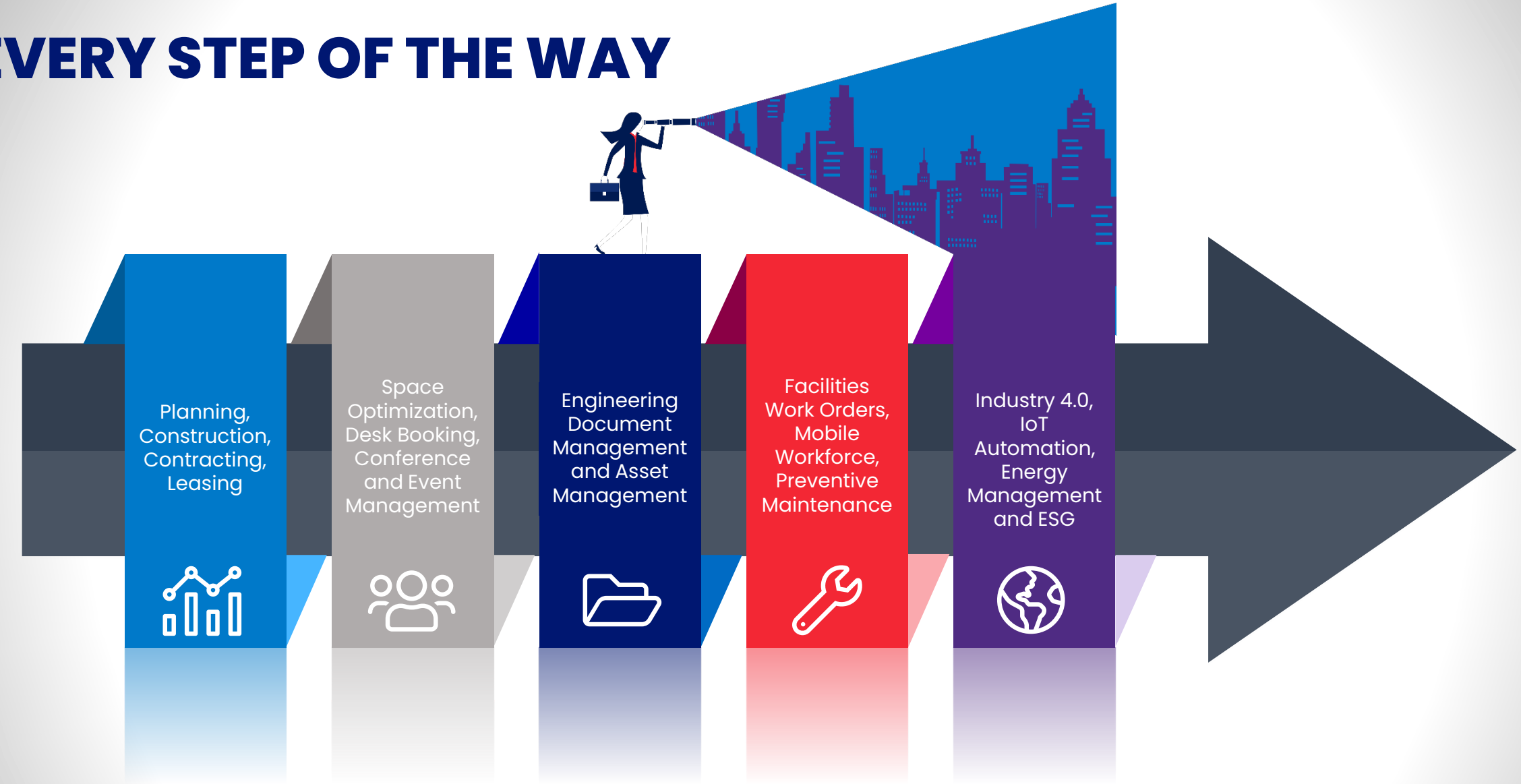
Industry-Specific Support Infrastructure
Corporate (IT systems, copiers)
Commercial (Ventilation, cranes)
Healthcare (Radiology, MRIs)
Education (Desks, Classroom)

Functional Assets
Heavy machinery, medical devices, lab equipment

Human Support Infrastructure
People who work to support resources (maintenance, administrative, security, facilities)



EVERY STEP OF THE WAY



SMART RETAIL

CONNECTED BUILDING SYSTEMS
Stay connected to crucial building systems like security systems, fire alarms, lifts and escalators with continuous monitoring and alerts

SITE-WIDE VISIBILITY
Gain big-picture insight into your energy consumption, asset operations and overall portfolio health

SMART ALARMS
Use intelligent alarm triage to cut through the noise and identify real issues

HEALTH AND SAFETY
Use sensors to optimise traffic flow, identify populated areas and maintain health and safety

ENERGY MANAGEMENT
Remotely monitor main and sub metering to detect excessive or abnormal energy consumption

AUTOMATED NOTIFICATIONS
Automated SMS, phone and email alerts allow staff to protect customers and stock in the event of a failure

REMOTE MONITORING
Remotely increase or decrease refrigeration set points to retain optimum parameters and save energy

PROACTIVE ASSET MAINTENANCE
Use sensors and real-time data to proactively schedule maintenance and find the right technicians

PREDICTIVE ANALYTICS
Use vibration monitoring, energy usage analytics and sensors to predict and prevent costly breakdowns

AUTOMATED COMPLIANCE TRACKING
Manage refrigeration temperature and asset health to keep food fresh and maintain compliance

Major Top 4 UK Grocery Brand

1,400+ locations
35% drop in work order
80% reduction in bureau
£3M p.a. energy saving

Leading Facilities Management & Professional Services provider

3,000+ Buildings managed
Monitor, Predict & Control

Other Major Top 4 UK Grocery Brand

600,000+ connected assets
2,500+ locations
33% Service Provider saving
£10M Energy Saving

ENTERPRISE INTEGRATIONS

END-TO-END WORKFLOW MANAGEMENT

ACCRUENT OBSERVE

END-TO-END PROCESS AND WORKFLOW WITH MULTI-PARTY INTERACTION AND VISIBILITY ON COMMON INTEGRATED PLATFORM

Setpoints, Schedules, Alarms & Telemetry

Two-way device communication

Global set point change

Conditions-based set point change

Device configuration backup and restore

Device health monitoring

BMS / EMS

Energy Monitoring

HVAC Controls

Refrigeration Controls

Bakery Controls

Lighting Controls

Gateway Other Key Asset Controls

Address Accruent Alarms & Telemetry Webservices / APIs

Analysis, Normalisation Consolidation Suppression

Multiple data points

Advanced Triage

Flagged Condition = issue worth action by people. Routing based on issue and severity

Configurable Workflow, Automated notifications and Bureau Tools

BUREAU

Observe's Central Alarm Filtering and Business Rules Engine.

Reactive Compliance, Prescriptive and Predictive Rules.

Action Required

Bureau Interaction

Site Interaction

SITE STAFF

Triage, advise, unlock controls

Access site Gateway/BMS /Controls panel for remote diagnosis/fix

Manage Service Provider performance, contracts, review and approvals

HELPDESK & FM TEAM

Dispatch to Service Provider

Perform Work

Complete Work

Billing

Track time & attendance (vs. SLAs)

Electronic Billing

CONTRACTOR/ TECHNICIAN

Take site action to remediate issues caused at site

DOWNSTREAM ACTIVITY INFORMS UPSTREAM TRIAGE/RECALL

Upstream alarm condition impacts downstream job closure.
Warn, prevent, and recall work orders that do not clear alarms for a defined period of time or impact equipment performance as desired.

ACCRUENT OBSERVE

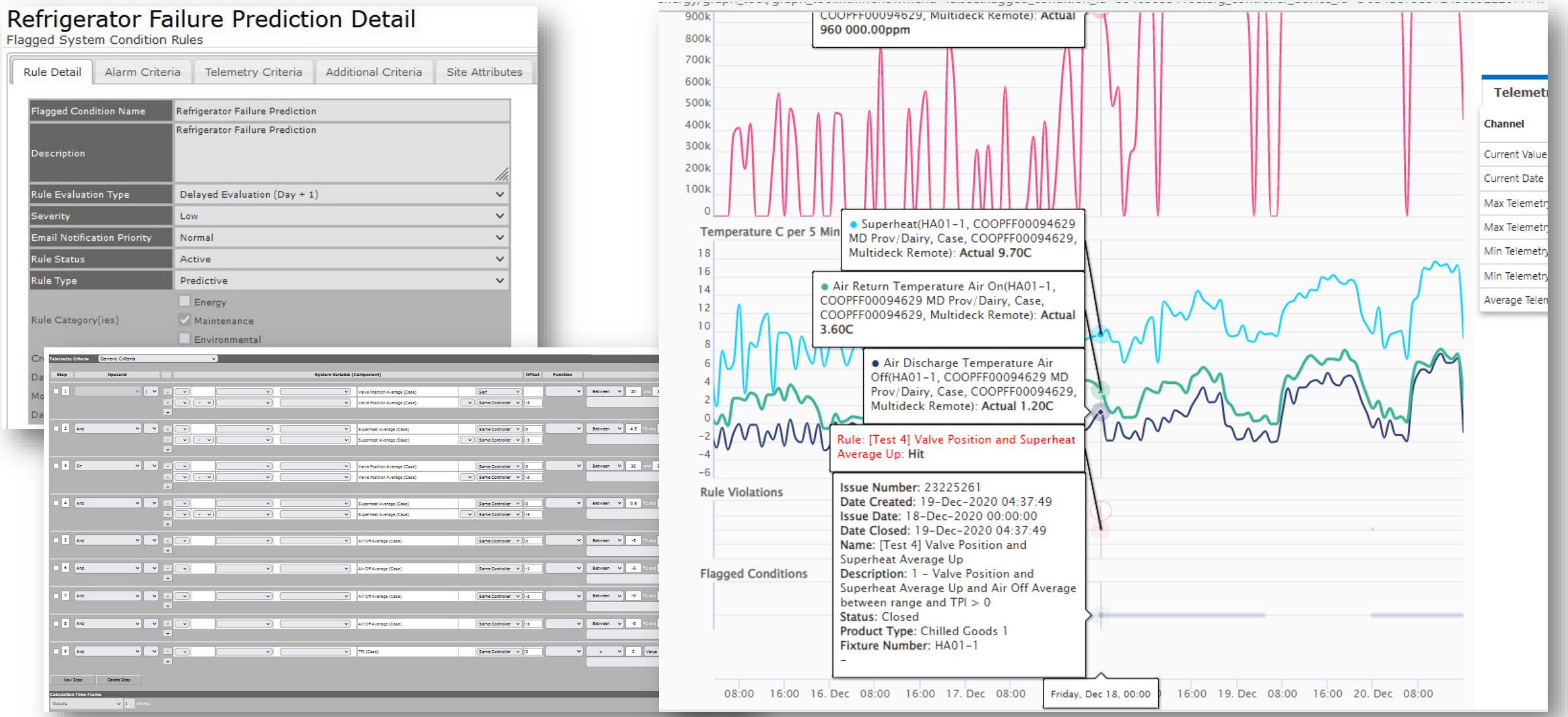
Remote monitoring, alarms management, and predictive analytics workflow

ServiceChannel · IBM maximo · servicenow

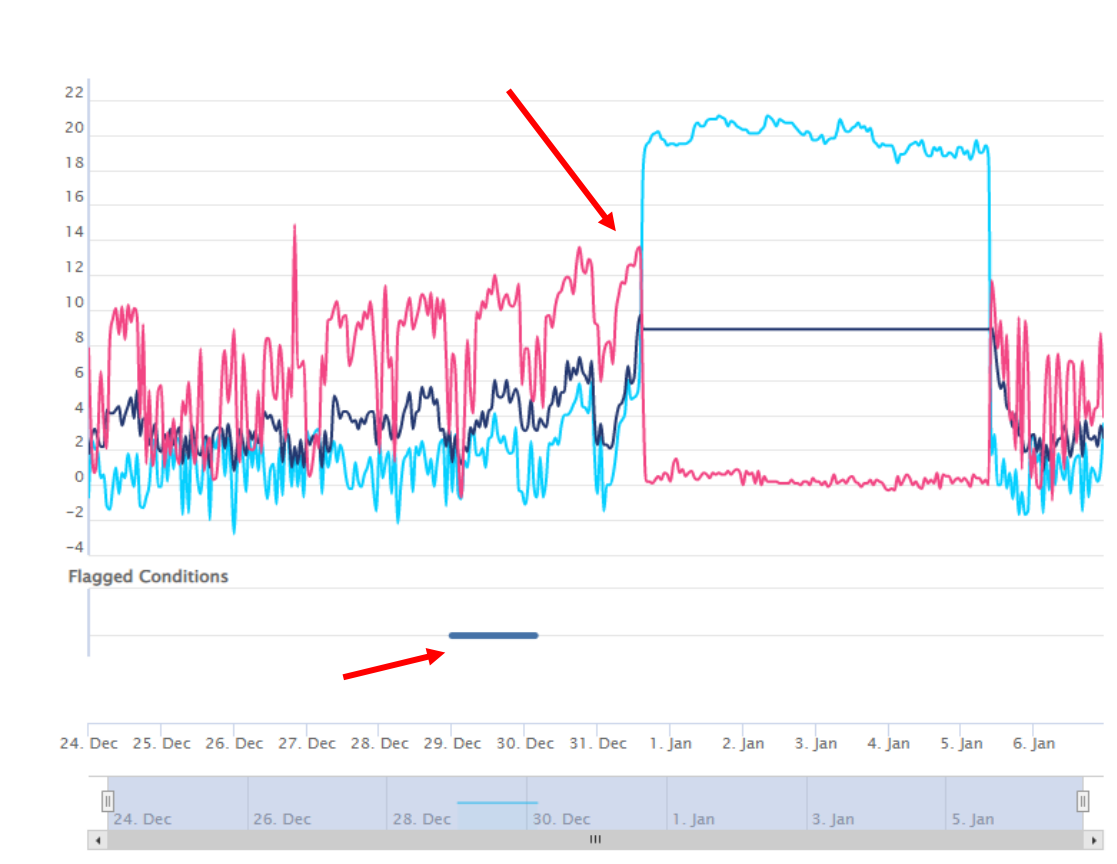
Service Channel CMMS, MWFM, or external system

SINGLE INTEGRATED SYSTEM, WORKFLOW, PROCESS AND AUDIT TRAIL

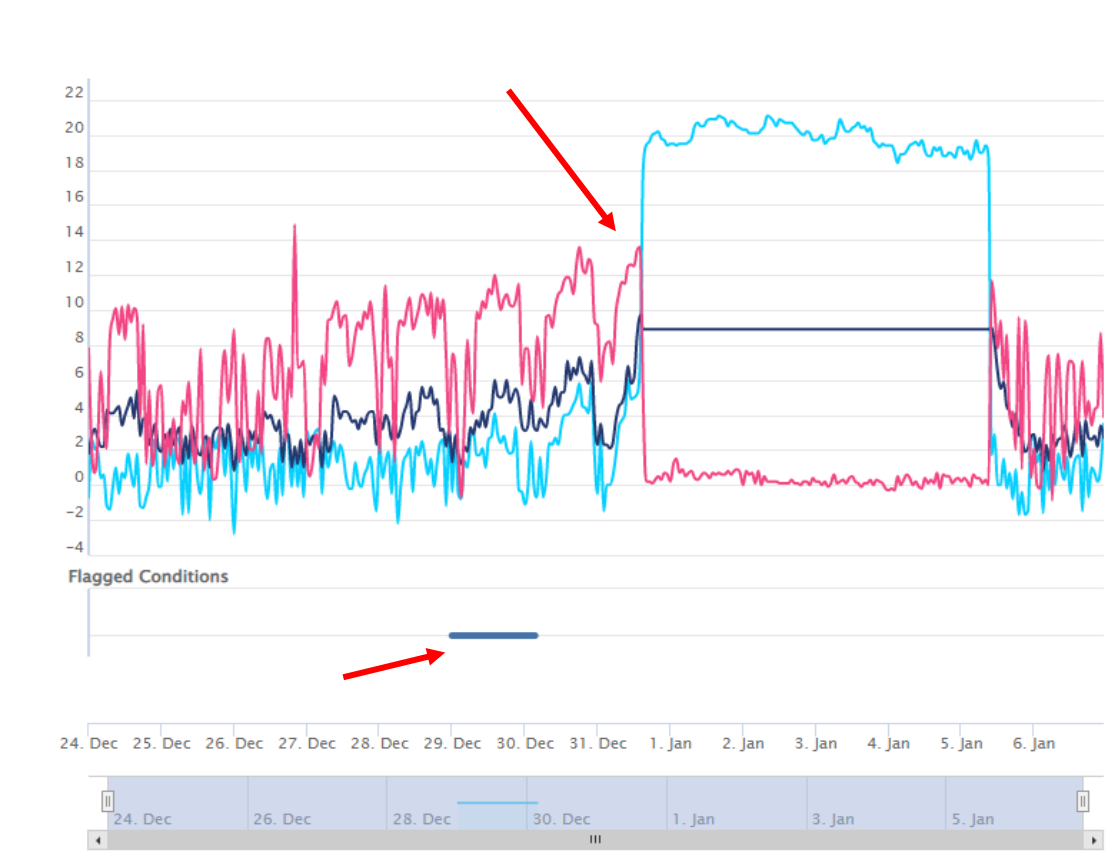
CONDITION BASED MONITORING – PREDICTIVE

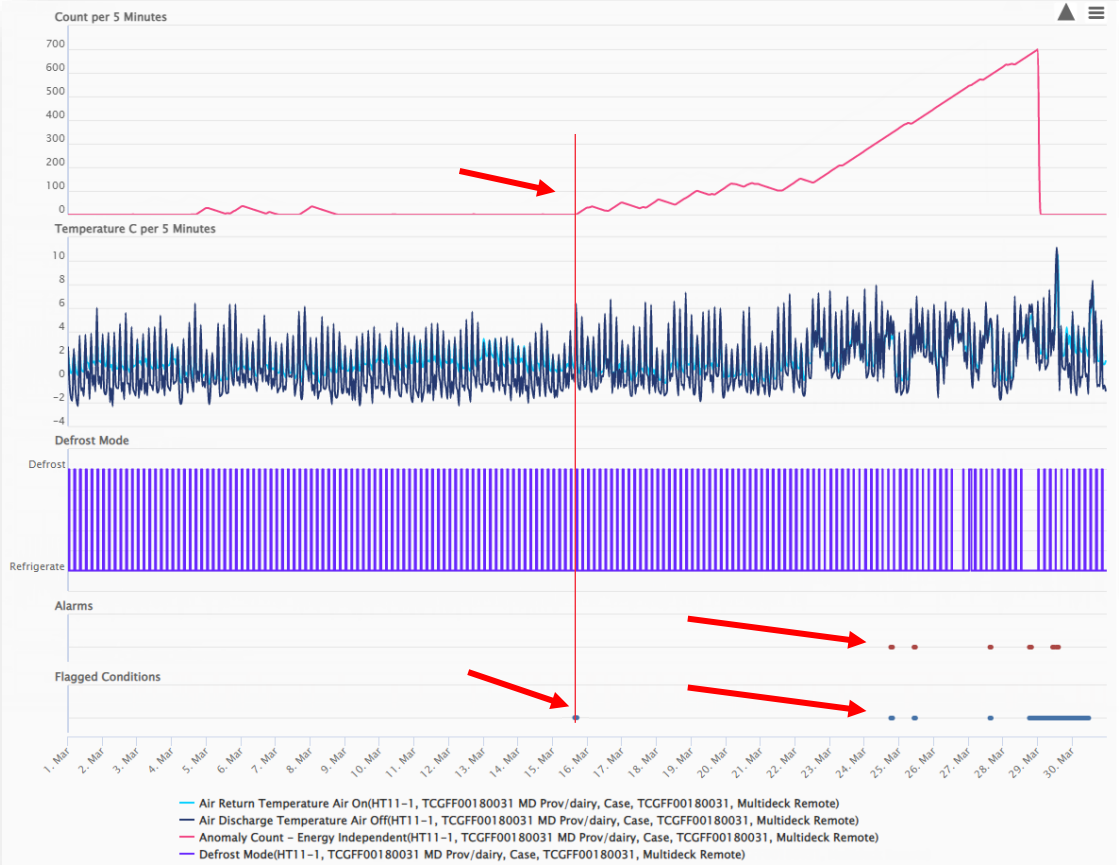


CONDITION BASED TO PREDICTIVE

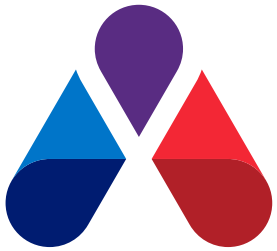


CONDITION BASED TO PREDICTIVE TO ML





THANK YOU



ACCRUENT

Unifying The Built Environment

CONNECTING
THE WORLD

Closed Loop Sustainability Optimisation with Niagara, Maximo and Envizi

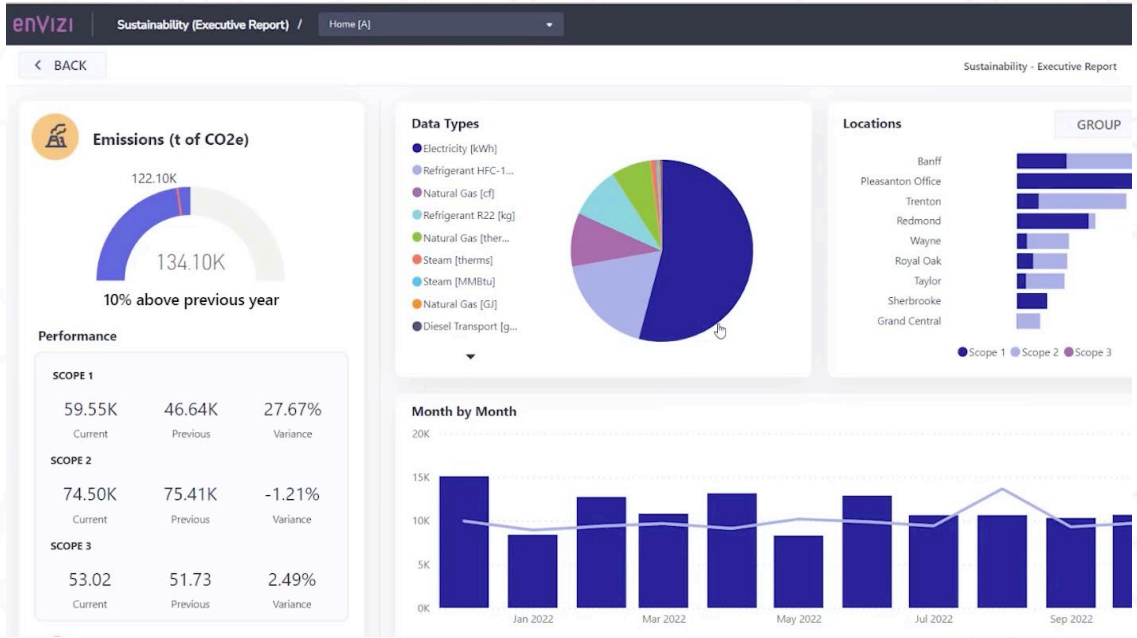
Russ McKay

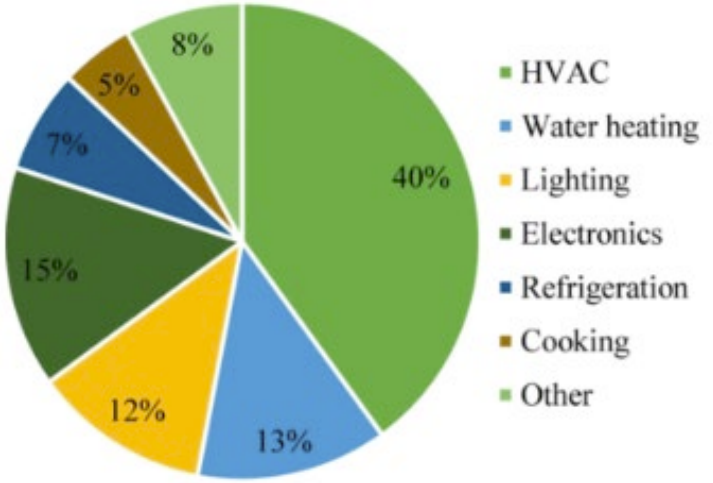
Principal Solution Architect

IBM Sustainability Software

TRIDIUM

ESG Reporting Data





Detailed ESG reporting relies on data acquired from multiple sources.

Data from utilities is common, but internal energy consumption is normally non-granular and does not focus on problem areas.

Heating, ventilation and air conditioning (HVAC) accounts for the majority of energy consumed in commercial buildings.

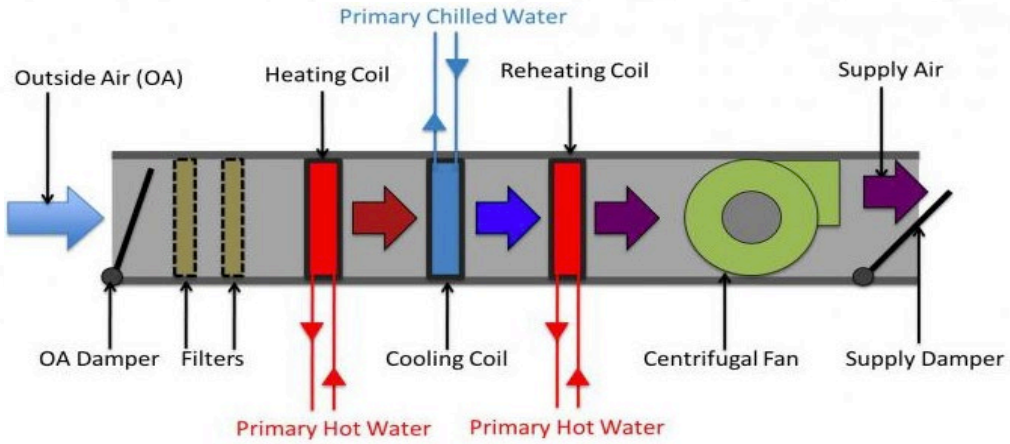
NF 23

TRIDIUM

You feel fine, so there are no problems?

Typically nobody complains about a comfortable working environment.

Air quality is managed by a building management system that controls the air flow, heating and cooling provided by an air handling unit



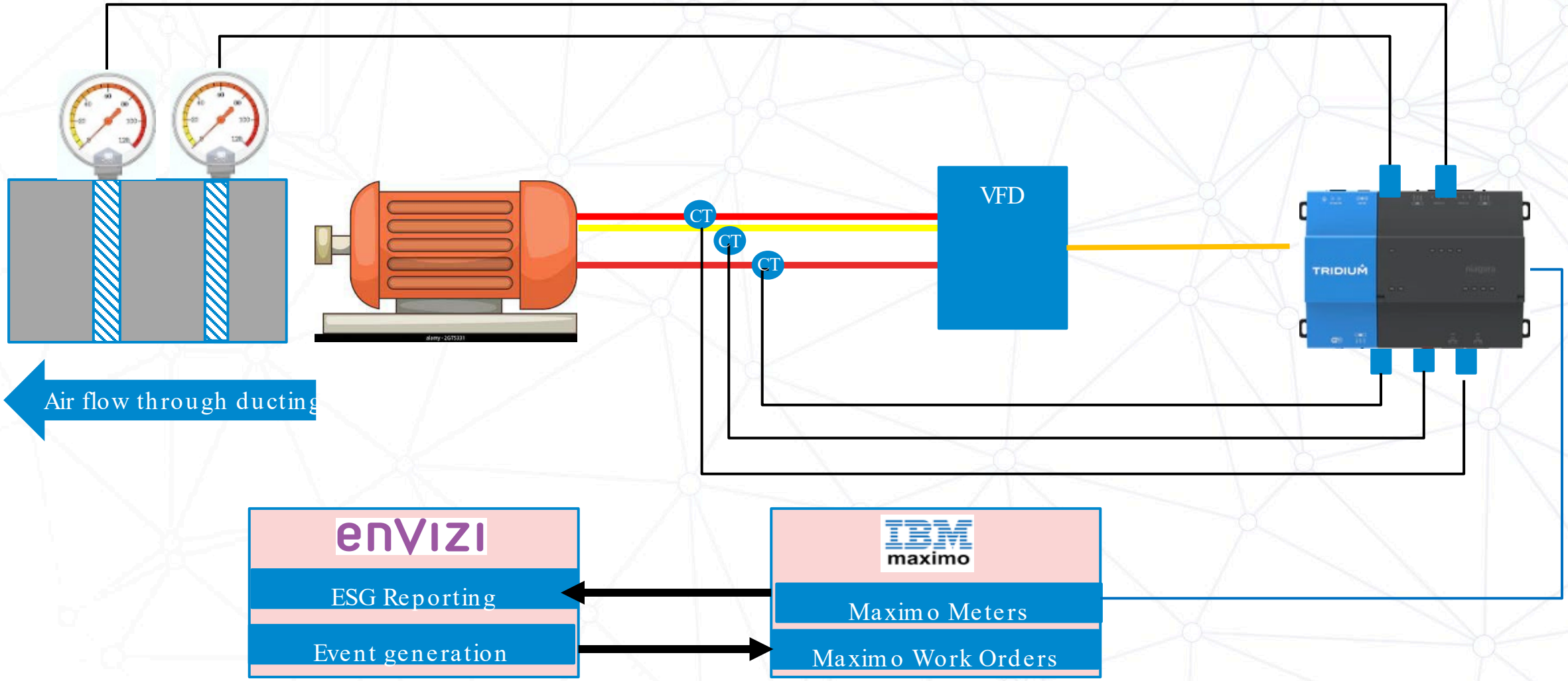
- AHUs pull outside air into a building using speed controlled electric fans.
- Outside air is passed through a set of filters before being heated or cooled.

Things don't always perform as efficiently as they should!

- Dirty air filters cause increased pressure drop across the filter – more electrical power required to draw air through the filter
- Poor temperature control systems may cause the heating and cooling coils to be active at the same time
- Badly adjusted automated OA and SA dampers restrict or provide too much processed air

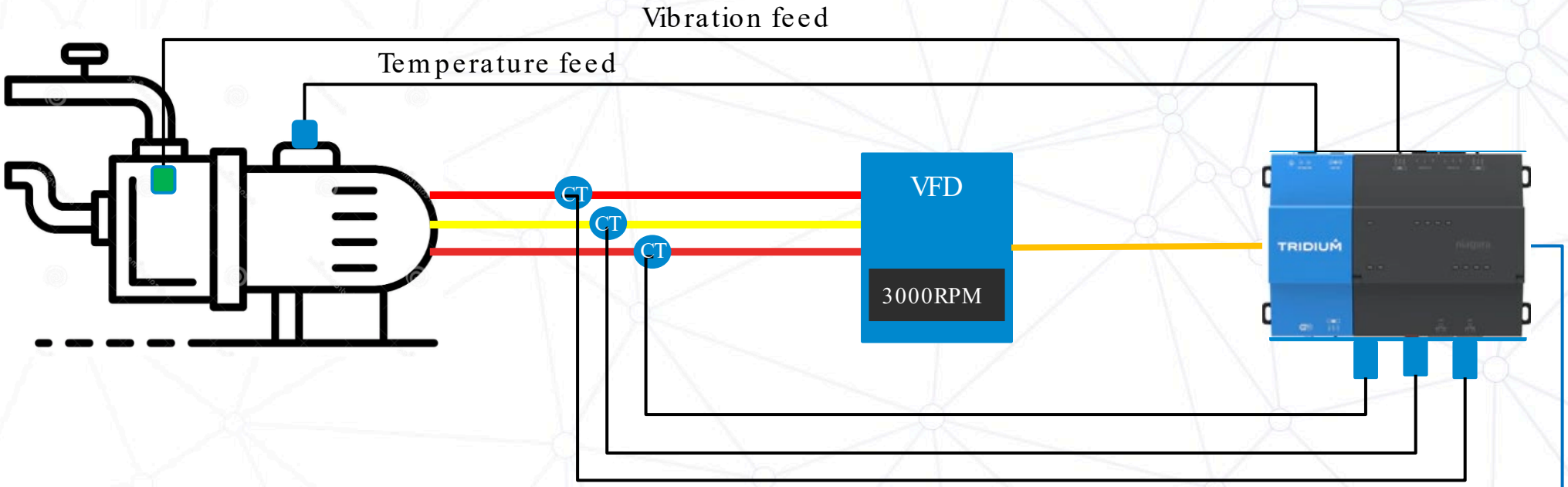
In order to fully understand the performance of an AHU we need to monitor the energy consumption and the quality of the air delivered. We also need to monitor the pressure drop across the various filters

How do we monitor AHU parameters



Integration of the BMS with Asset Management and ESG reporting enables closed loop control for sustainability, efficiency and economy

How do we monitor Pump / Motor parameters



enVizi

ESG Reporting

Event generation

IBM maximo

Maximo Meters

Maximo Work Orders

NF 23

TRIDIUM

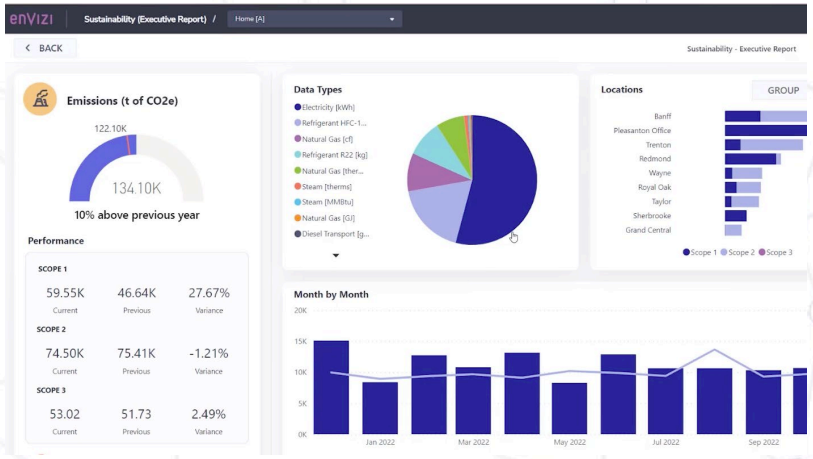
Closing remarks

Monitoring the health of you systems, and acting on the data will:-

- Reduce costs
- Increase asset life
- Improve carbon performance
- All better ESG reporting

Niagara already communicates with Maximo, and Maximo feeds ESG data to Envizi

IBM maximo



NF 23

TRIDIUM

CONNECTING
THE WORLD


thermokon®
HOME OF SENSOR TECHNOLOGY
NIAGARA FORUM
CONNECTING
THE WORLD

thermokon®

ABOUT US

Founded 1987 in Mittenaar, Germany

Available in more than 80 Countries

46mEUR Revenue in 2022

270 Employees

thermokon®

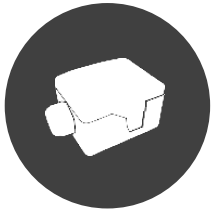
OUR MISSION

We develop and manufacture cutting-edge products using innovative technologies for high-end sensors and systems.

MADE IN GERMANY

BUILDING AUTOMATION

Sensors and Control Panels for Measuring Values and Detection of Statuses



HEATING / VENTILATION / AIR-CONDITIONING

Sensors for Measuring Values and Optimizing Energy-Efficiency

enocean® LoRaWAN® Bluetooth® CASAMBI

ASHRAE BACnet Modbus KNX® LON

thermokon®

OUR PROMISE
YOUR BENEFITS

> With Thermokon, you gain a competent, strong and reliable partner for sensors.

5 YEAR WARRANTY

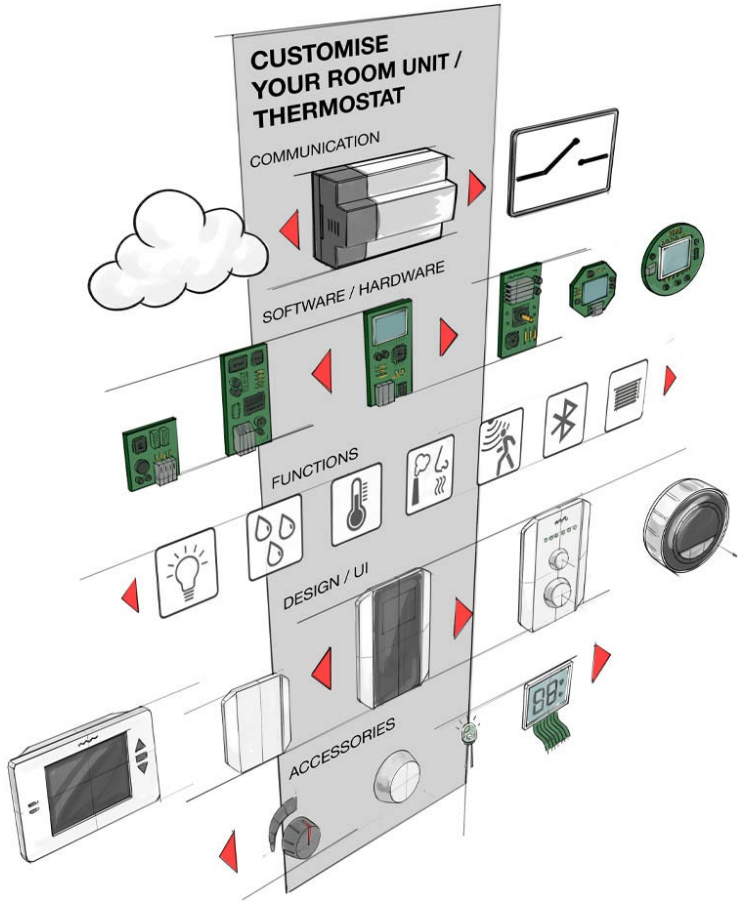
PERSONAL CONTACTS

QUALITY-MANAGEMENT-SYSTEM (e.g. DIN EN ISO 9001)

INHOUSE HARD- AND SOFTWARE DEVELOPMENT

Guidelines for our new Room Portfolio

1. Multiple Communication Standards in Building Automation
2. Scalability → Modularity
3. User Friendliness /UX



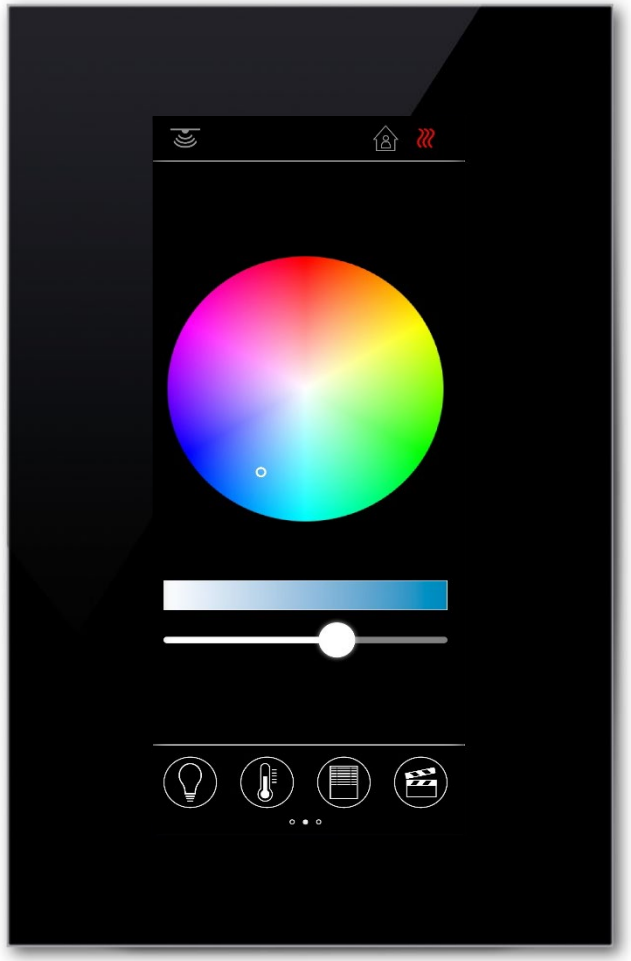
thanos EVO

thanos EVO

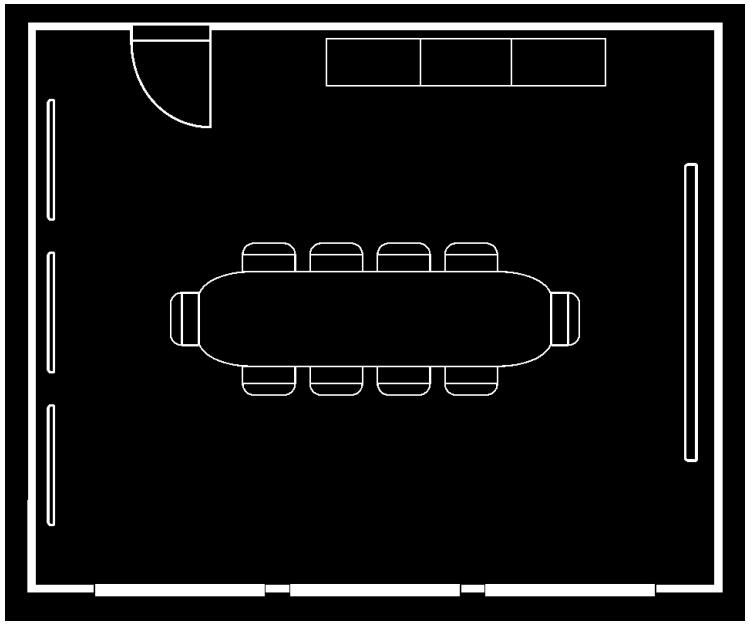
- High-class room operating panel
- Focus on **User Friendliness**
  - Commissioning
  - User Experience
- Smartphone-like look & feel
- Clear and modern design
- High-res 4,8“ TFT-touch display
- BACnet / KNX / Modbus Interface
- Up to four internal sensors
  - Temperature / rel. Humidity / CO2 / VOC

- Homescreen with intuitive status bar and favourite buttons
- **HVAC / Climate**
  - Setpoint / Fanstages
  - ECO function
  - Occupancy
- **Lighting** (max. 8 independent circles)
  - On / Off
  - Dimming / Color Temperature / RGB
- **Blinds / Shading** (max. 8 independent circles)
  - Up / Down
  - Precise percentage adjustment
  - Slat adjustment
- **Scenes** (max. 8 individual scenes)
- Display values with traffic light indication and history
  - Four internal sensors (CO2, VOC, Temp, rH)
  - Four external sensors (e.g. Outdoor temperature, energy consumption etc.)

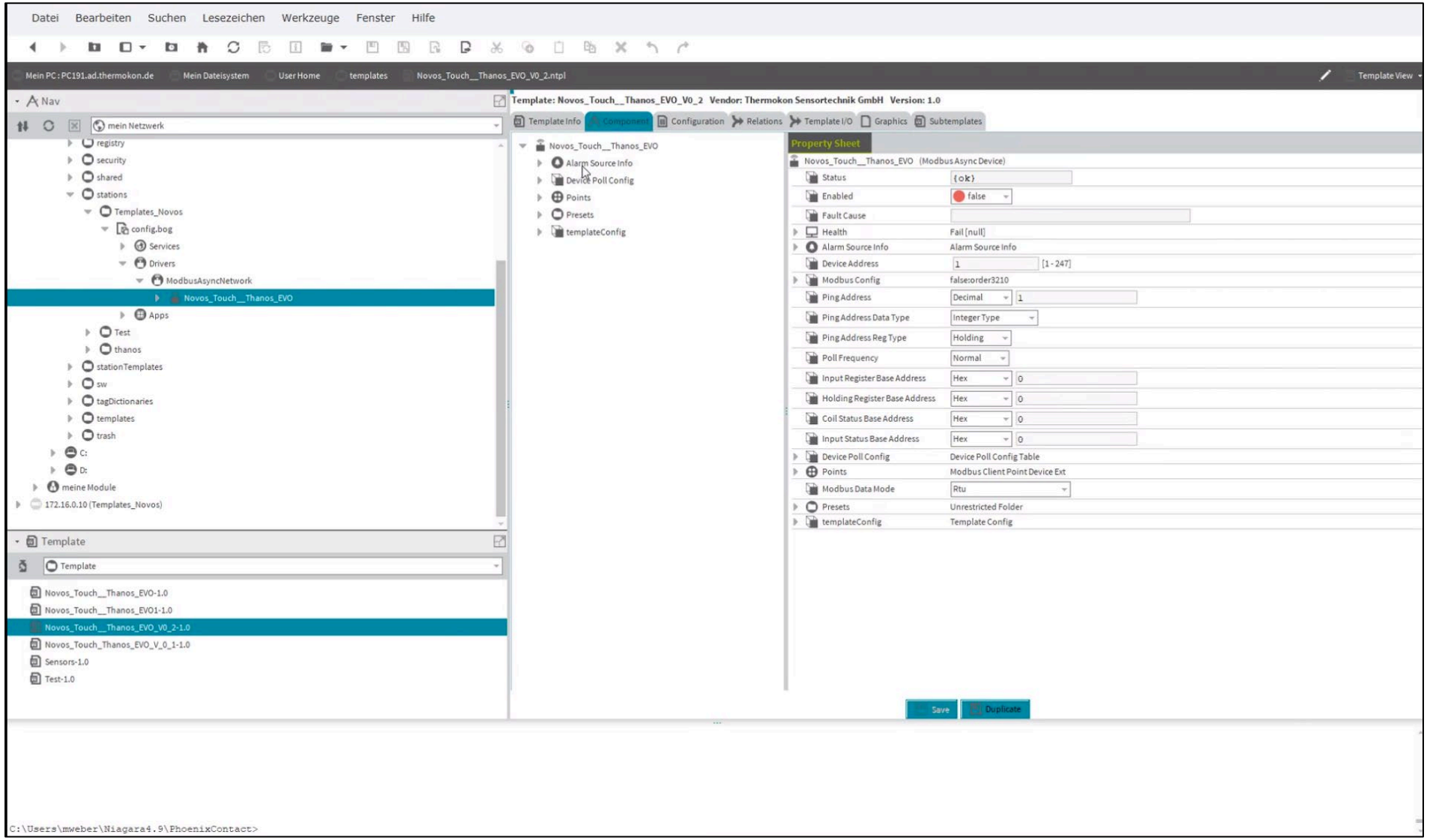
thanos EVO – RGB and light colour



thanos EVO – 2D floor plans



thanos EVO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User Home
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Template View
Nav
mein Netzwerk
registry
security
shared
stations
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sw
tagDictionaries
templates
trash
C:
D:
meine Module
172.16.0.10 (Templates_Novos)
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Sensors-1.0
Test-1.0
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Template Info
Components
Configuration
Relations
Template I/O
Graphics
Subtemplates
Novos_Touch__Thanos_EVO
Alarm Source Info
Device Poll Config
Points
Presets
templateConfig
Property Sheet
Novos_Touch__Thanos_EVO (Modbus Async Device)
Status {ok}
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Fault Cause
Health Fail [null]
Alarm Source Info Alarm Source Info
Device Address 1 [1 - 247]
Modbus Config false:order3210
Ping Address Decimal 1
Ping Address Data Type Integer Type
Ping Address Reg Type Holding
Poll Frequency Normal
Input Register Base Address Hex 0
Holding Register Base Address Hex 0
Coil Status Base Address Hex 0
Input Status Base Address Hex 0
Device Poll Config Device Poll Config Table
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Presets Unrestricted Folder
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Save
Duplicate
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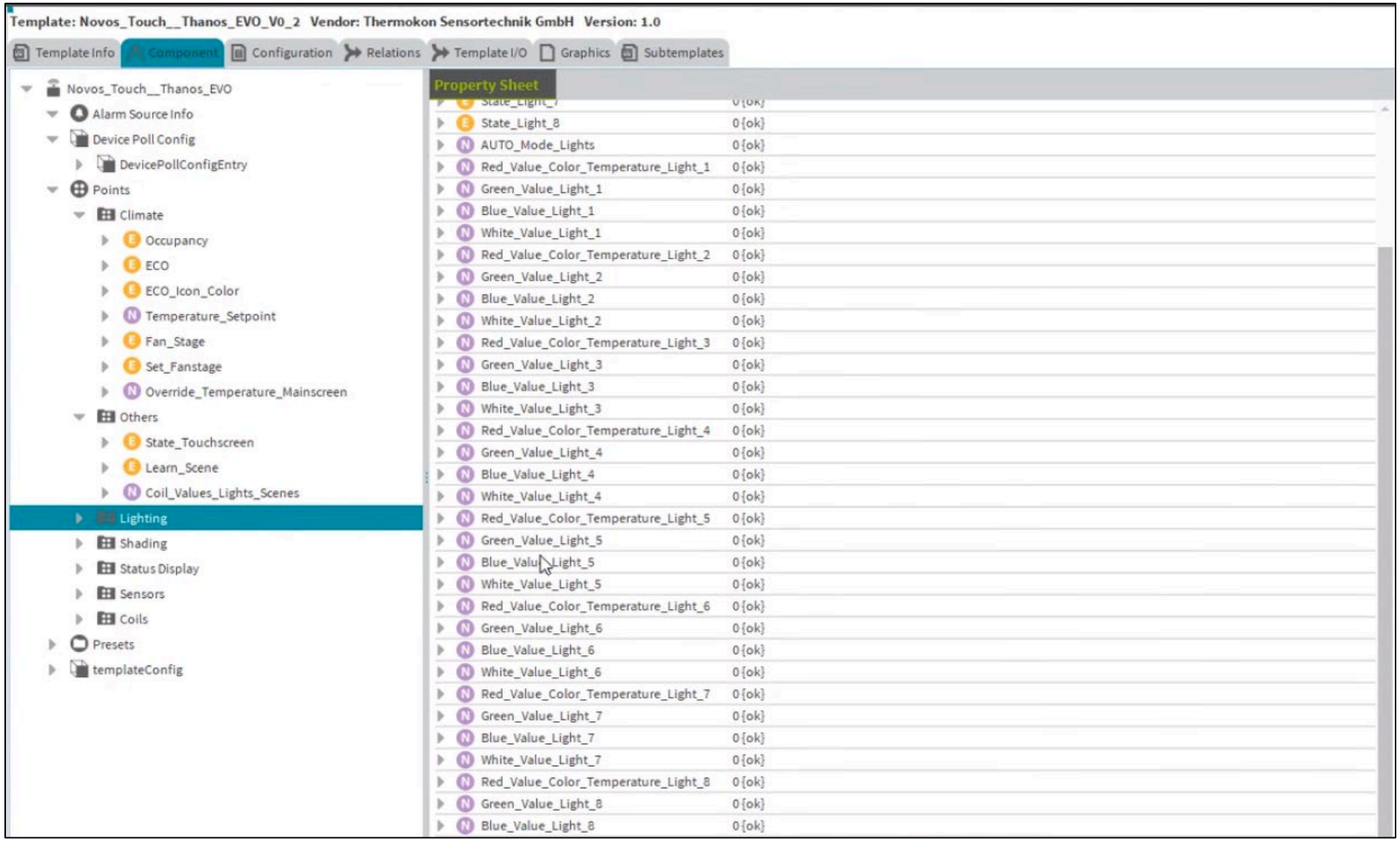
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Device Poll Config
DevicePollConfigEntry
Points
Climate
Occupancy
ECO
ECO_Icon_Color
Temperature_Setpoint
Fan_Stage
Set_Fanstage
Override_Temperature_Mainscreen
Others
State_Touchscreen
Learn_Scene
Coil_Values_Lights_Scenes
Lighting
Shading
Status Display
Sensors
Coils
Presets
templateConfig
Property Sheet
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AUTO_Mode_Lights 0{ok}
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Green_Value_Light_4 0{ok}
Blue_Value_Light_4 0{ok}
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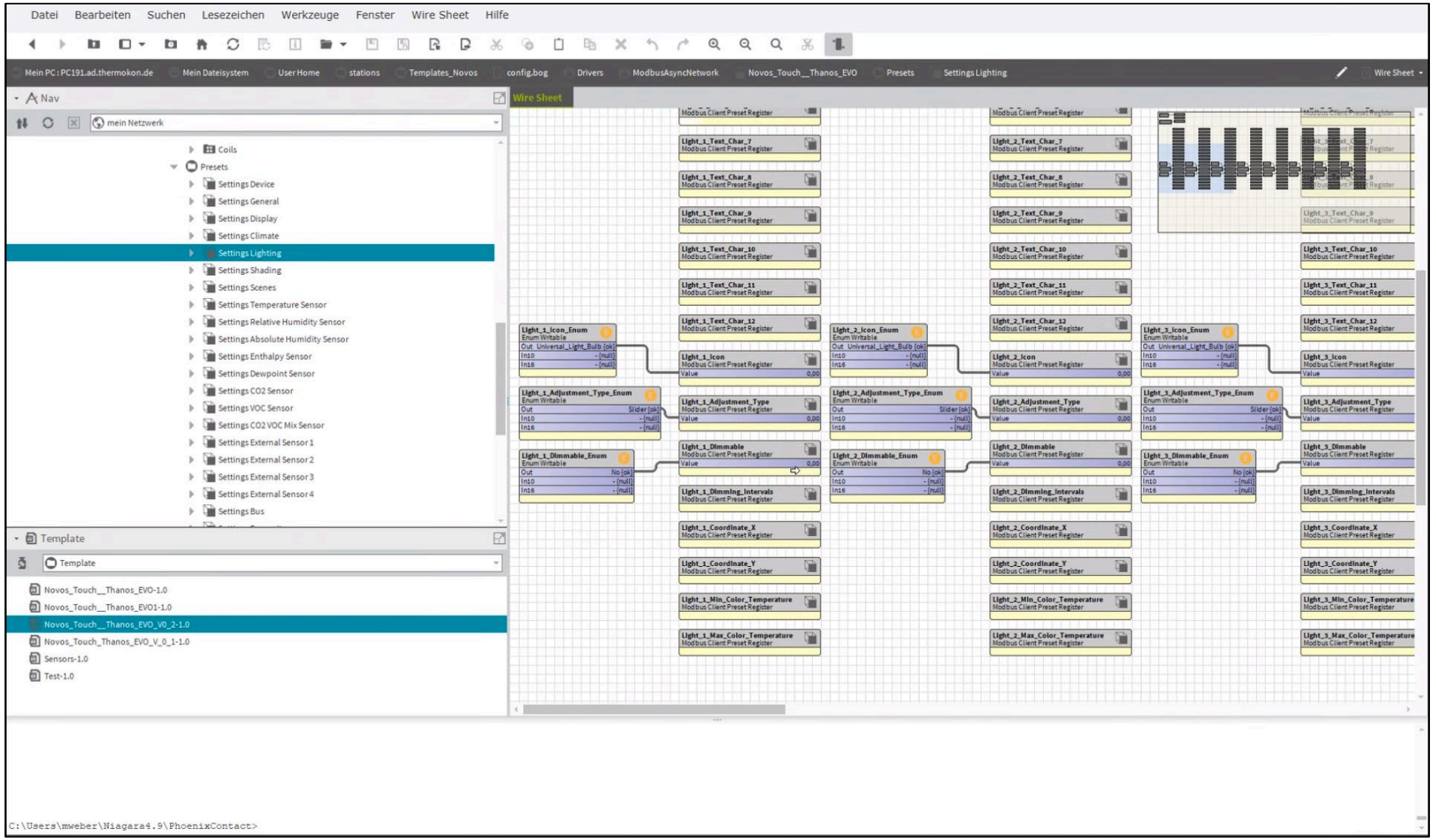
Datei Bearbeiten Suchen Lesezeichen Werkzeuge Fenster Wire Sheet Hilfe
Mein PC : PC191.ad.thermokon.de
Mein Dateisystem
User Home
stations
Templates_Novos
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Drivers
ModbusAsyncNetwork
Novos_Touch__Thanos_EVO
Presets
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Settings Device
Settings General
Settings Display
Settings Climate
Settings Lighting
Settings Shading
Settings Scenes
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Settings Relative Humidity Sensor
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Settings Enthalpy Sensor
Settings Dewpoint Sensor
Settings CO2 Sensor
Settings VOC Sensor
Settings CO2 VOC Mix Sensor
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Settings External Sensor 3
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Novos_Touch__Thanos_EVO1-1.0
Novos_Touch__Thanos_EVO_V0_2-1.0
Novos_Touch_Thanos_EVO_V_0_1-1.0
Sensors-1.0
Test-1.0
C:\Users\mweber\Niagara4.9\PhoenixContact>

thanos EVO – Outlook 2023/2024

Hard-wired Interface

(BACnet, KNX, Modbus)

Wireless

Outlook 2023/2024:




MUNICIPIO






WALDORF ASTORIA


thermokon

CONNECTING THE WORLD

Small Devices, Big Impact.

Digital Ecosystem & the advantages of integration

BELIMO

Belimo Company Facts
Successful by focusing on HVAC field devices

Founded: 1975
Headquarters: Hinwil
Switzerland

Listed at the Swiss Stock Exchange since 1995.

Over 100 million actuators for the control of HVAC in the field.

Approximately 2, 000 employees worldwide in over 80 countries on all continents.

We invest more than 7% of our sales every year in research and development.

Global market leader in the development and production of field devices for the regulation and control of HVAC systems.

Applications
Heating, ventilation and air conditioning in buildings

Air

Fire & Smoke Protection

Air Handling Unit

Room

Room Comfort

Water

Cooling Tower

Cooling Plant

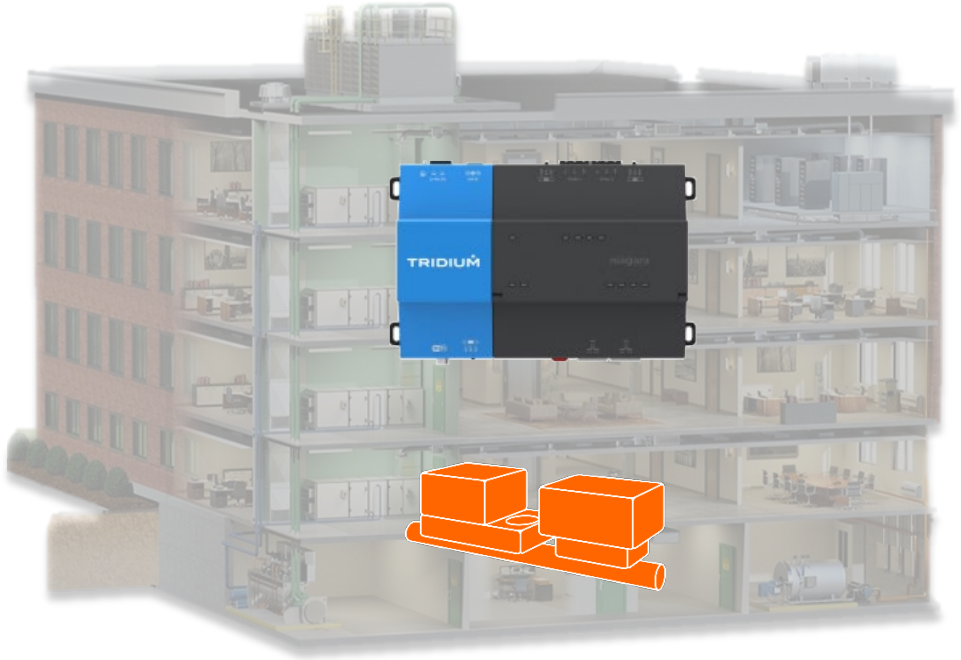
Heating Plant

Integration
Enable Smart Buildings

We aim to provide **valuable device data** in order to **increase transparency** in a building.

Thanks to this transparency, operation can be optimized, and overall energy consumption reduced – in new systems as well as in retrofitting or renovation projects.

Our products are always integrated into a system and therefore **connectivity has always been a key feature of our products**.



Analog

BACnet

Modbus

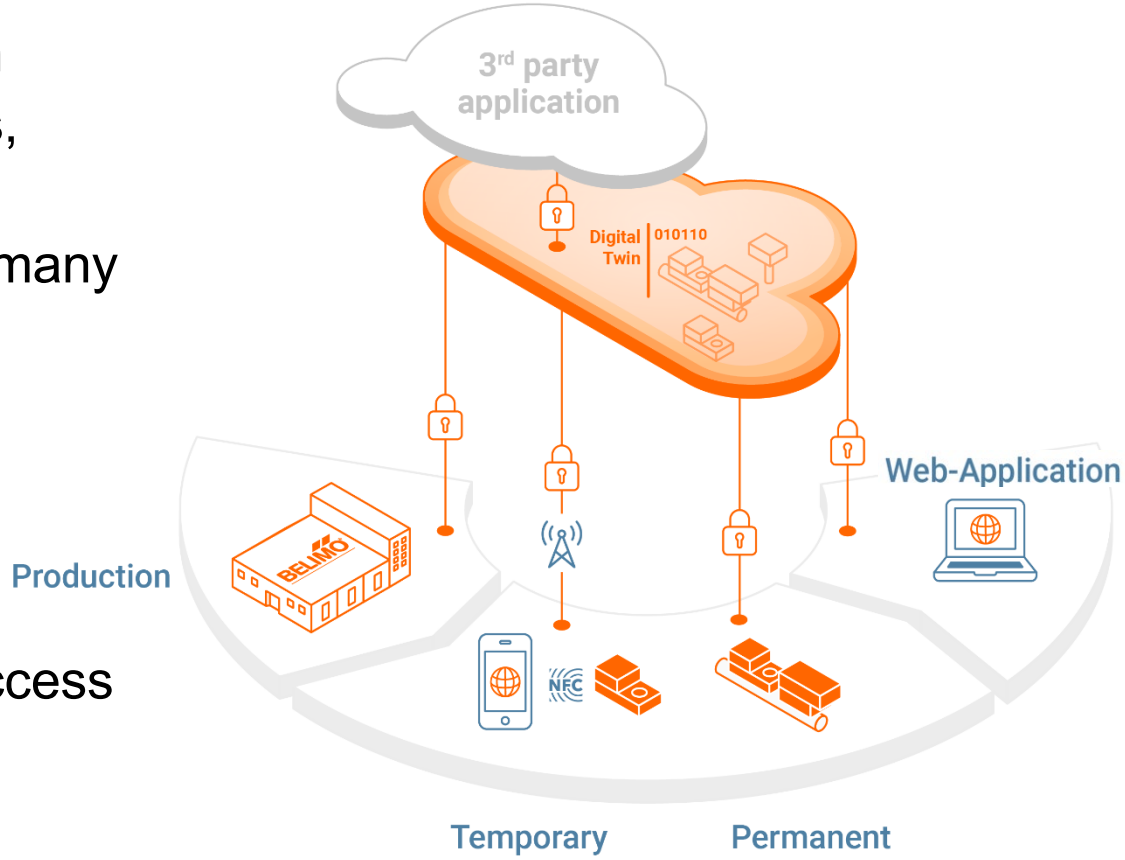
KNX

Belimo Cloud Ecosystem
Be ready for the future

The **Digital Twin** is the point of connection between Belimo IoT devices and the digital world of Analytics, Fault Detection and Diagnostic FDD, Billing, Asset Management CMMS, Predictive Maintenance, and many others

IoT-enabled products

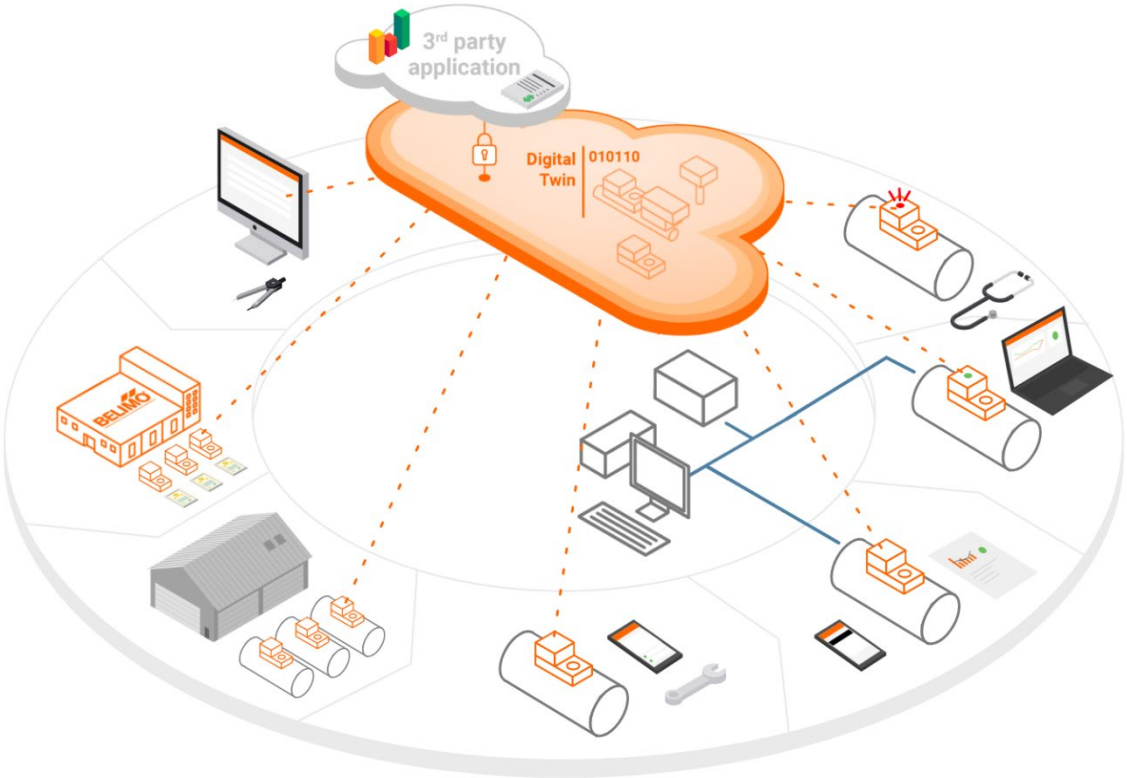
- Permanent Ethernet connection
- Temporary data synchronization and/or remote access via Smartphone (via NFC)



Digital Twin
Valuable data over the entire lifetime

With our Belimo Cloud Ecosystem we can meet all needs for **additional product data** while maintaining a **lean and simple device**.

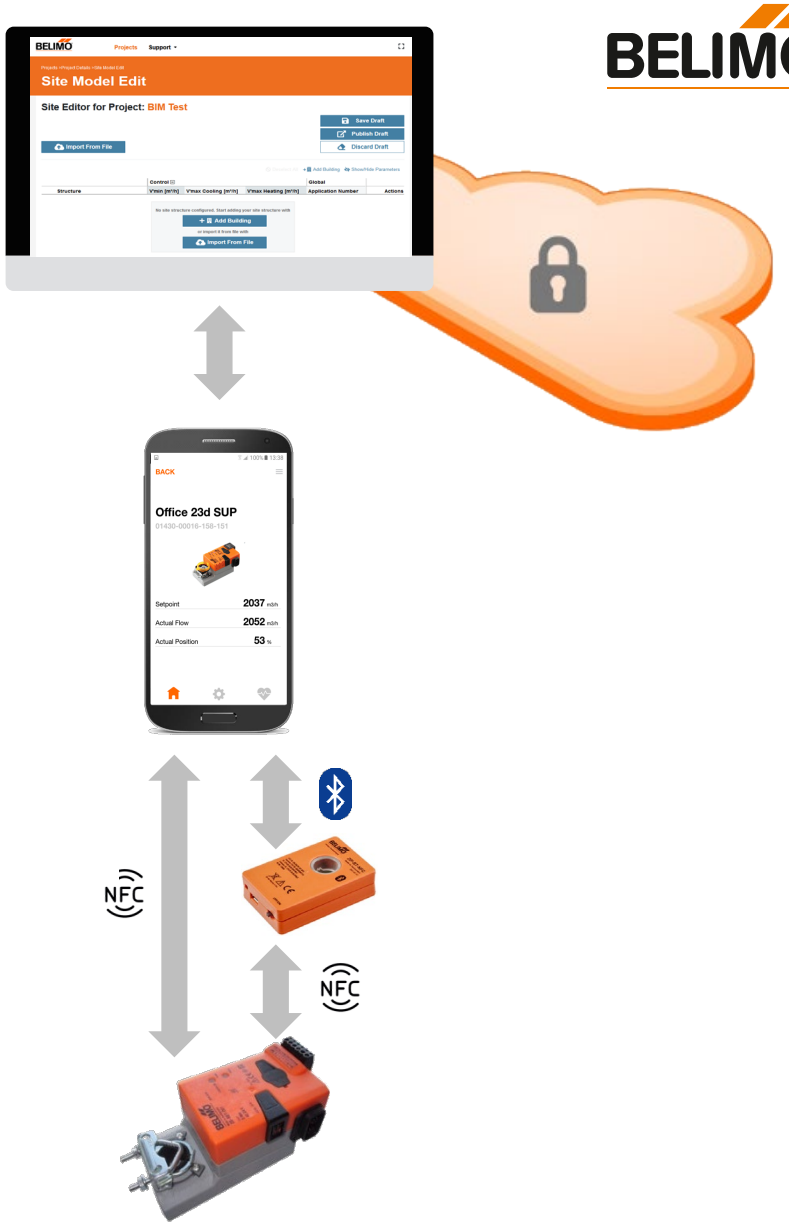
Historical data, commissioning, performance and water calibration reports, backup of device settings are just some highlights that can be offered thanks to the digital twin.



Simplifying workflows
Paperless commissioning

Our ecosystem allows us to offer further product related services like **paperless commissioning**.

- Completely digital planning process
- Paperless & transparent commissioning with the smartphone
- Actual project progress can be viewed at any time
- Creation of the commissioning report at the push of a button

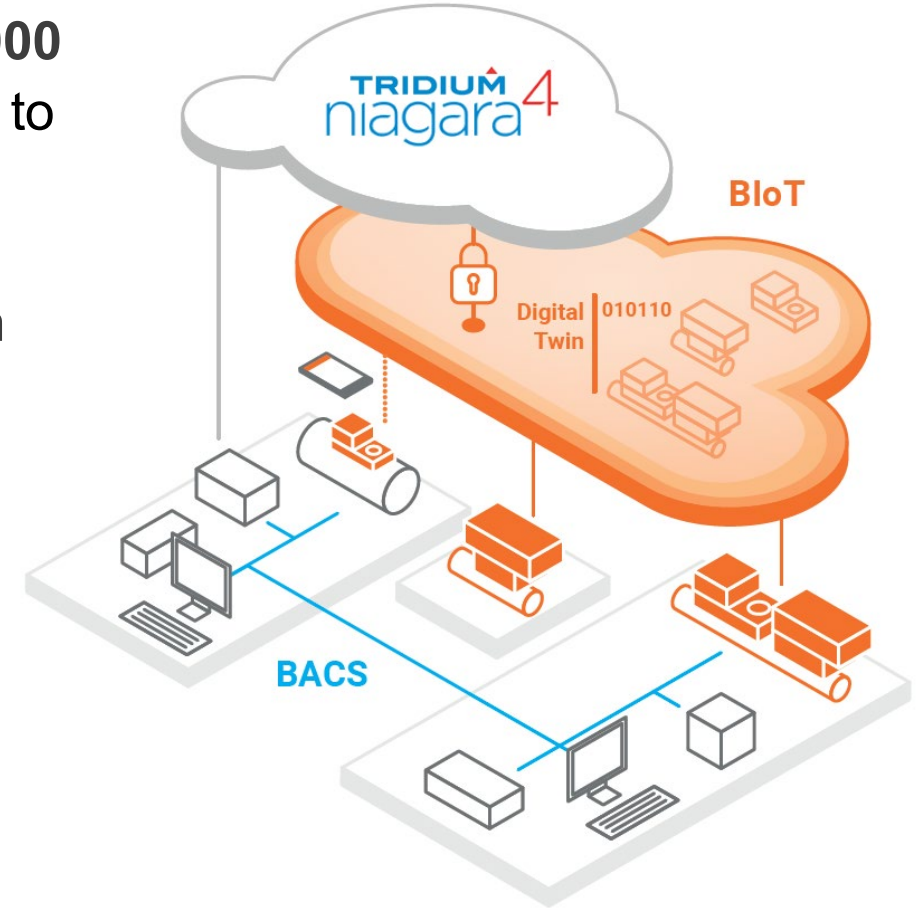


Niagara Driver
Integration is easier than ever before

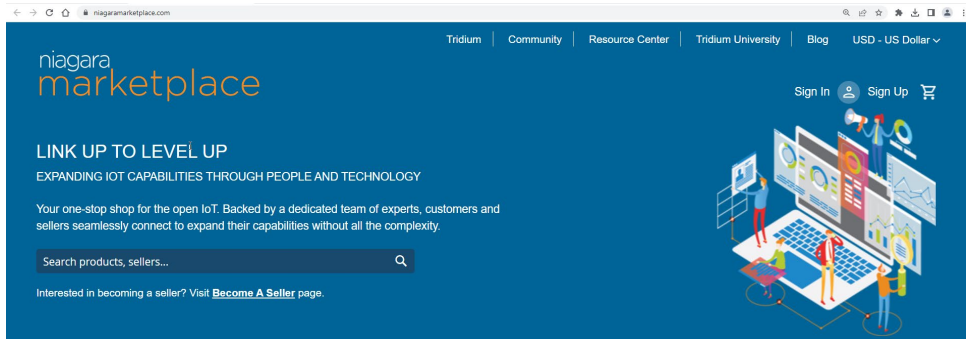
The driver allows **Tridium Niagara 4 supervisor, Jace 8000** and any other device running a Niagara station to connect to the **Belimo Cloud Ecosystem**.

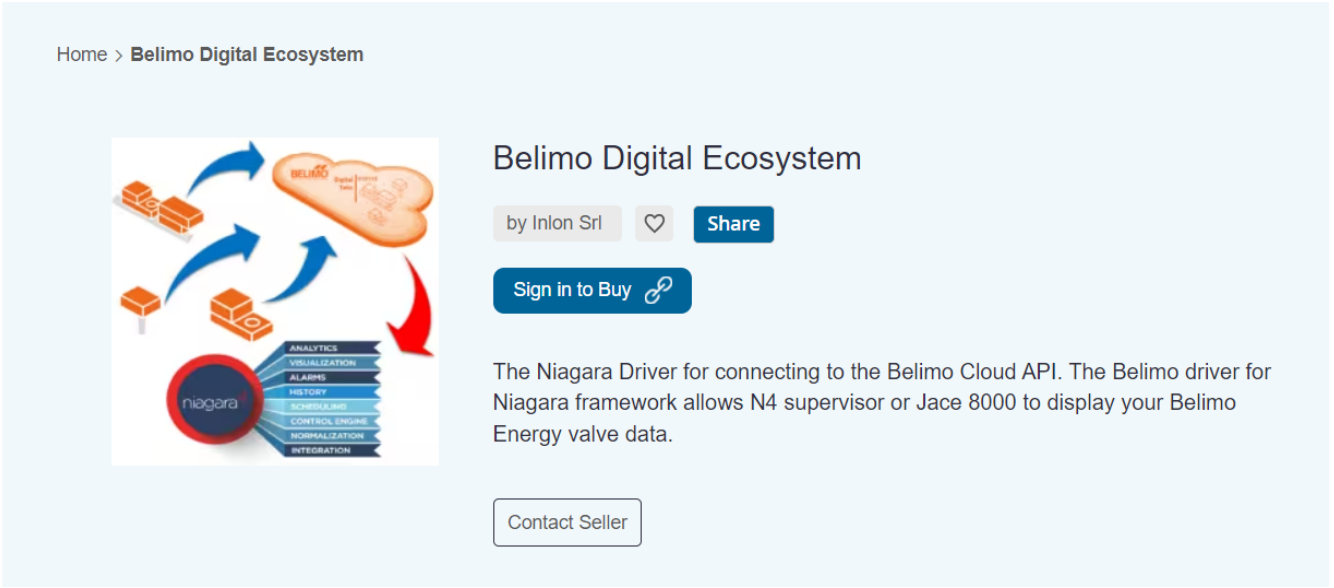
The **interaction** with the digital twin **becomes easier** than ever before.

It implements the **Belimo Cloud API**, and it has been developed within the Belimo Developer Space framework.



Niagara Marketplace

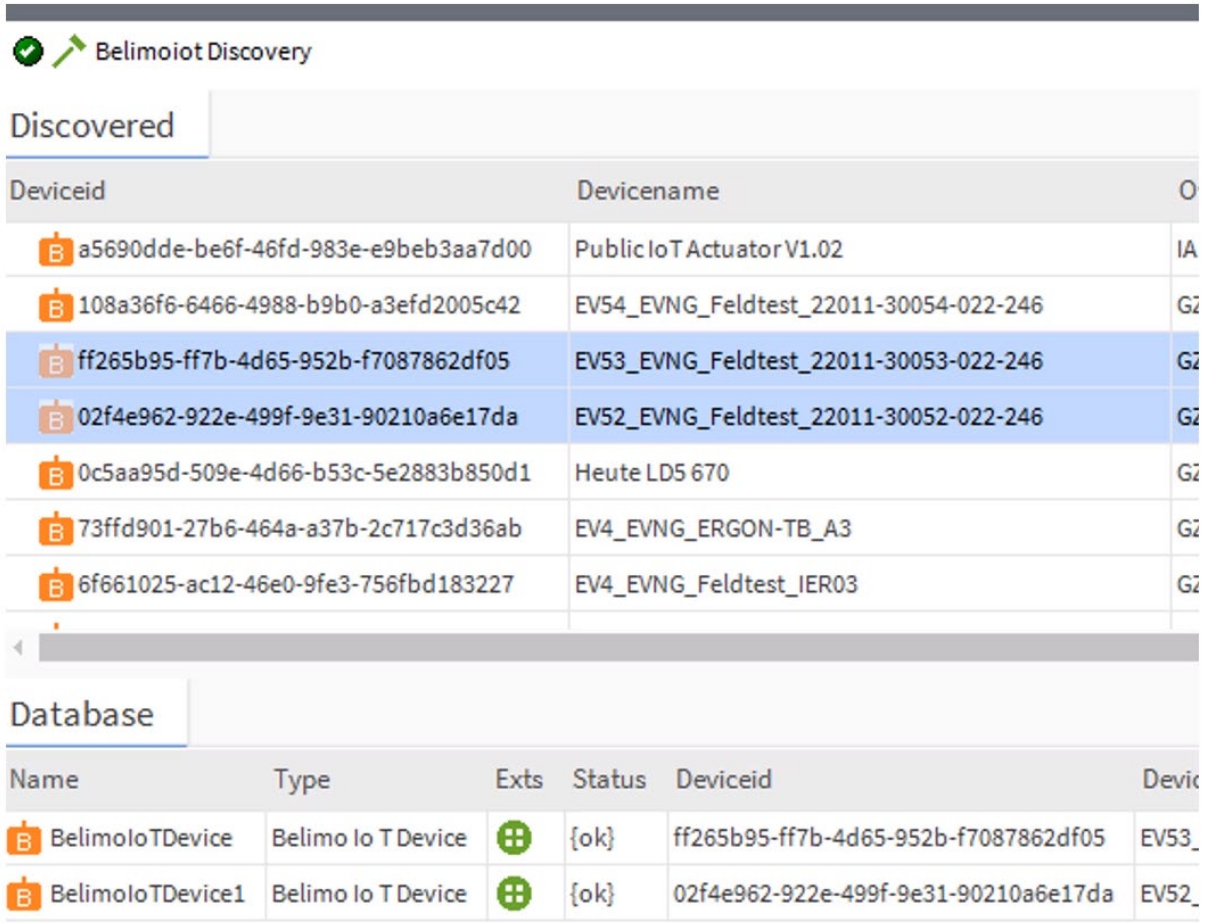




This driver has been developed by Inlon Engineering, and it is distributed for free on GitHub: https://github.com/inlon-engineering/niagara-belimo-iot

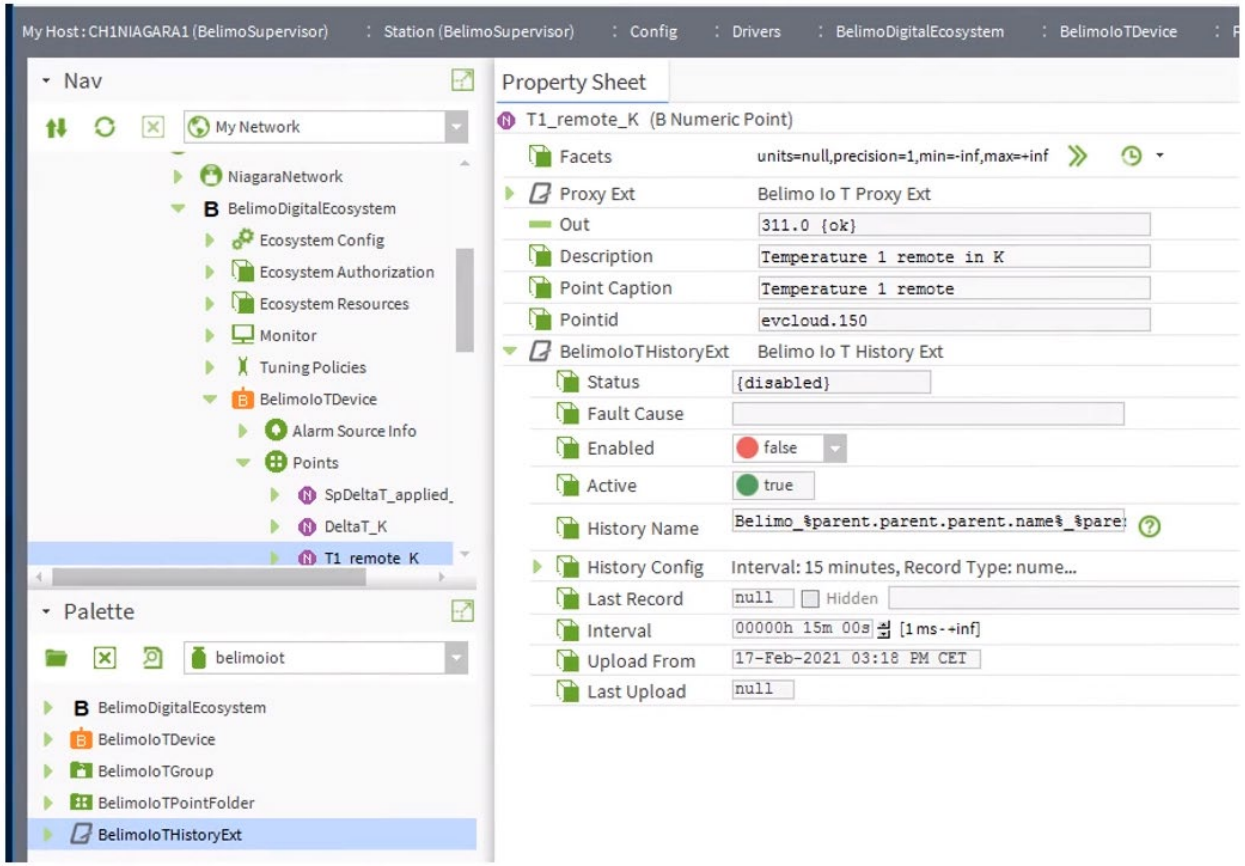
What can it do

Once the connector is active and properly configured, it is possible to **discover the digital twins of the devices** belonging to a specific Belimo ID and import them in the local Niagara Database



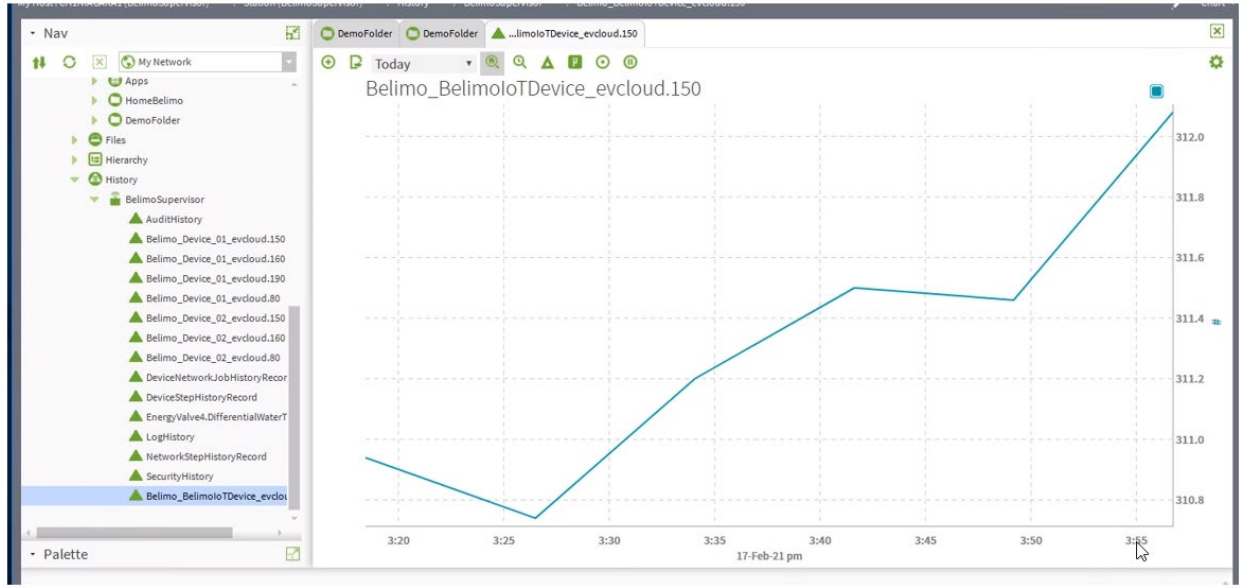
What can it do

Get **normalized data points for the Niagara** environment and map them directly to the Belimo digital twin data points' properties



What can it do

No need to log the data yourself. **Access historical data** of the device for its entire lifetime. Simply get the data over the needed time span and in the resolution, you need.



How to make it work

Requirements

- At least Niagara 4.9 Framework
- A supervisor licensed installation
- Enough licensed resource points

To access to the Belimo Digital Ecosystem you will need

- Active Belimo Cloud Account – Belimo ID
- To apply for an application-specific Client ID on developer space https://www.belimo.com/iot/developers

How to make it work


Installation
Comfort
Maintenance
Small Devices,
Big Impact.
Energy Efficiency
Safety


BELIMO®

CONNECTING
THE WORLD


picacity
AI DRIVEN INSIGHTS

DistrictNex

Product Overview

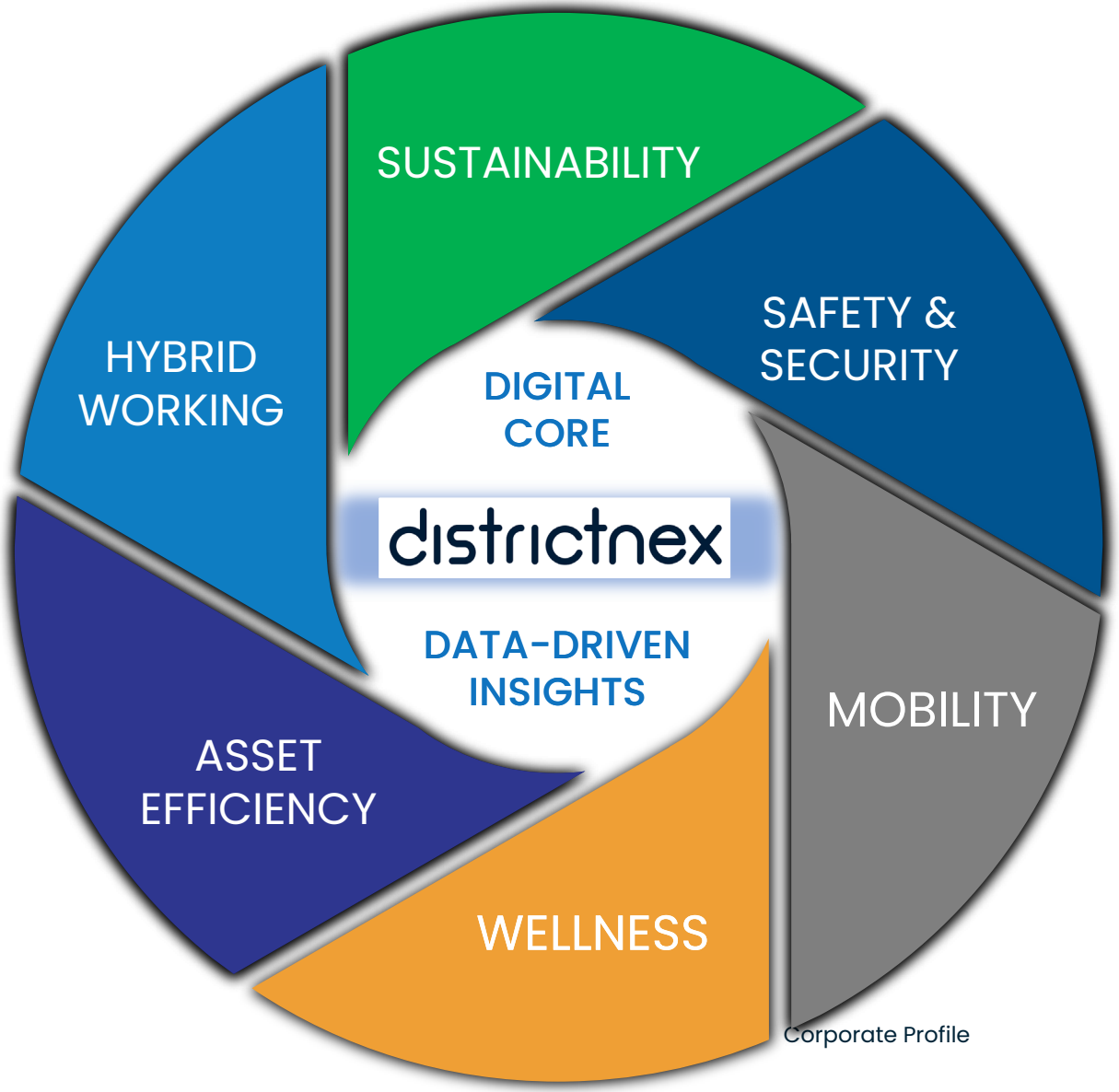
Mega Trends in Digitizing Cities & Real Estate

The City Assets and Real Estate world is rapidly transitioning to a **digital-centric future** scaling from Real Estate developments to Districts to entire Cities.

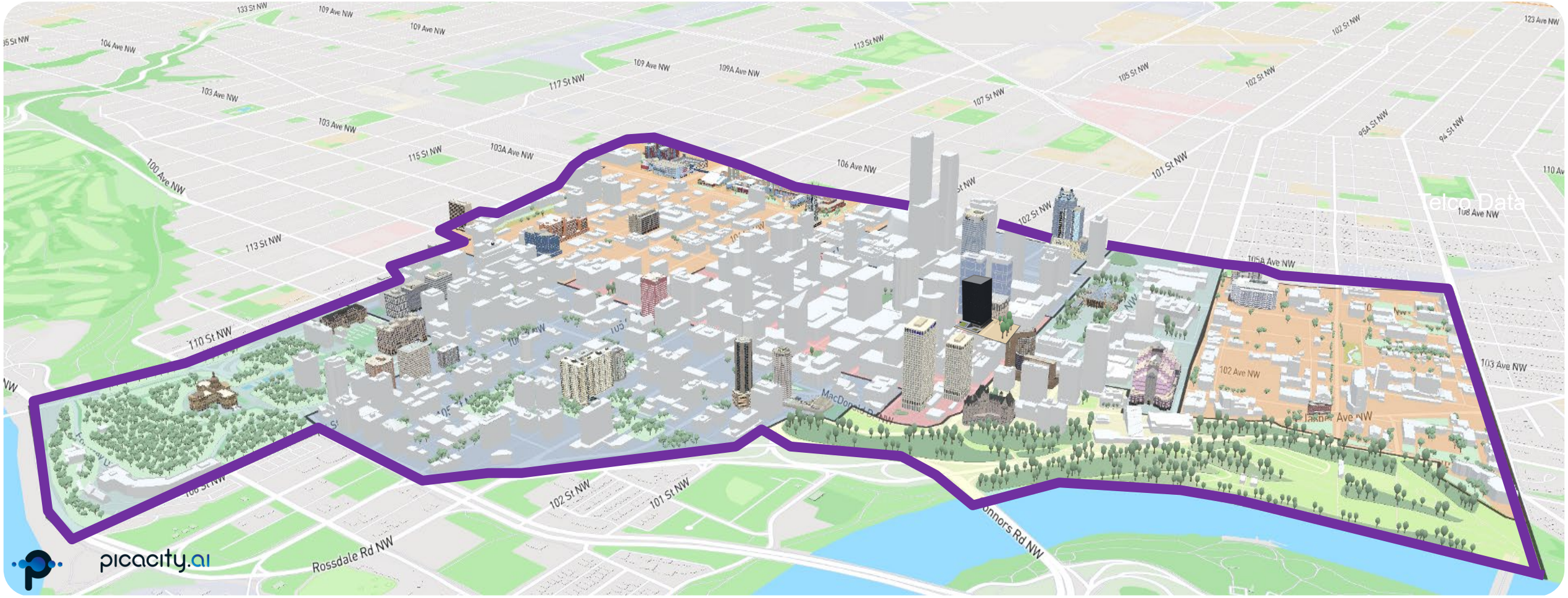
Various **Mega trends** are now a need to have vs. a nice to have within New Greenfield Developments and older Brownfield Transformation Projects.

These Mega Trends are the driving forces behind this transformation.

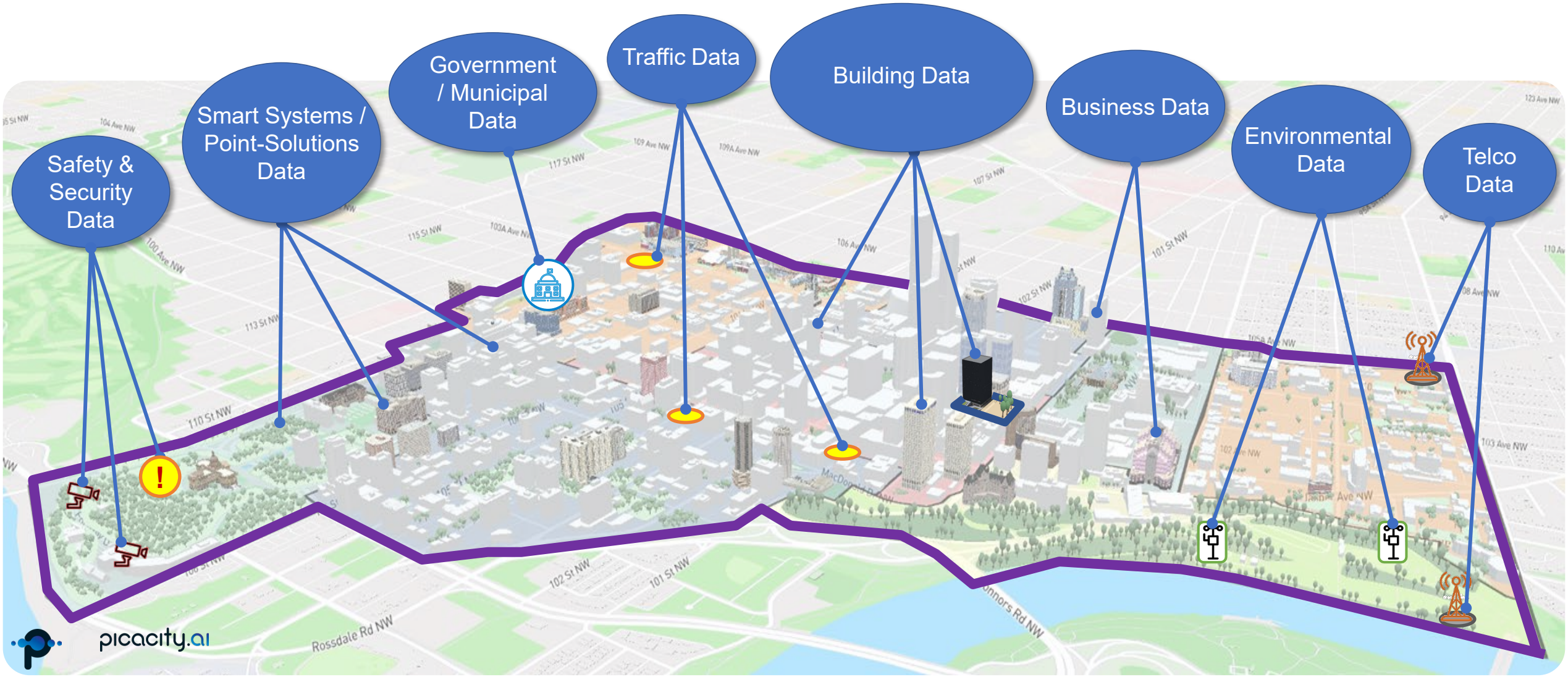
DistrictNex, our leading-edge **City AI as a Service** digital Platform directly addresses and helps our customer deliver the outcomes related to these Mega Trends.



Data, Systems, and Stakeholders – in a ‘District’

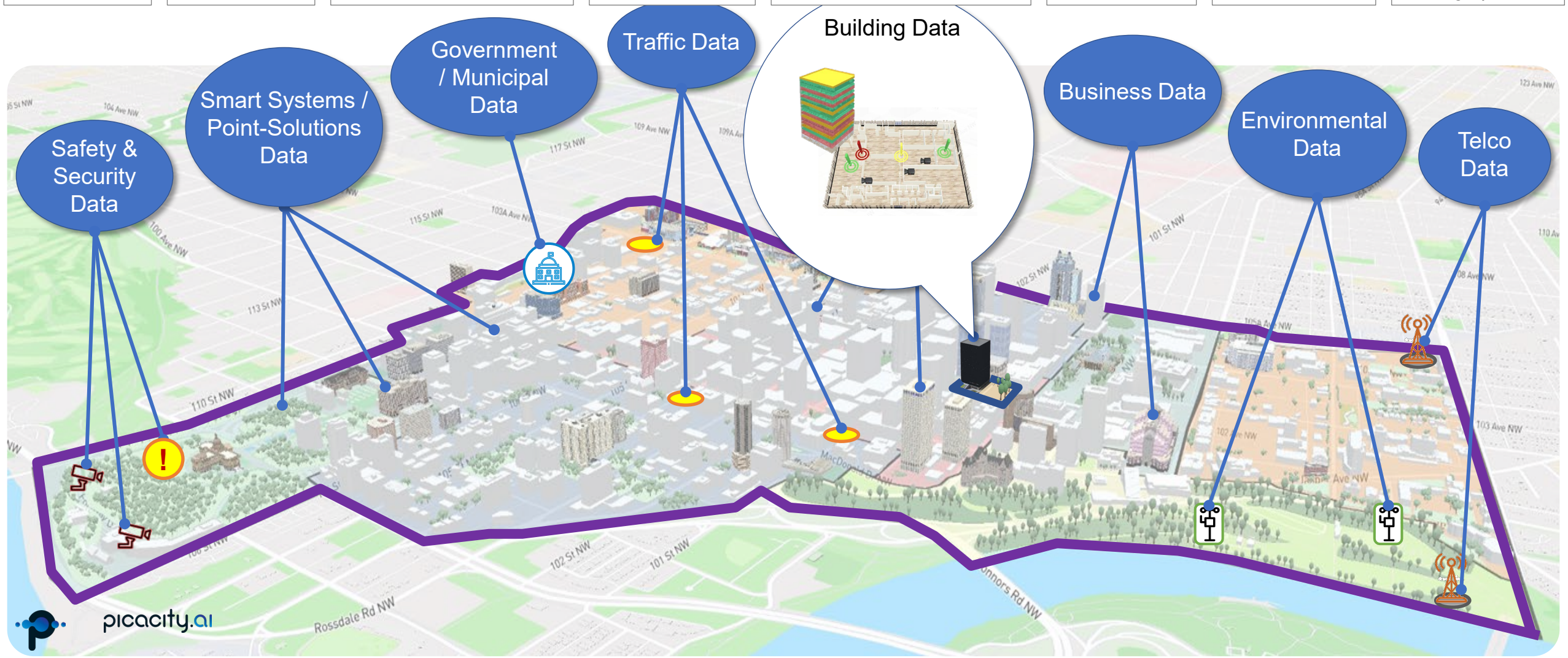


Data, Systems, and Stakeholders –
across Smart Sustainability, Security, Mobility, Living, …



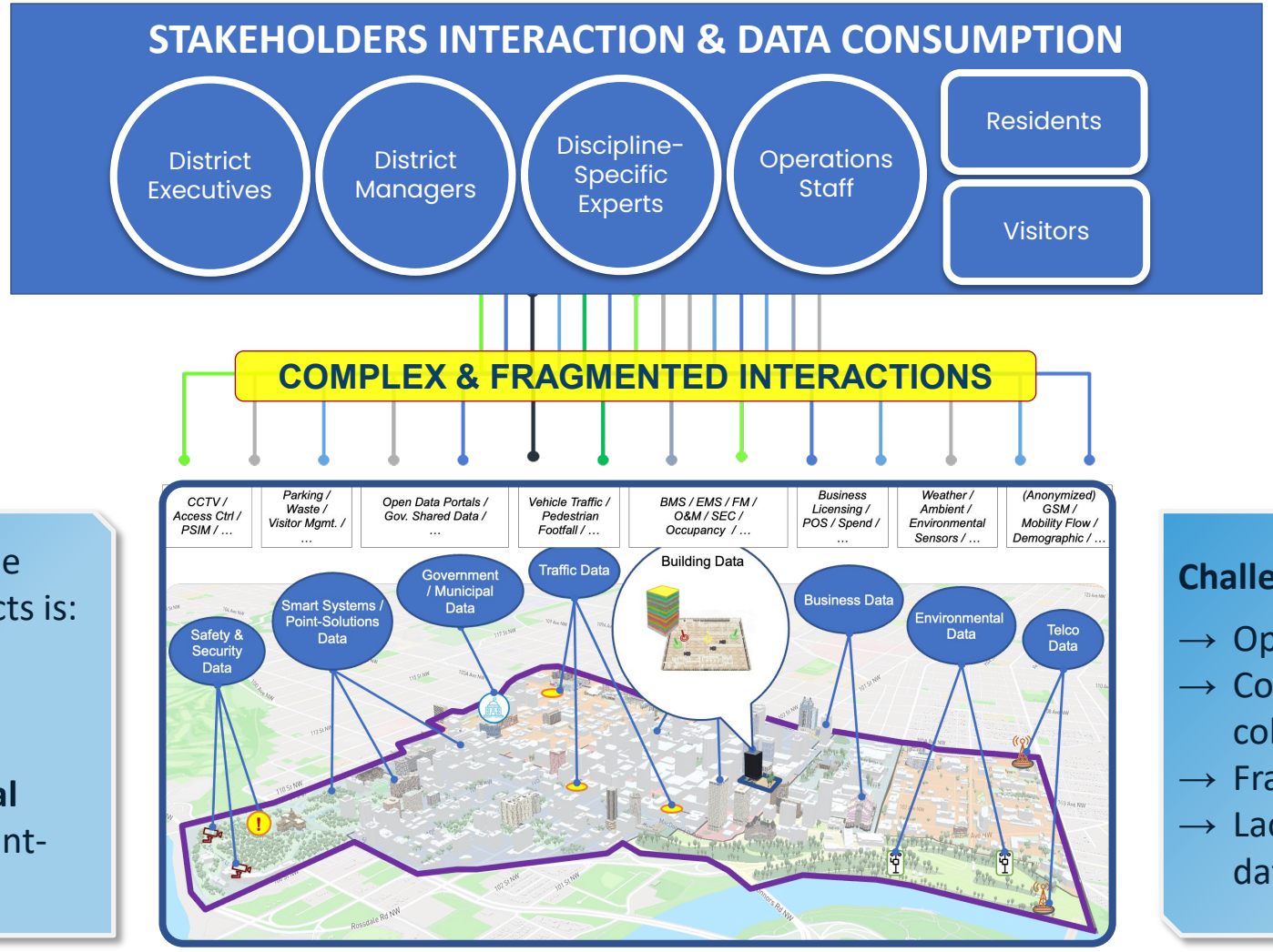
Data, Systems, and Stakeholders –
across Smart Sustainability, Security, Mobility, Living, …

CCTV / Access Ctrl / PSIM / …	*Parking / Waste / Visitor Mgmt. / …*	*Open Data Portals / Gov. Shared Data / …*	*Vehicle Traffic / Pedestrian Footfall / …*	*BMS / EMS / FM / O&M / SEC / Occupancy / …*	*Business Licensing / POS / Spend / …*	*Weather / Ambient / Environmental Sensors / …*	*(Anonymized) GSM / Mobility Flow / Demographic / …*



Data, Systems, and Stakeholders –
across Smart Sustainability, Security, Mobility, Living, …

Stakeholders have different needs and interests when it comes to decision making and day-to-day operation



Data that is relevant to the **insightful operation** of districts is:

Vastly heterogenous

+

Typically resides in **several systems** and associated point-solutions

Challenges Posed:

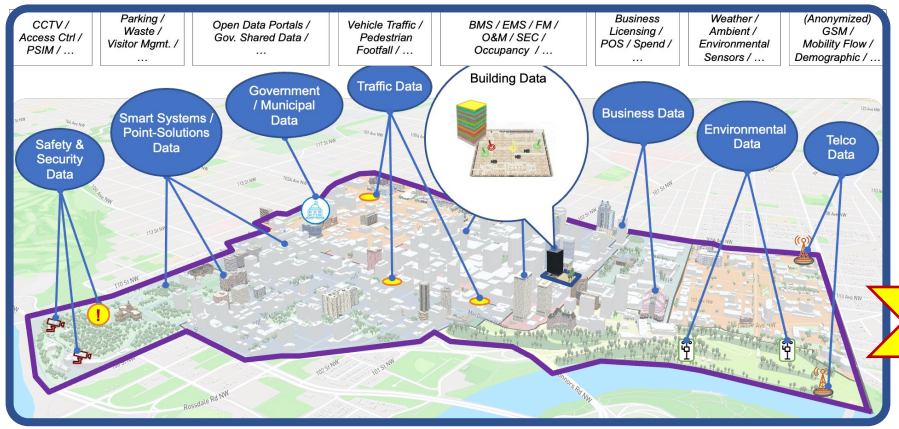
→ Operational Silos
→ Complex and/or manual data collection & reporting workflows
→ Fragmented analytics use-cases
→ Lack of timely, comprehensive data for decision support

districtnex –

End-Users

- District Executives
- District Managers
- Discipline-Specific Experts
- Operations Staff
- Residents
- Visitors

- Current and historical view of District performance.
- Cross-system business intelligence and decision-support insights.
- Operational data, KPIs, and performance Indices across Smart Dimensions.
- Command & Control operational integration.



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districtnex Platform

Mapping & Visualization	Front-End			
Analytics & Insights	Business Logic | Use-Cases | Modules & Sub-Systems			
Reporting & Actions	Data Acquisition & Management			
Command & Control	Smart Sustainability	Smart Security	Smart Mobility	Smart Living

Data Management Services

Cloud Infrastructure

How we do it - Cloud Native City AI As A Service Digital Platform

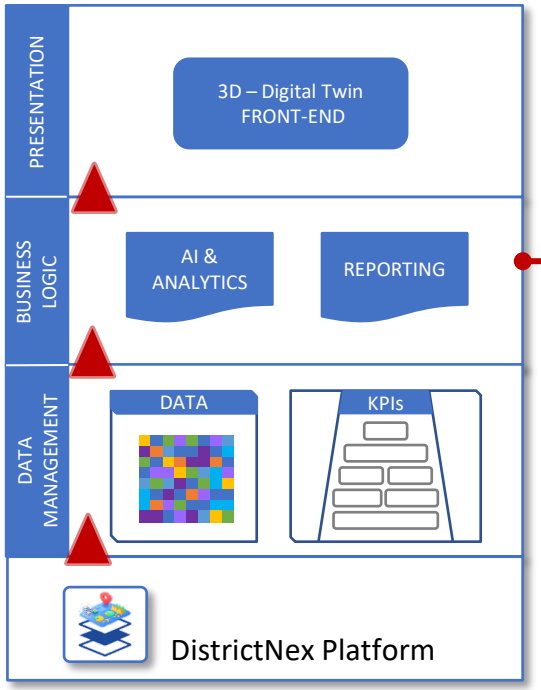
Buildings

Open-Areas

Roads / Intersections

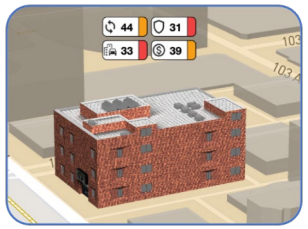
Remote Sites

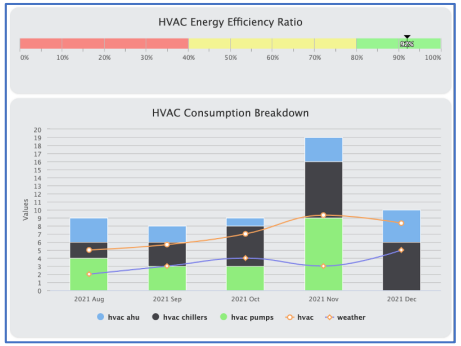
districtnex



Digitize Physical Assets (Digital twin)

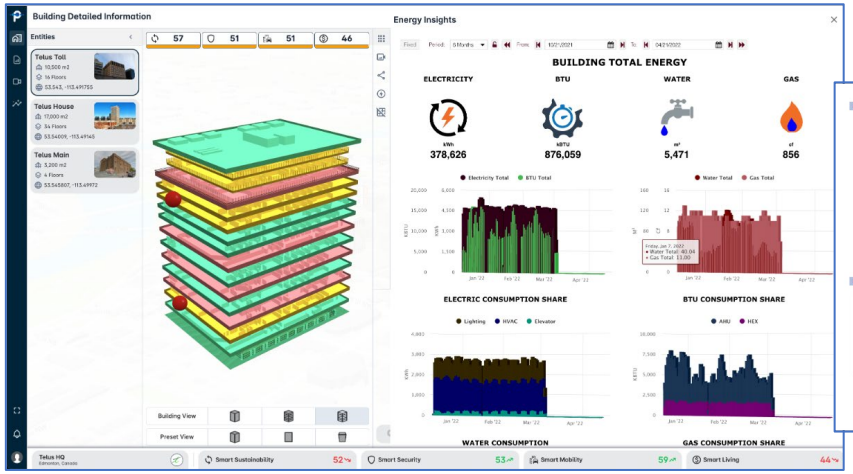
Holistic Visibility, KPI Trending, Reporting, and Visualization

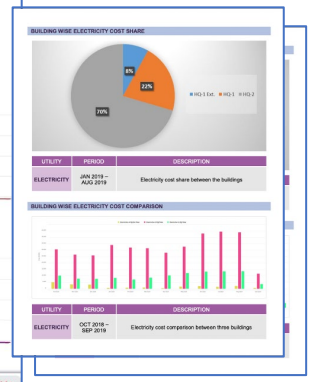




- Real Time View
- Historical / Trending
- Comparative Performance

Discipline Specific (sustainability, security, mobility, etc.) Functional Integration





- Analysis
- Performance
- Control
- Reporting

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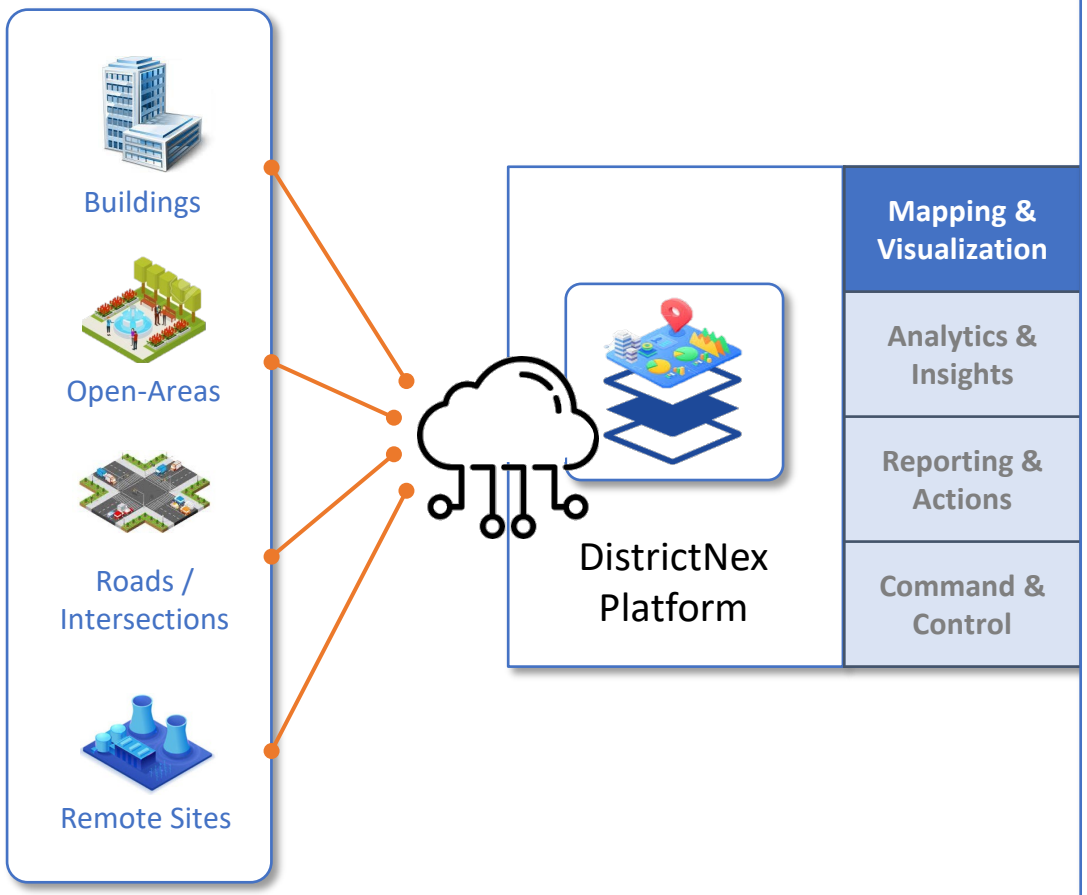
districtnex – 'Smart-City as a Service'



- *3D Digital Twin visualization, navigation, and drilldown across regions, cities, and sites.*
- *Geospatial significance and hierarchy for all data*
- *Intuitive presentation, visual consumption of current and historical data.*

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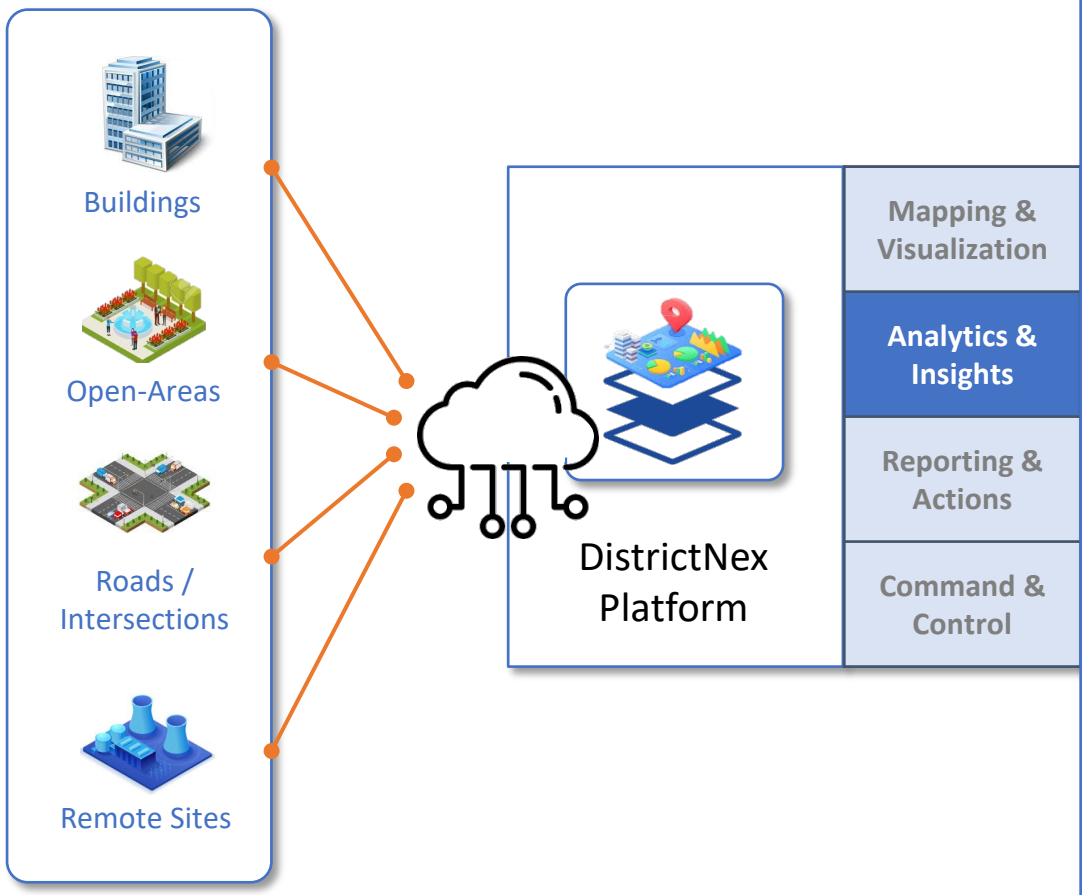
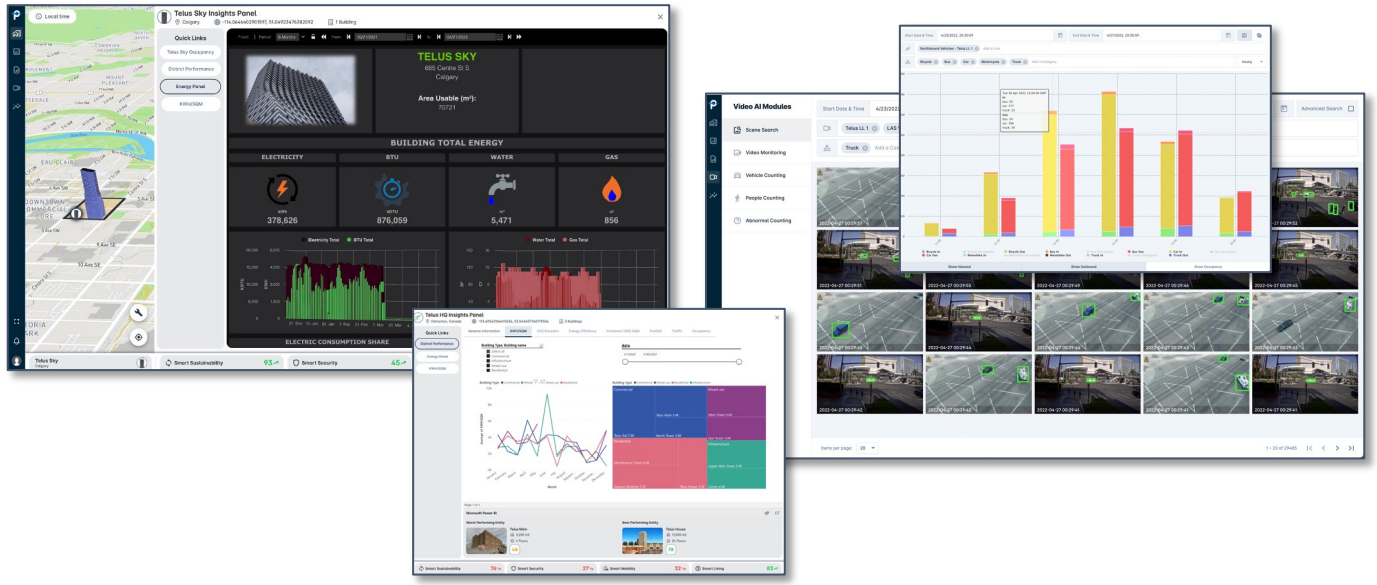
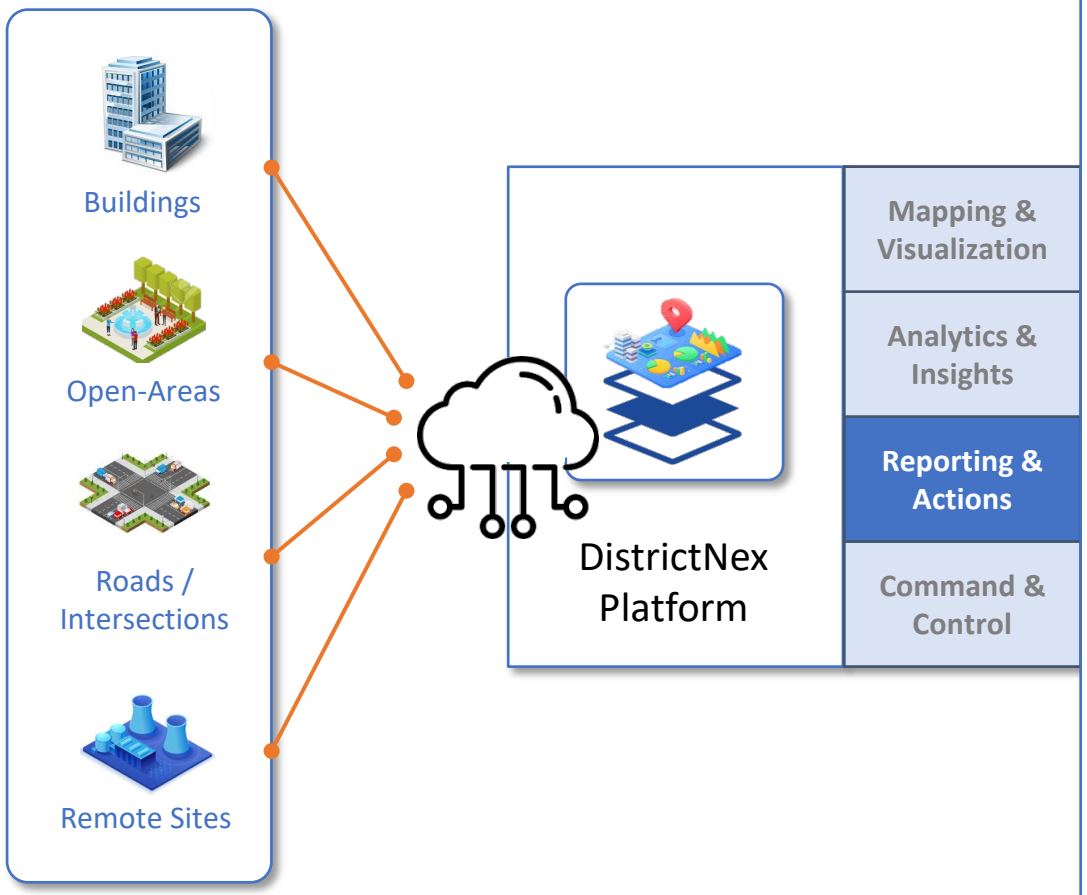
districtnex – 'Smart-City as a Service'

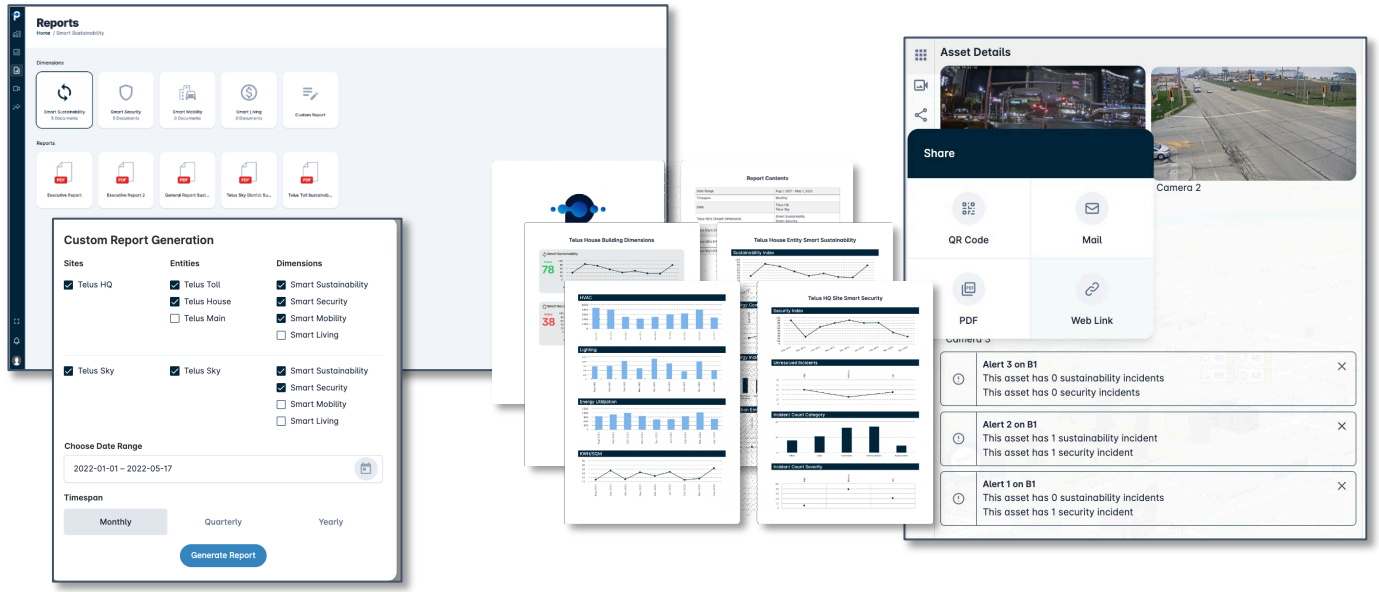




- *Data Model with horizontal integration of heterogeneous systems and data-sources, across smart dimensions.*
- *Data Model hierarchy that mimics the geospatial hierarchy, from buildings & floors, to sites, cities, and regions.*
- *Broad span of analytics use-cases, with trending, comparative, correlation, anomaly detection and predictive insights.*

districtnex – 'Smart-City as a Service'





- *Pre-built reports.*
- *Custom-report generation function.*
- *Seamless sharing of both reports and situational information to concerned stakeholders, for a clear action / outcome.*

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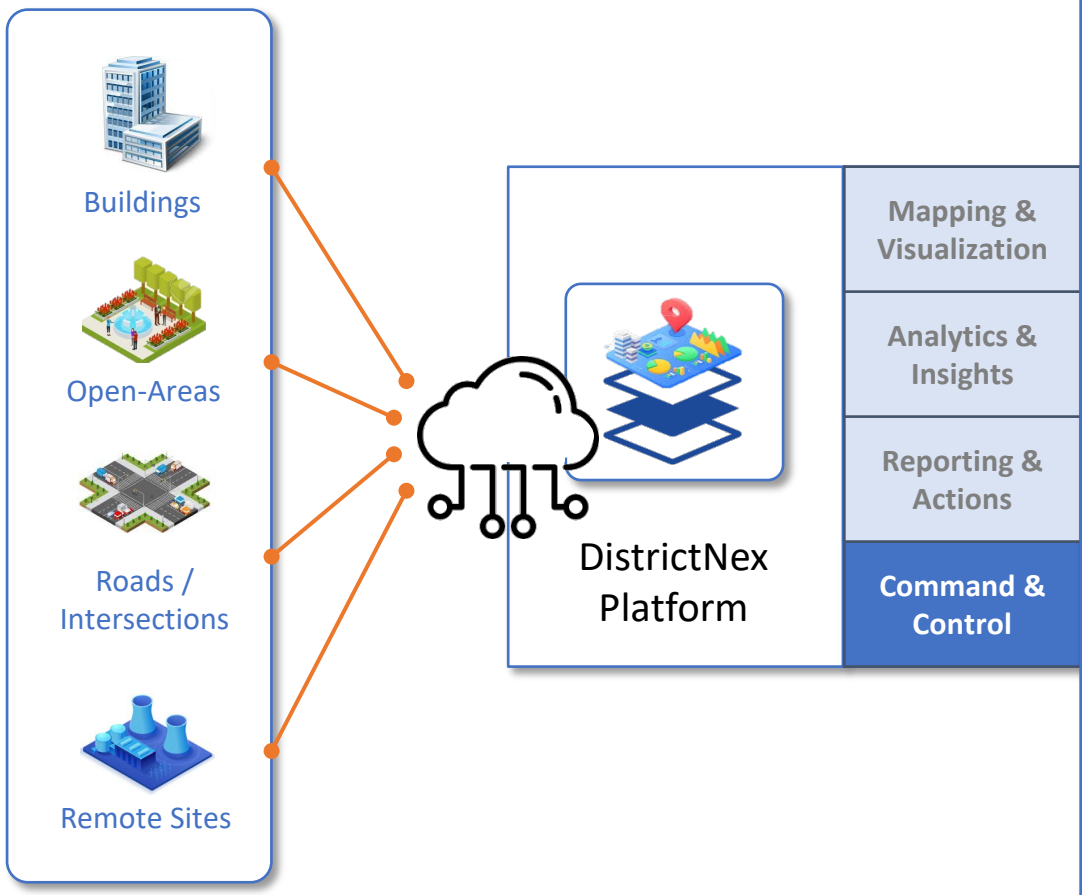
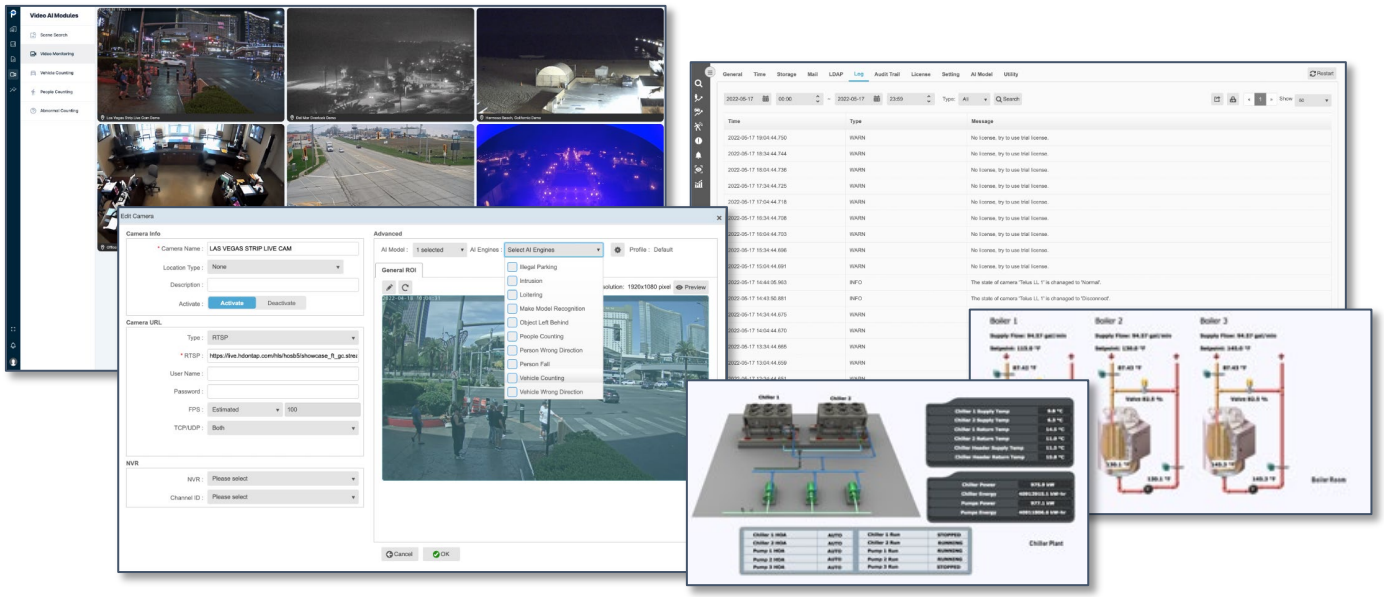
districtnex – 'Smart-City as a Service'





- *Integration of discipline-specific command-and-control for a two-way interaction with systems and assets.*
- *Consolidated, streamlined operation across sites.*

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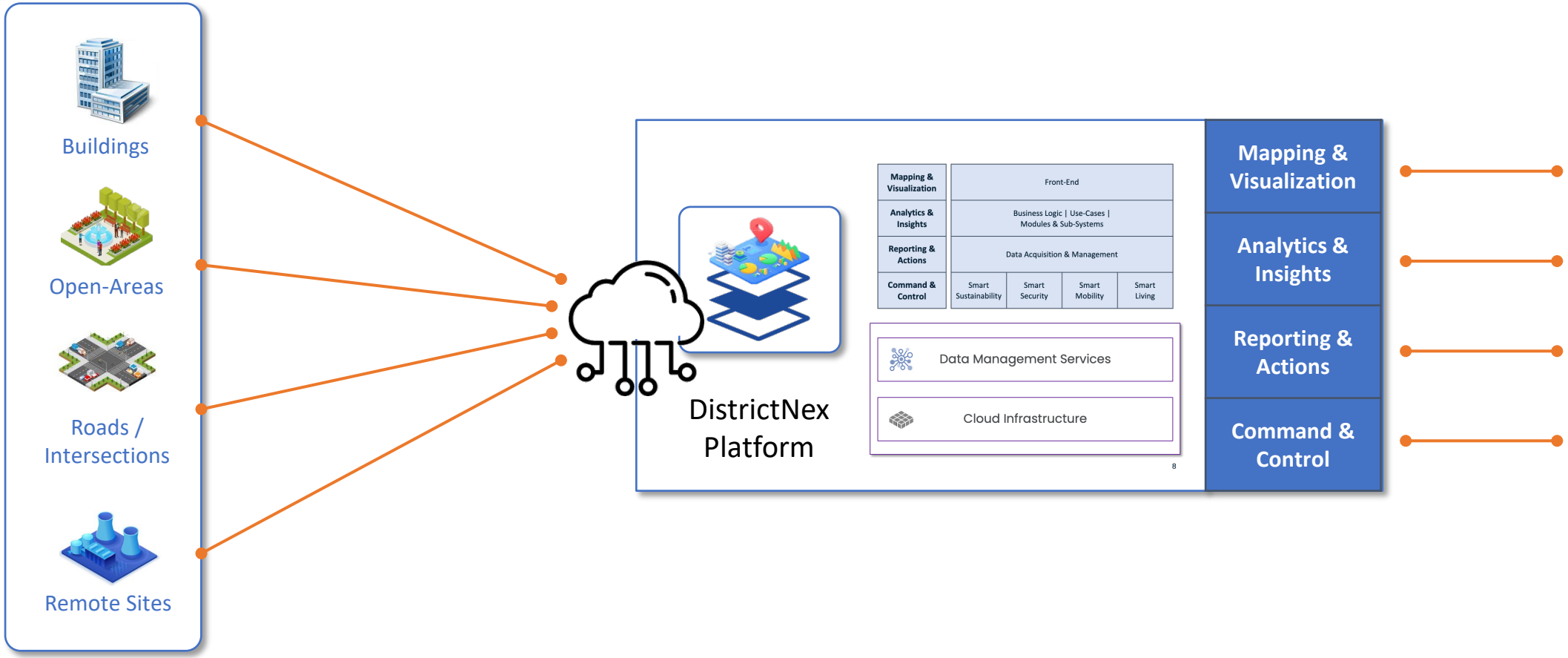
districtnex – 'Smart-City as a Service'

AGILE DATA ACQUISITION → UNIFIED DATA REPOSITORY → VALUE PROPOSITION FOR DIFFERENT PERSONAS



END-USER

End-User Devices

EXECUTIVE:
- Insights & Decision Support

MANAGER:
- Situational Awareness
- Performance Mgmt. & Reporting

OPERATOR:
- Operational Efficiency

Command & Control Center

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districtnex

AGILE DATA ACQUISITION → UNIFIED DATA REPOSITORY → VALUE PROPOSITION FOR DIFFERENT PERSONAS

Buildings

Open-Areas

Roads / Intersections

Remote Sites

Systems & Data-Sources

Data-Sources: Classification & Sample Data

Building & Facilities Management	MEP Data Asset Alarms / Failures
Security Management	Access Control Data CCTV Feeds / Data
Incident Management	Security Incidents | Alerts
Occupancy Management	Facilities Booking | Attendence
IOT Sensors	Environmental Data
Specialized Point Solutions	Waste | Visitor | Parking Data | …
Enterprise | Telco Systems	Office / IT Systems Data GSM Data
Public Data Services	Weather Data
Open Data Portals	Gov. / Municipal Open Data

Open-Standards Protocols

[HTTPS/REST APIs, NIAGARA, RTSP, MQTT, …]

Use-Cases |
Analytics |
Reporting |
Insights |

Data Ingestion

Data Repository

SUSTAINABILITY

SECURITY

MOBILITY

LIVING

…

Data, Metrics, KPIs, …

DistrictNex Platform

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districtnex

AGILE DATA ACQUISITION | UNIFIED DATA REPOSITORY | VALUE PROPOSITION FOR DIFFERENT PERSONAS

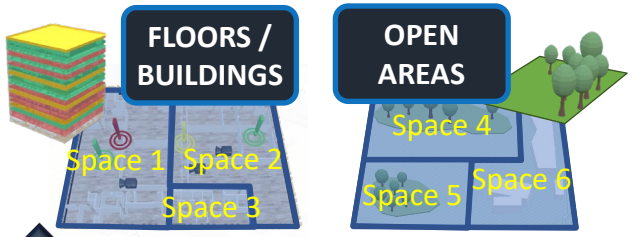
- Abstraction of raw data into key metrics
- Normalization of data
- Data model that projects onto, and scales with the physical world

AREAS (geofence of multiple adjacent sites)

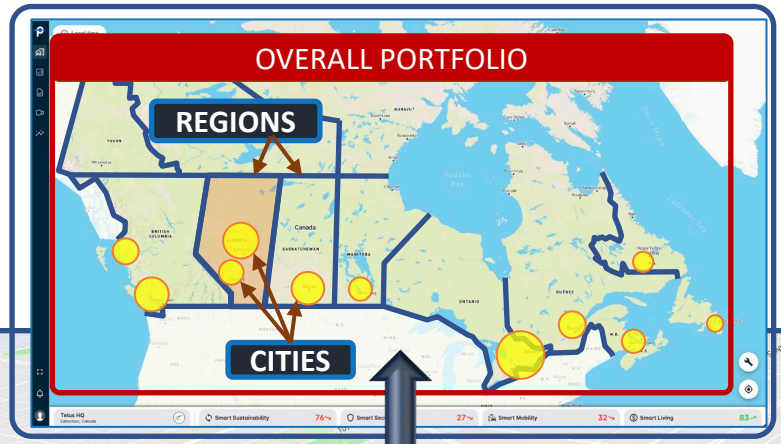
SITES (geofence of a combination of Buildings, Open Areas, and other objects)

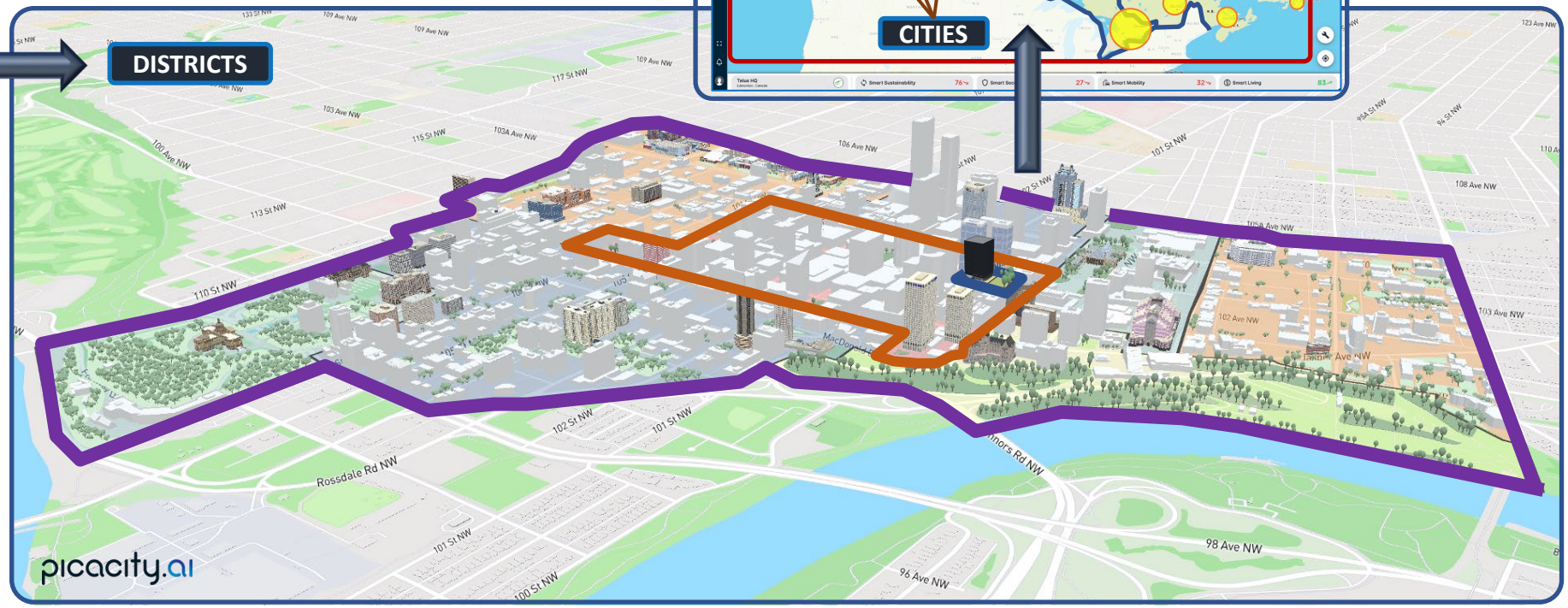
FLOORS / BUILDINGS

OPEN AREAS



SPACES (Geospatial Tiles)





districtnex

AGILE DATA ACQUISITION → UNIFIED DATA REPOSITORY → VALUE PROPOSITION FOR DIFFERENT PERSONAS

USE-CASES: Deliver on BUSINESS OBJECTIVES

HOLISTIC ASSET WIDE DATA DRIVEN INSIGHTS	SUSTAINABILITY / WELLNESS	SAFETY / SECURITY	MOBILITY
Asset Efficiency Analysis	Energy Consumption Analysis	Security Management Reporting	People Movement
Asset Cost / Productivity	Equipment Performance	Incident Management / Oversight	Occupancy / Space Utilization
Predictive Scenarios	CO2 Emissions	Video Management/ Video AI	Mobility Flow Analytics
Comparative Performance	ESG Reporting	Alerts / Failures	Vehicle / Parking Management
…	Air Quality	…	…

- *Improved Planning and Decision Making Through Insightful district(s) wide information*
- *Improved Operational Efficiency Through Enhanced Control/Visibility of all Assets*
- *Potential Cost Savings (10-15% Reduction in operating cost)*
- *Reduced Resource Consumption (15-20% Reduction in energy cost)*
- *Optimized Sustainability, Security, Mobility and Living*
- *Potential Revenue Generation*

END-USER

End-User Devices

EXECUTIVE:
- Insights & Decision Support

MANAGER:
- Situational Awareness
- Performance Mgmt. & Reporting

OPERATOR:
- Operational Efficiency

Command & Control Center

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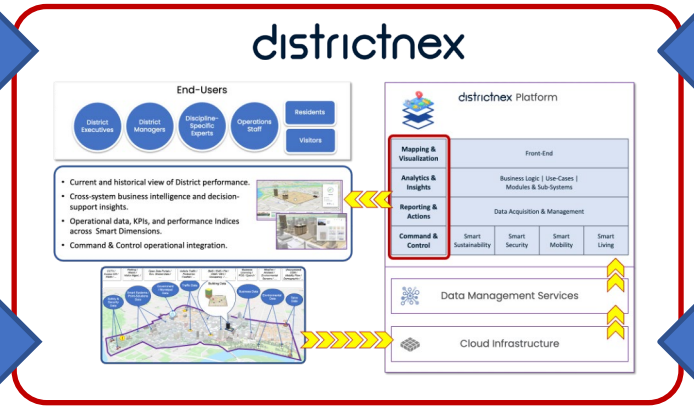
districtnex – Summary

Delivering: ***Data Driven Insights, Sustainability, Safety/Security, Mobility, Wellness, and Operational Efficiency…***

Unified, Hierarchical Data Model
(From Rooms & Floors to Cities & Regions)

AI enabled
- Analytics, Data Ops & ML Ops
- AI in-platform and at the edge

Real Time Digital Twin & 3D UI/UX
- Visual Navigation and data interaction



Cloud Native As A Service
- Containerized
- Scalable micro-svcs architecture
- Portable

Agile Data Acquisition
- API-based Connector Model
- Pre-built Connectors for common Systems

Designed, Architected, and Built to Disrupt

Hardware Agnostic: BMS, VMS, IOT Devices, Cameras, Sensors, etc.

Third Party SW Integration via APIs: FM, Workflow, ERP, etc.

Cloud & Public Data Services Shared / Open Data, etc.

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THANK YOU

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CONNECTING
THE WORLD