



Smart Street Lights for Smarter Cities

CityManager CMS

v28.02.2022

Why invest in Smart Streetlights?



60% - 80% Energy Savings

Dimming streetlights with pre-defined schedule and smart sensors significantly cuts energy waste.



Predictive Maintenance

Proactive alerts / notifications for faults, alarms or outages optimise maintenance and substantially reduce operational costs.



Total Infrastructure Control

Connected streetlights enable remote monitoring, management and control of complete citywide infrastructure.

Why invest in Smart Streetlights?



Foundation for Smart City

Standardised interface and Open APIs support inter-connectivity with applications such as traffic lights, security systems, etc.



50% Lower Light Pollution

Dimming streetlights during off-peak hours or through motion sensors significantly cuts light pollution.



Improved Public Safety

Right light and right place and right time enhances citizens' sense of safety.

Why invest in Smart Streetlights?



Address Climate Change

Fine-tuning lighting levels on need-basis dramatically reduces carbon emissions.



Protect Flora and Fauna

Autonomous dimming during off-peak hours lower lighting pollution and benefits local flora and fauna.



Benefits from Day One

Unlike other smart city solutions, deploying smart lighting deliver benefits from day one!



Who are we?

Specialist in Smart Outdoor Lighting

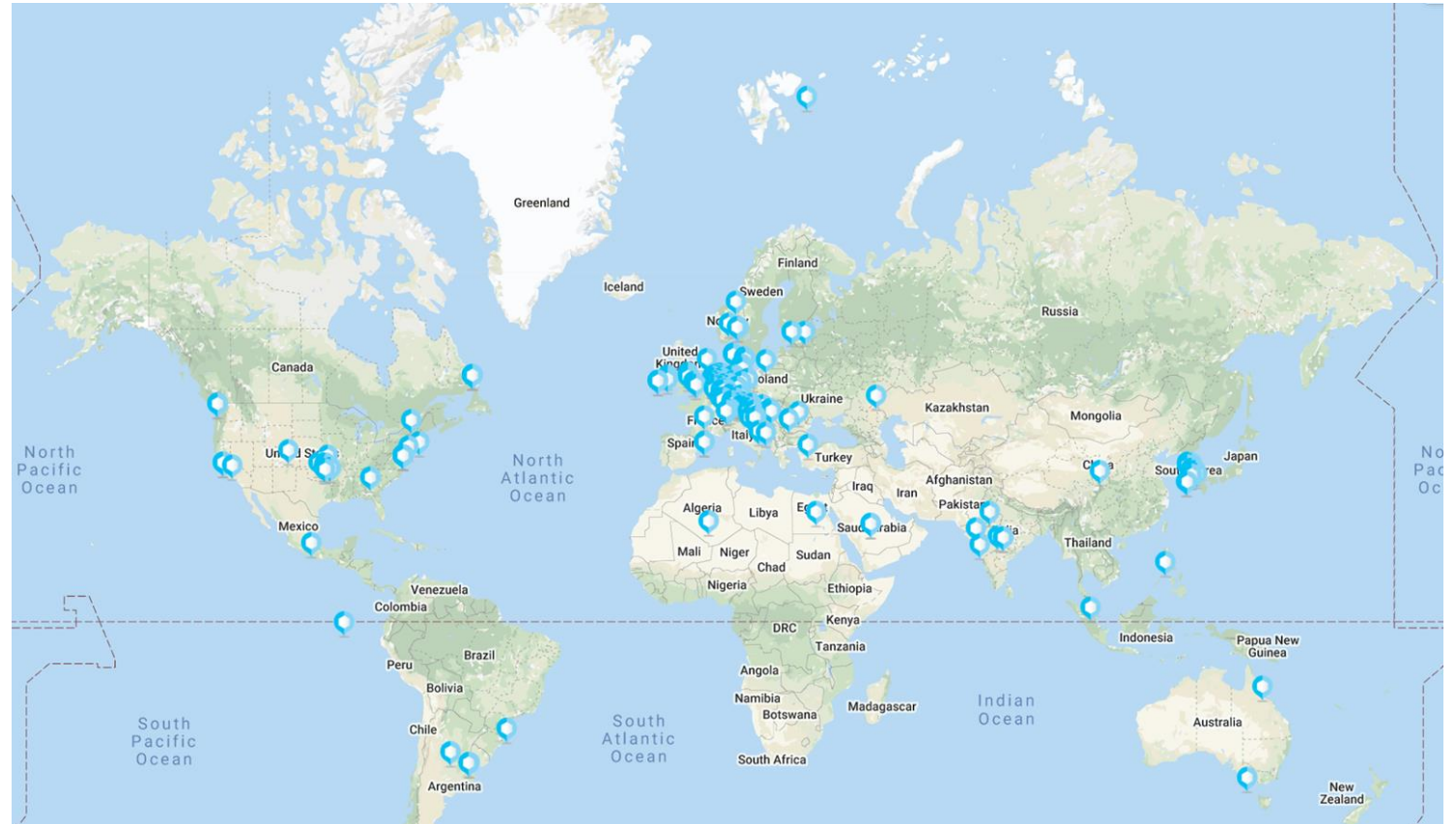
We enable cities to take full control
of their Lighting Infrastructure
based on Open Standards

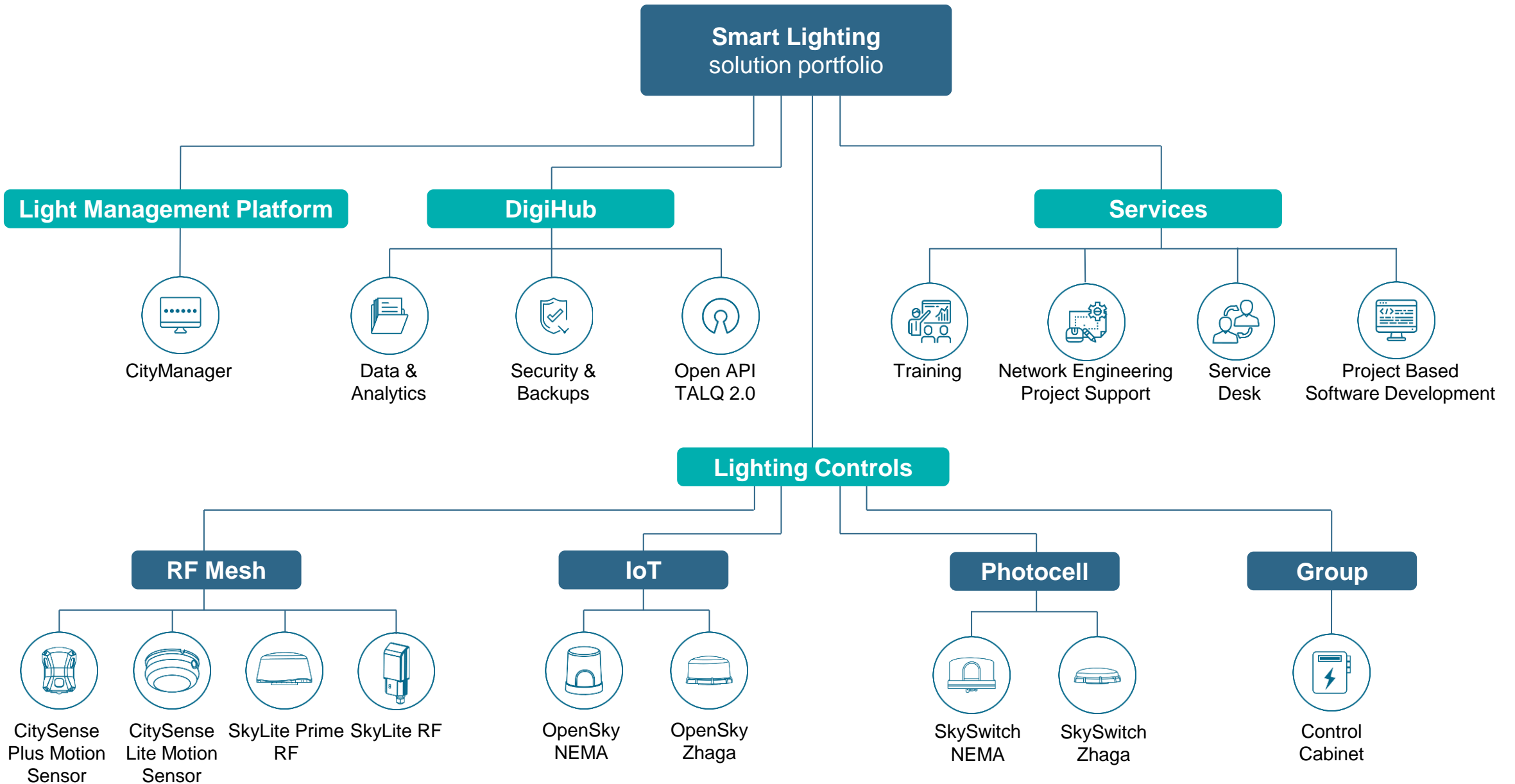
Global presence: 100k+ connected streetlights, 650+ projects

Monitored by CityManager and supported by our Service Desk

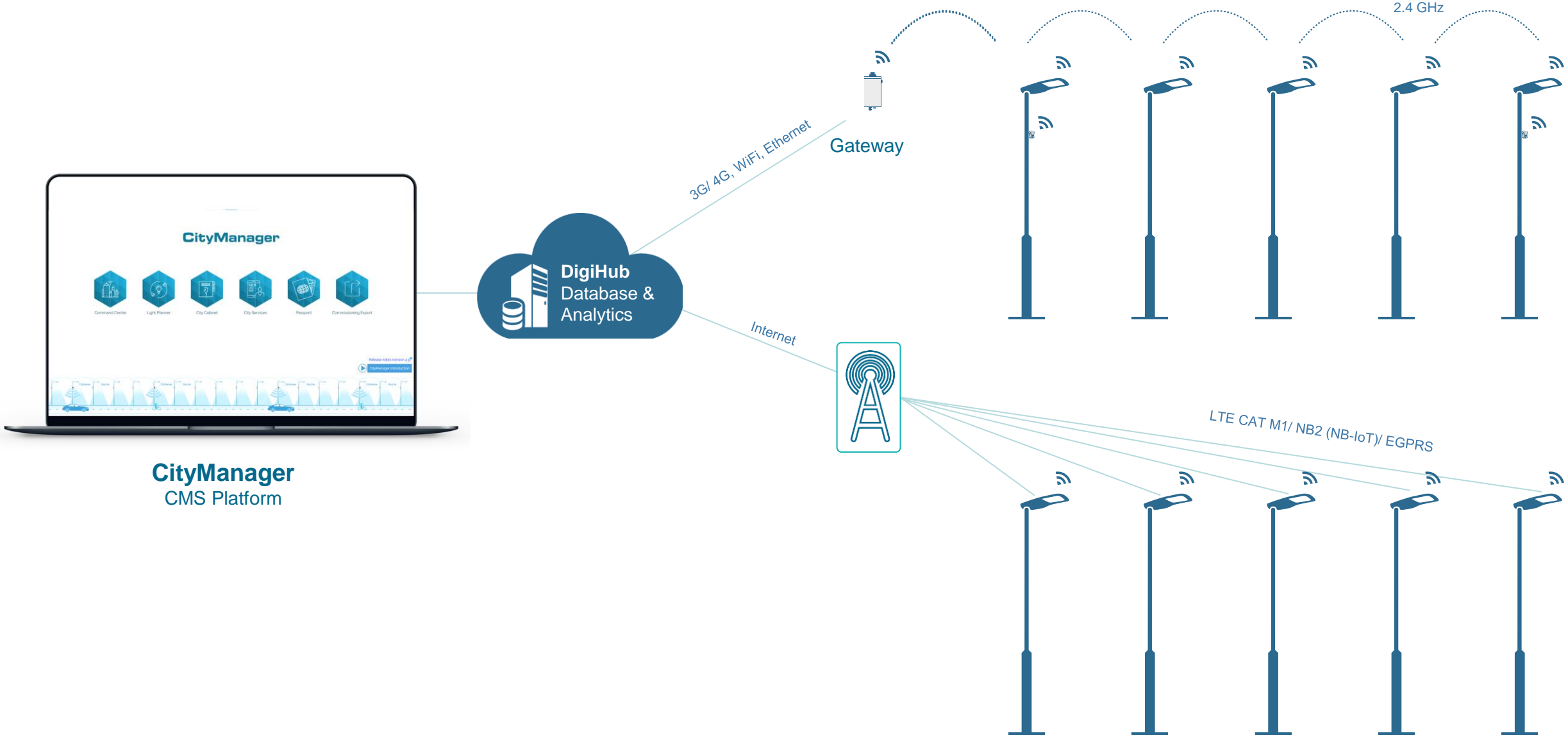
Selected Projects

- Dortmund (DE) 25.000 smart streetlights
- Düren (DE) 5.000 smart streetlights
- Dutch Railways (NL) 10.250 smart streetlights
- Island of Texel (NL) 3.420 smart streetlights
- Helmond (NL) 8.500 smart streetlights
- Seoul (KR) 2.500 smart streetlights
- Busan (KR) 1.500 smart streetlights
- Bangladesh 4.300 smart streetlights





Single Platform to Manage RF Mesh and IoT Networks



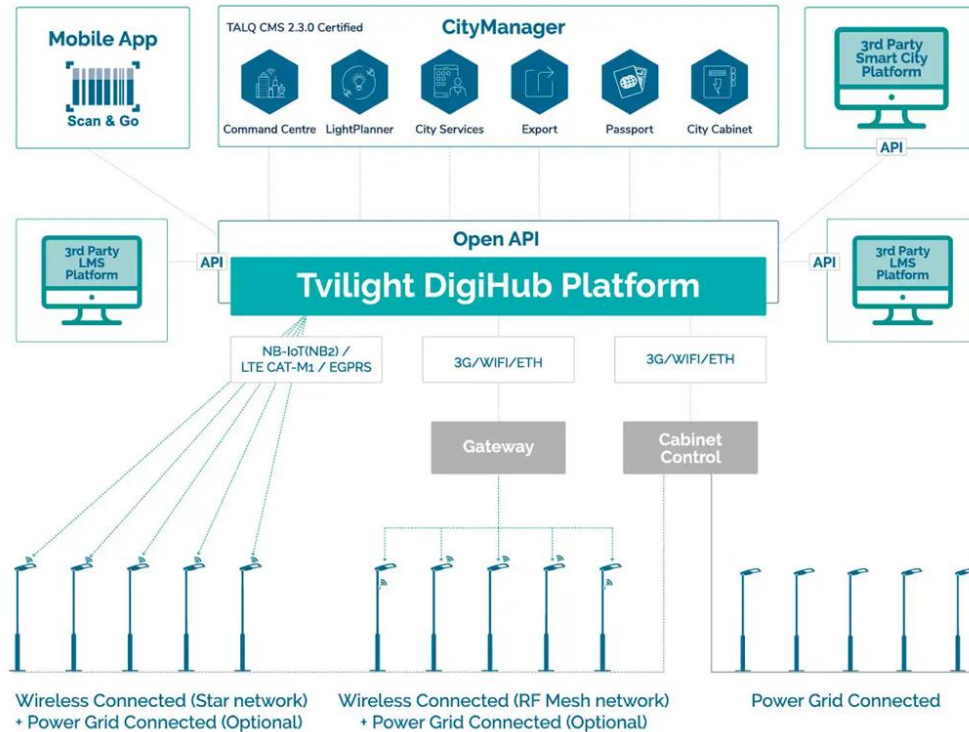
CityManager Central Management System



- **Secure cloud platform**, accessible from anywhere, at any time
- **Monitor, manage and control** citywide streetlights with intuitive interface
- **Open API** and TALQ compliance ensure vendor-neutral interoperability



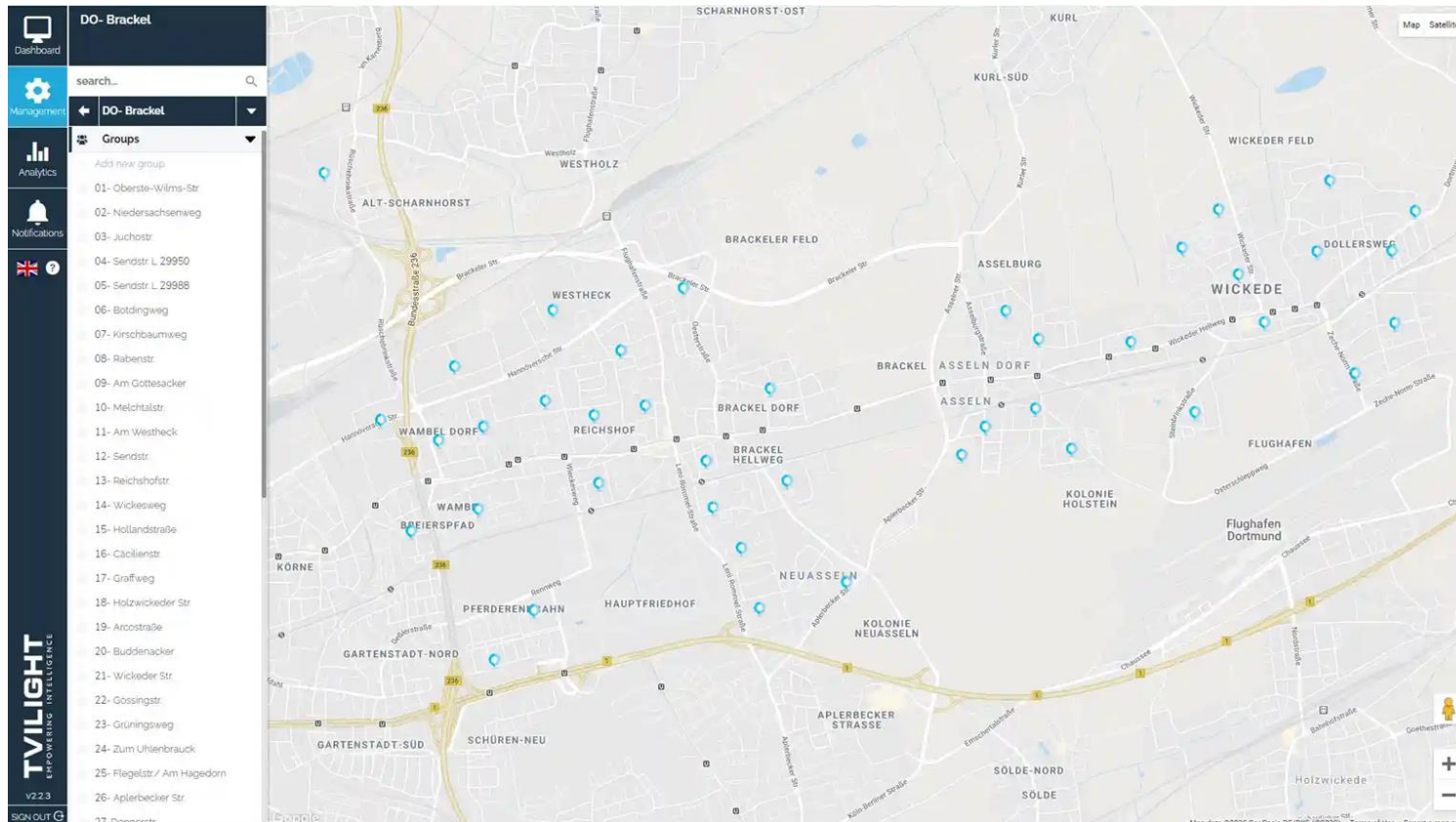
Open, Secure & Interoperable



Vendor neutral system

- Open API and TALQ compliance ensure easy integration with third-party applications
- Successful integration examples:
 - Cisco Kinetics
 - SixData luxData.light
 - Thorn UrbaSens
 - Montad Moon
 - Dynniq ImCity
 - Osram LumIdent
 - Bee Smart City
 - Siemens / Atos

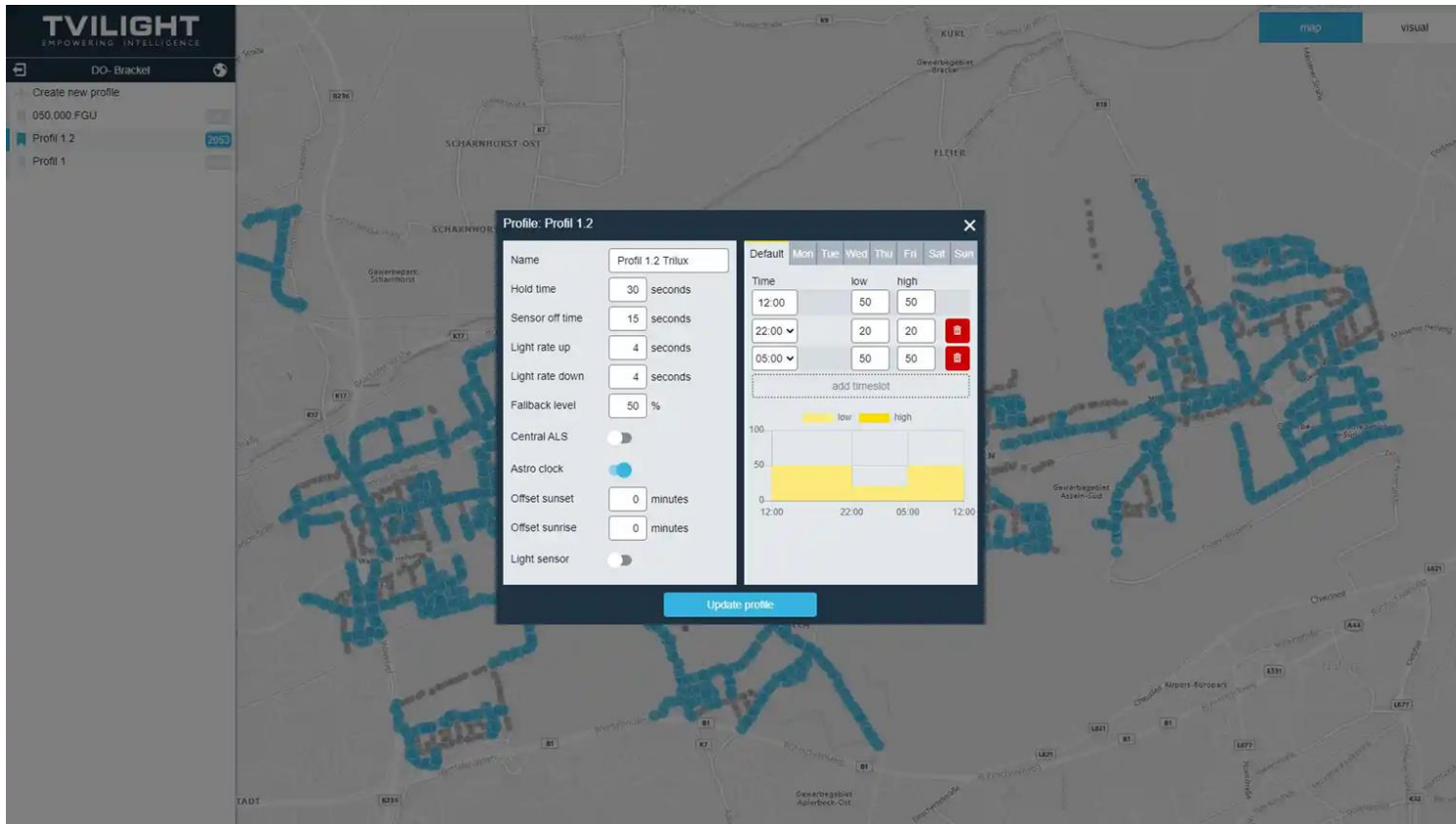
Manage Streetlights Remotely



Intuitive web interface renders total control

- Secure cloud hosted platform, accessible from any web browser, from anywhere, at any time
- Easy-to-understand and easy-to-use application interface help manage streetlights effortlessly
- ISO and NEN certified infrastructure

Control Citywide Lighting



Fine-tune lighting as per the demand

- Create custom groups or manage individual streetlights
- Adjust lighting requirements based on:
 - Profiles
 - Specific days
 - Certain events
 - AstroClock
 - Ambient light sensor
 - Human movement (motion sensing)

Fine-tune for Sustainability and Safety

The screenshot displays the TVILIGHT management interface. On the left, a sidebar contains navigation icons for Dashboard, Management, Analytics, and Notifications, along with a list of devices. The main panel is titled 'Lighting Controller settings' for device 'TVI-SKLMPA031I-A01-000861'. It includes fields for Gateway (TVI-GW31MGA-A02-00239), GPIO Mode (Disabled), and Operating mode (Dynamic Dimming). A profile graph shows light intensity over a 24-hour cycle, with a yellow bar indicating light levels. Below the graph are input fields for Hold time (30s), Light rate up (4), and Light rate down (4). The interface also features sections for 'Replace unit' and 'Move unit'. On the right, a map shows a street layout with blue dots representing streetlights. A legend in the bottom right corner identifies the symbols for Gateway, SkyLite, Lamp on, Lamp off, No recent report, Notification available, and Selected.

High level of control over streetlights

- Reduce energy consumption and limit CO2 emissions and light pollution with dimming schedules and motion sensor parameters
- Adapt lighting with ease to balance sustainability and citizens' comfort and safety

Adjust Street Light Colours

Monheim Edit profile

Light rate down [s] ▲ 2

Fallback level [%] ▲ 100

Dimming schedule Color schedule

Time	Min %	Max %	Remove
12:00	#0f93b2	#04688c	
22:00	#00e5df	#00afaf	X
06:00	#ffe4af	#fdbf2d	X

12:00 22:00 06:00

100%
80%
60%
40%
20%
0%

Central ALS ▲ No

Astro clock ▲ No

Ambient light sensor ▲ No

Create the right ambience

- Choose from a broad spectrum of colors or any shade of white to find the right tone (RGBW)
- Adjust colours based on:
 - Profiles
 - Specific days
 - Certain events
 - Human movement (motion sensing)

* Currently works with OpenSky Zhaga IoT Controllers only

Monitor Faults, React Quickly

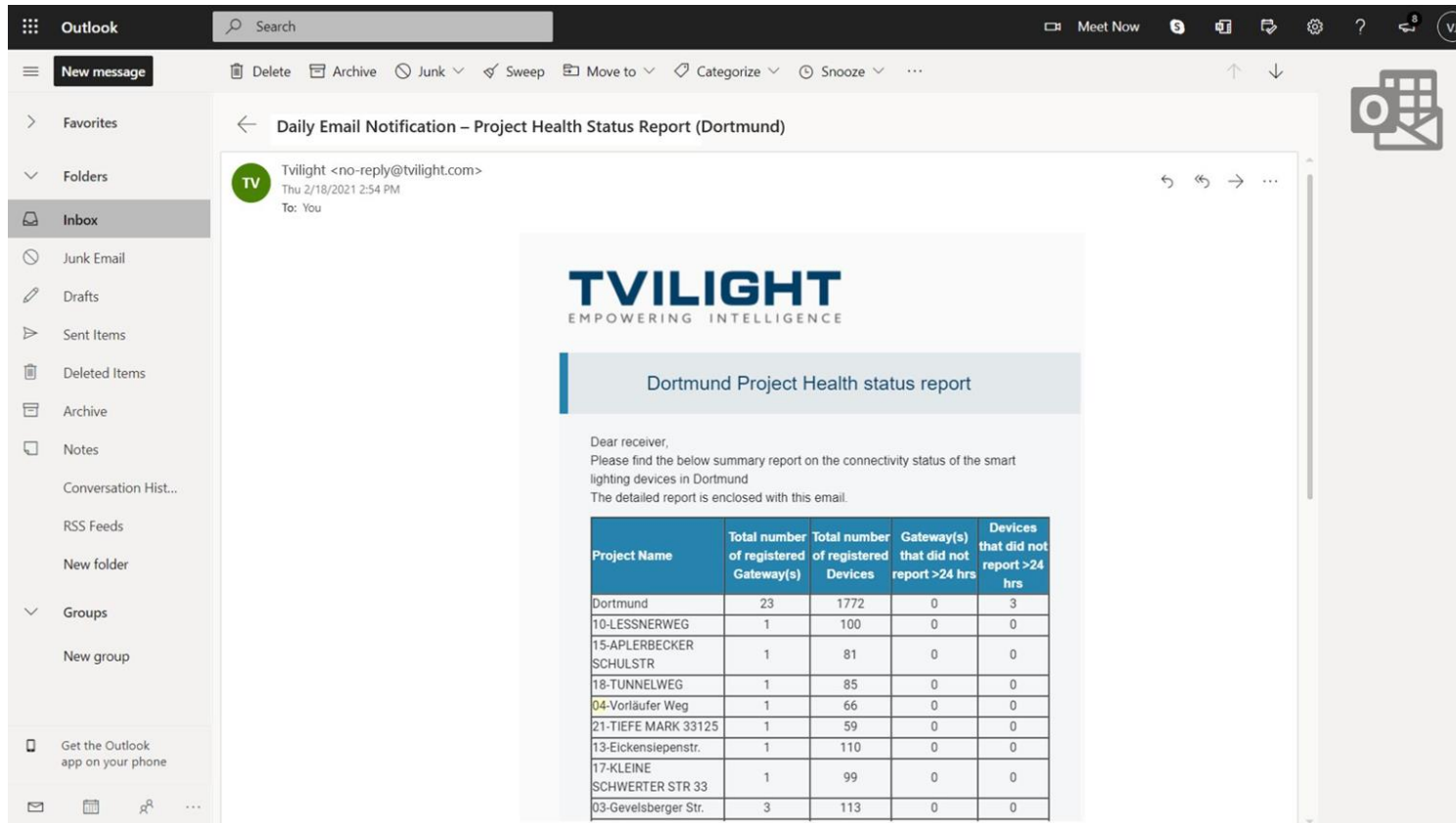
The screenshot displays the TVILIGHT management interface. On the left is a sidebar with navigation options: Dashboard, Management, Analytics, Notifications, and a language selector. The main content area is titled 'Notification' and shows a table of device status alerts. The table has columns for Name, Serial number, Organisation, Group, Type, and Created At. Below the table are pagination controls and three buttons: Notifications, History, and Subscriptions.

Name	Serial number	Organisation	Group	Type	Created At
TVI-SKLMPA031I-C03-003130	TVI-SKLMPA031I-C03-003130	DO- Innenstadt- West	15- Rheinische Str.	Device offline for over 24 hours	11-02-2021 16:41:34
TVI-SKLMPA031I-C03-003501	TVI-SKLMPA031I-C03-003501	DO- Innenstadt- West	15- Rheinische Str.	Device offline for over 24 hours	11-02-2021 16:41:34
TVI-SKLMPA031I-C04-000207	TVI-SKLMPA031I-C04-000207	DO- Innenstadt- West	15- Rheinische Str.	Device offline for over 24 hours	10-02-2021 12:41:36
TVI-SKLMPA031I-C04-000013	TVI-SKLMPA031I-C04-000013	DO- Innenstadt- West	15- Rheinische Str.	Device offline for over 24 hours	10-02-2021 12:41:36

Achieve proactive maintenance

- Get near-real time information of luminaire
- Automatic alerts / notifications when faults / outages arise
- Reduce truck roll by knowing the exact reason of failure

Daily Reports on Lighting Infrastructure's Health



Keep citywide lighting up-to-date

- Receive automated emails containing vital information:
 - Fault light report
 - Daily savings report
 - Daily consumption report
- Helps plan maintenance

Smart Street Lighting Analytics

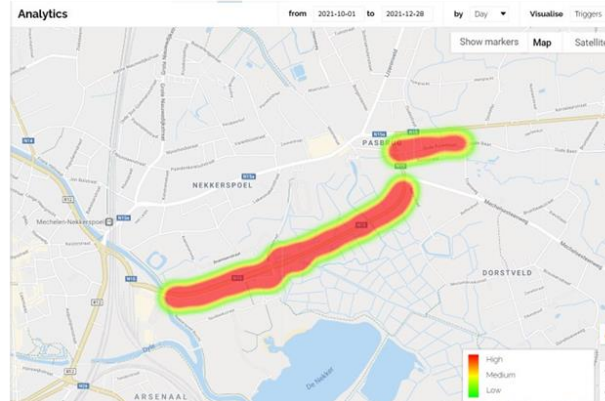
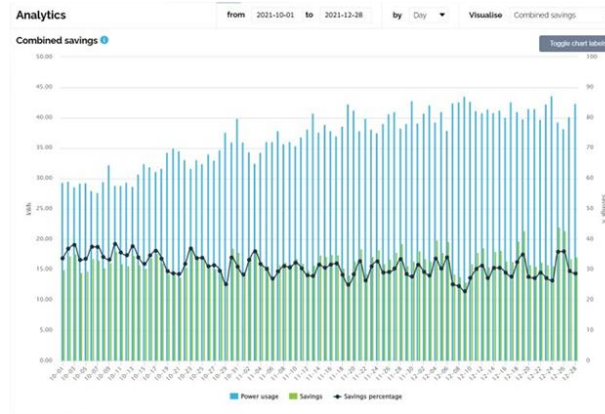
Mechelen
Nachtraven
132 Devices, 3 gateways

search...

Switch naming: Serial

Device ID	Model	Type	414 triggers	342 triggers	208 triggers
3096 - oude baan	TVI-CSP1-A03-010691	CitySensePlus	414 triggers	342 triggers	208 triggers
3097 - oude baan	TVI-CSP1-A03-010689	CitySensePlus	380 triggers	281 triggers	173 triggers
3099 - oude baan	TVI-CSP1-A03-008333	CitySensePlus	266 triggers	226 triggers	110 triggers
3099 - oude baan	TVI-CSP1-A03-008335	CitySensePlus	83 triggers	321 triggers	353 triggers
3100 - oude baan	TVI-CSP1-A03-008334	CitySensePlus	318 triggers	225 triggers	162 triggers
3101 - oude baan	TVI-CSP1-A03-008330	CitySensePlus	316 triggers	213 triggers	180 triggers
3102 - oude baan	TVI-CSP1-A03-008331	CitySensePlus	308 triggers	224 triggers	172 triggers
3183 - Oude baan	TVI-CSP1-A03-010688	CitySensePlus	303 triggers	194 triggers	167 triggers
3184 - oude baan	TVI-CSP1-A03-010692	CitySensePlus	257 triggers	175 triggers	135 triggers
3185 - Oude baan	TVI-CSP1-A03-010690	CitySensePlus	254 triggers	183 triggers	133 triggers
3186 - Oude baan	TVI-CSP1-A03-006104	CitySensePlus	260 triggers	158 triggers	128 triggers
3187 - Oude baan	TVI-CSP1-A03-010693	CitySensePlus	449 triggers	289 triggers	198 triggers
4926 - Fietweg - > Mechelen	502M-A01-001441	SkyLitePrime	361 triggers	135 triggers	352 triggers

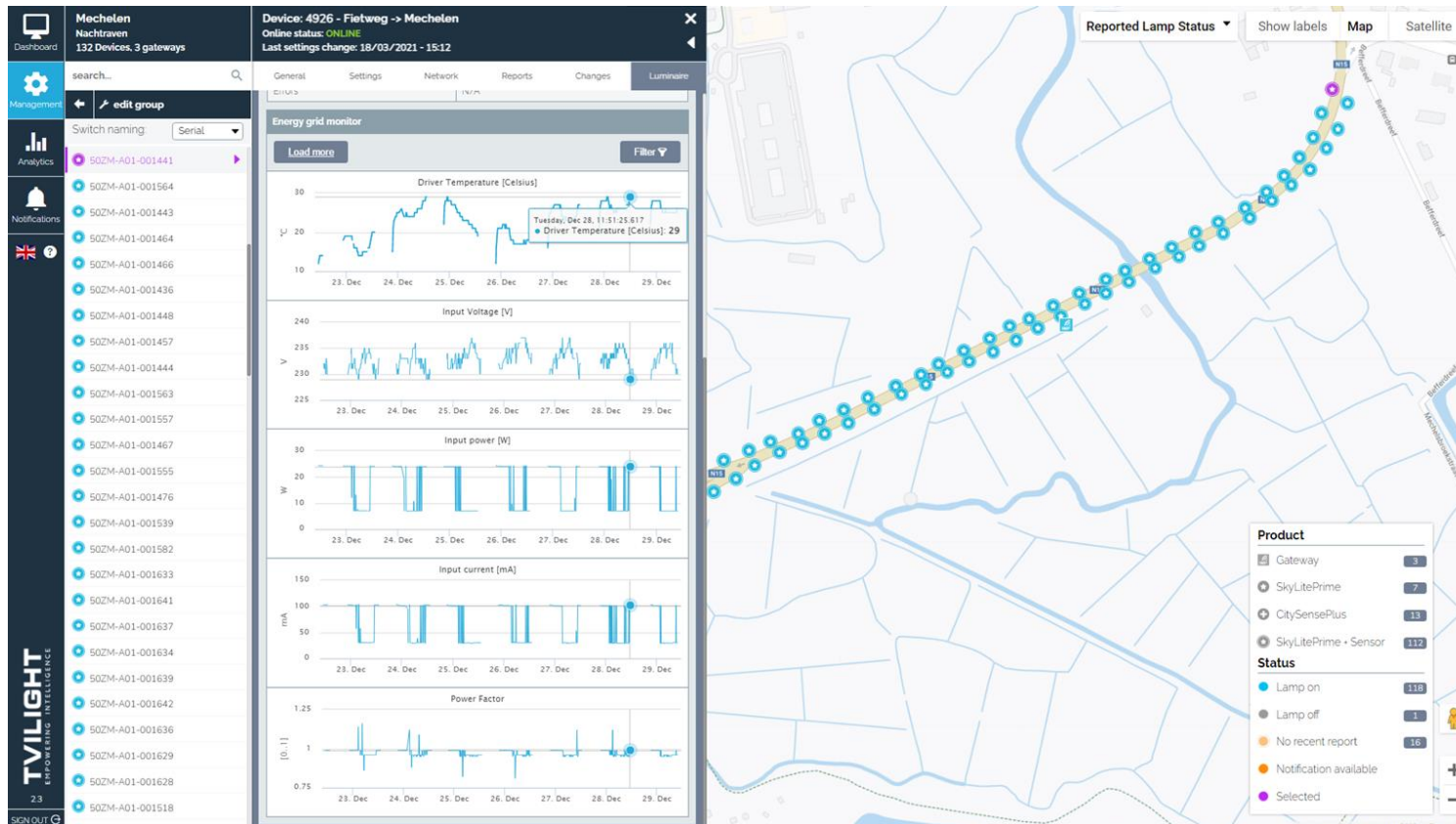
Chart Heatmap **Table**



Gain insights to optimize lighting

- Track lighting performance, status, energy consumption, savings of each luminaire
- Heatmap to identify busy areas / spots
- Insightful graphical data helps make actionable plan to meet sustainability goals

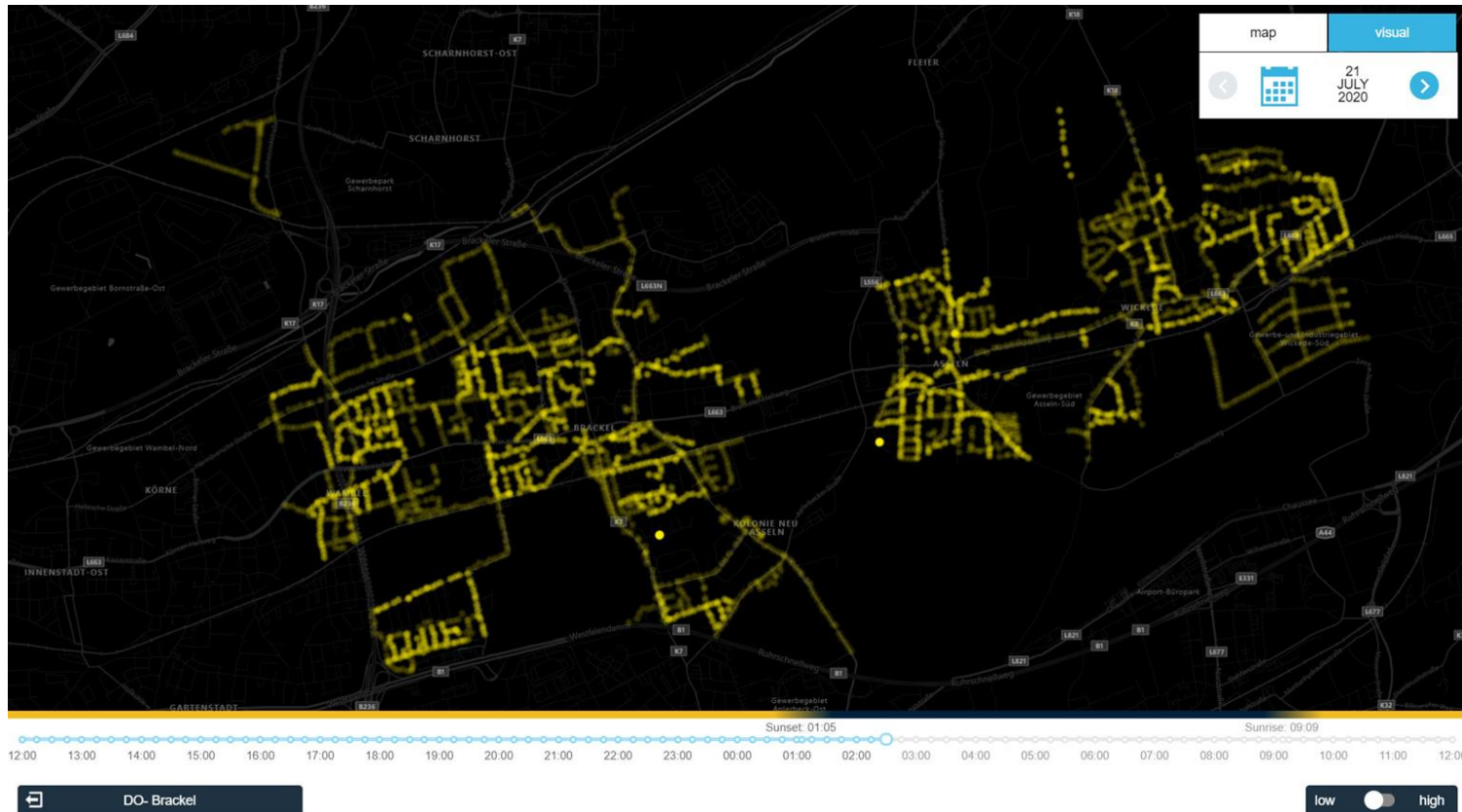
Advanced Energy Monitoring



Detailed information about luminaire health through D4i standard

- Luminaire / controller operating hours
- Power usage for specific day, week, month or year
- Driver temperature
- Input voltage
- Input power
- Input current
- Power factor

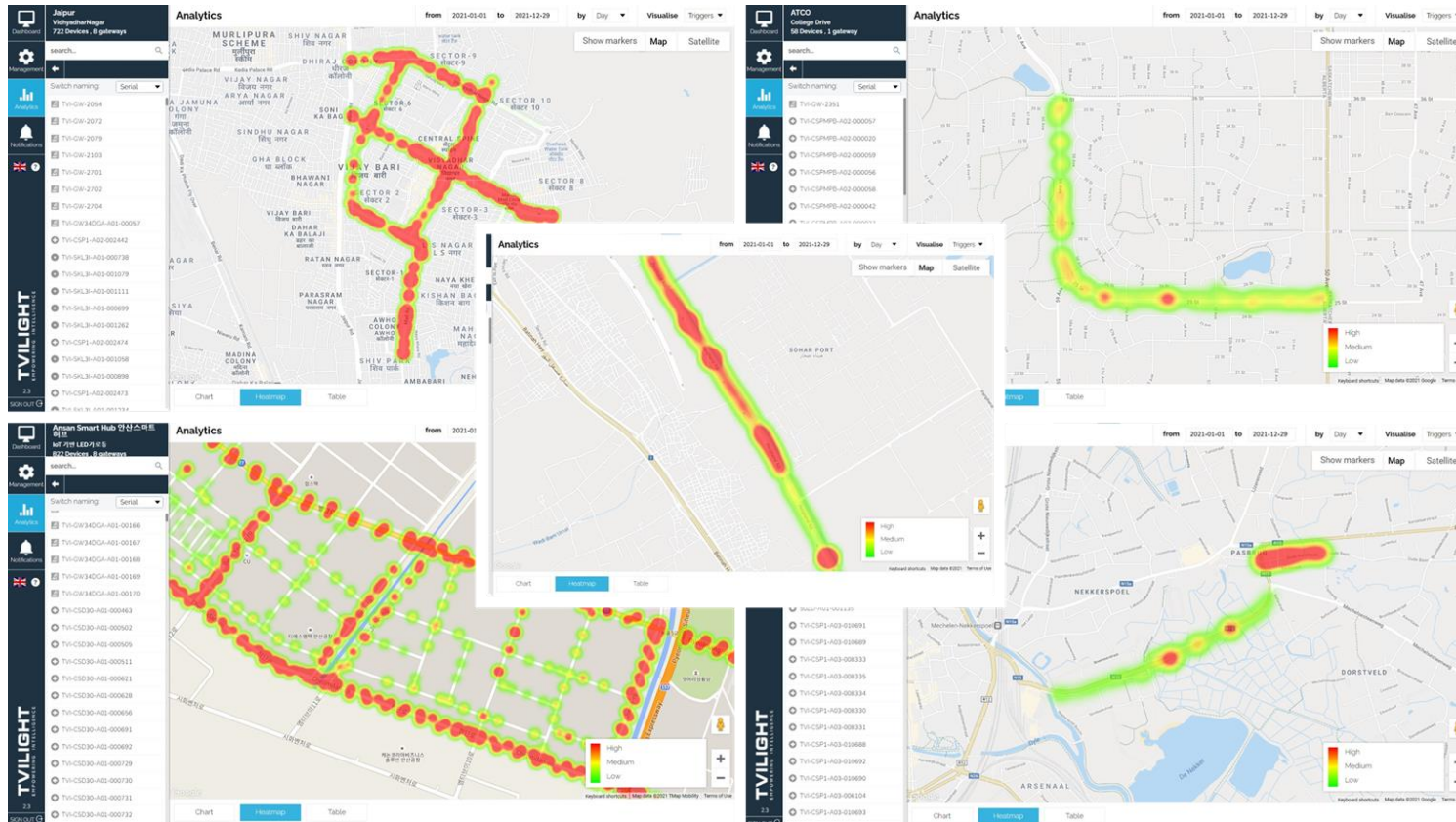
Visualise Entire City's Lighting



Beautiful visualization of Citywide Lighting

- See when precisely the citywide streetlights turn on, adjust brightness and turn off between sunrise and sunset
- Visualize lighting for the future days / events

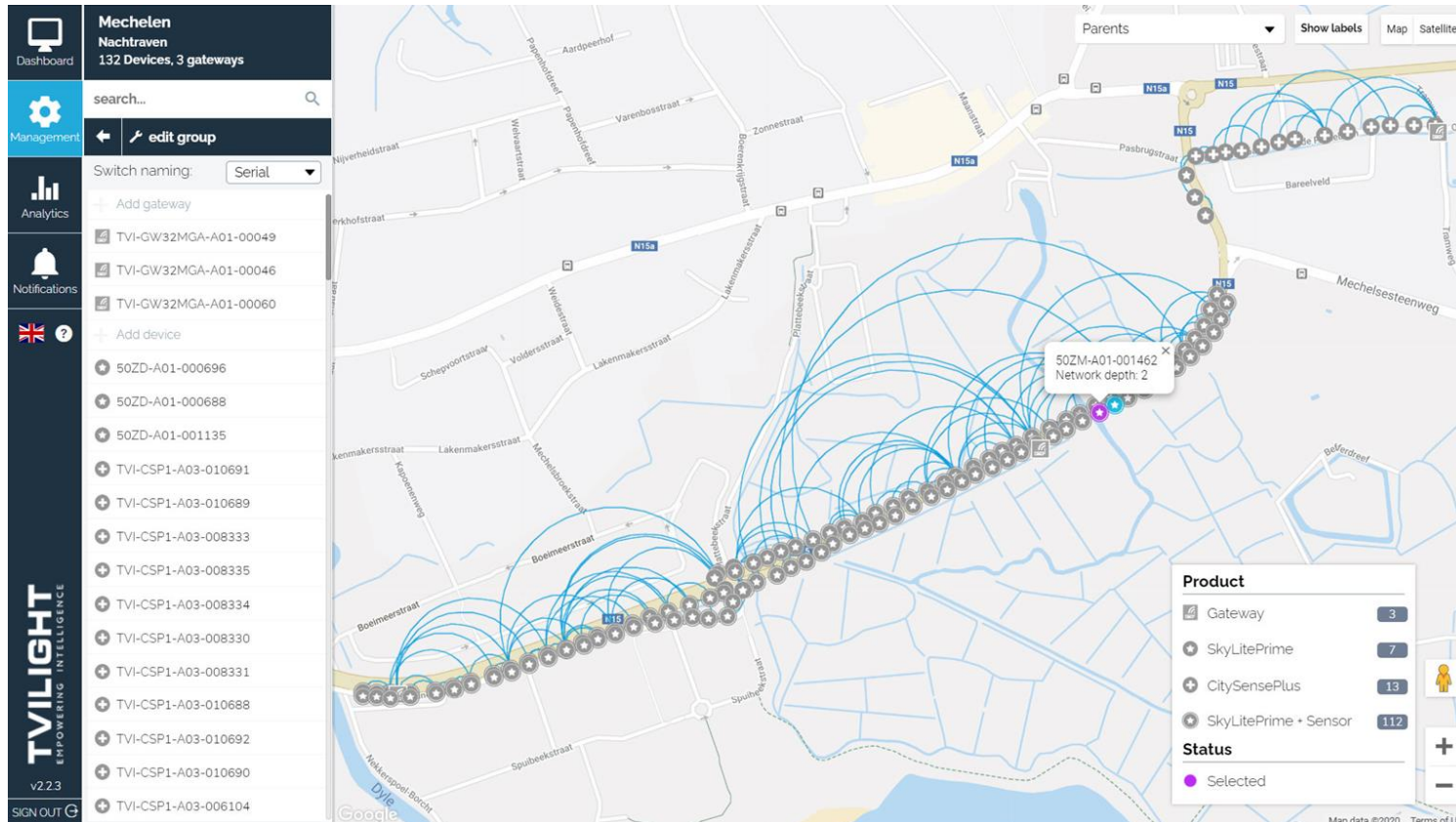
Listen to your City's Heartbeats



Valuable heatmap

- Measure people's movement during different hours at night
- Identify areas / spots that are more popular
- Spot trends and patterns to optimize street lighting levels

View Network Formation



See how devices are connected to each other

- Helps optimize or troubleshoot coverage issues

Historical Reports and Logs

Gateway TVI-GW31MGA-A02-00103
 Online status: **ONLINE**
 Last settings change: 11/03/2019 - 15:35

Device reports

Device	Date	Time	Profile status	Brightness log	Triggers
TVI-SKLMPA0311-C04-001448	20-08-20	11:12	Dynamic Dimming Astroclock off: 06:29	0% for 00:30:22	0, 0, 0, 0, 0, 0 /
TVI-SKLMPA0311-C03-003243	20-08-20	11:10	Dynamic Dimming Astroclock off: 06:29	0% for 00:30:00	0, 0, 0, 0, 0, 0 /
50ZM-A01-000190	20-08-20	11:10	Dynamic Dimming Astroclock off: 06:29	0% for 00:30:01	0, 0, 0, 0, 0, 0 /
TVI-SKLMPA0311-A01-004975	20-08-20	11:10	Dynamic Dimming Astroclock off: 06:29	0% for 00:30:00	0, 0, 0, 0, 0, 0 /
TVI-SKLMPA0311-C04-000315	20-08-20	11:10	Dynamic Dimming Astroclock off: 06:29	0% for 00:30:01	0, 0, 0, 0, 0, 0 /
TVI-SKLMPA0311-C04-001009	20-08-20	11:09	Dynamic Dimming Astroclock off: 06:29	0% for 00:30:06	0, 0, 0, 0, 0, 0 /
TVI-SKLMPA0311E-C04-001447	20-08-20	11:09	Dynamic Dimming Astroclock off: 06:29	0% for 00:30:40	0, 0, 0, 0, 0, 0 /
TVI-SKLMPA0311-C03-002788	20-08-20	11:09	Dynamic Dimming Astroclock off: 06:29	0% for 00:30:07	0, 0, 0, 0, 0, 0 /
TVI-SKLMPA0311-C03-002788	20-08-20	11:09	Dynamic Dimming Astroclock off: 06:29	0% for 00:30:07	0, 0, 0, 0, 0, 0 /

Product

- Gateway: 1
- SkyLitePrime: 17
- SkyLite: 76

Status

- Dortmund GEN-03 50W: 93
- No driver set
- Selected

Detailed historical data

- Address existing faults by tracking similar issues that had occurred in the past
- View detailed log on CityManager

Create a Safe Circle of Light for Citizens

The screenshot displays the TVILIGHT management interface. On the left is a sidebar with navigation icons for Dashboard, Management, Analytics, and Notifications, along with a 'SIGN OUT' button. The main content area is divided into several sections:

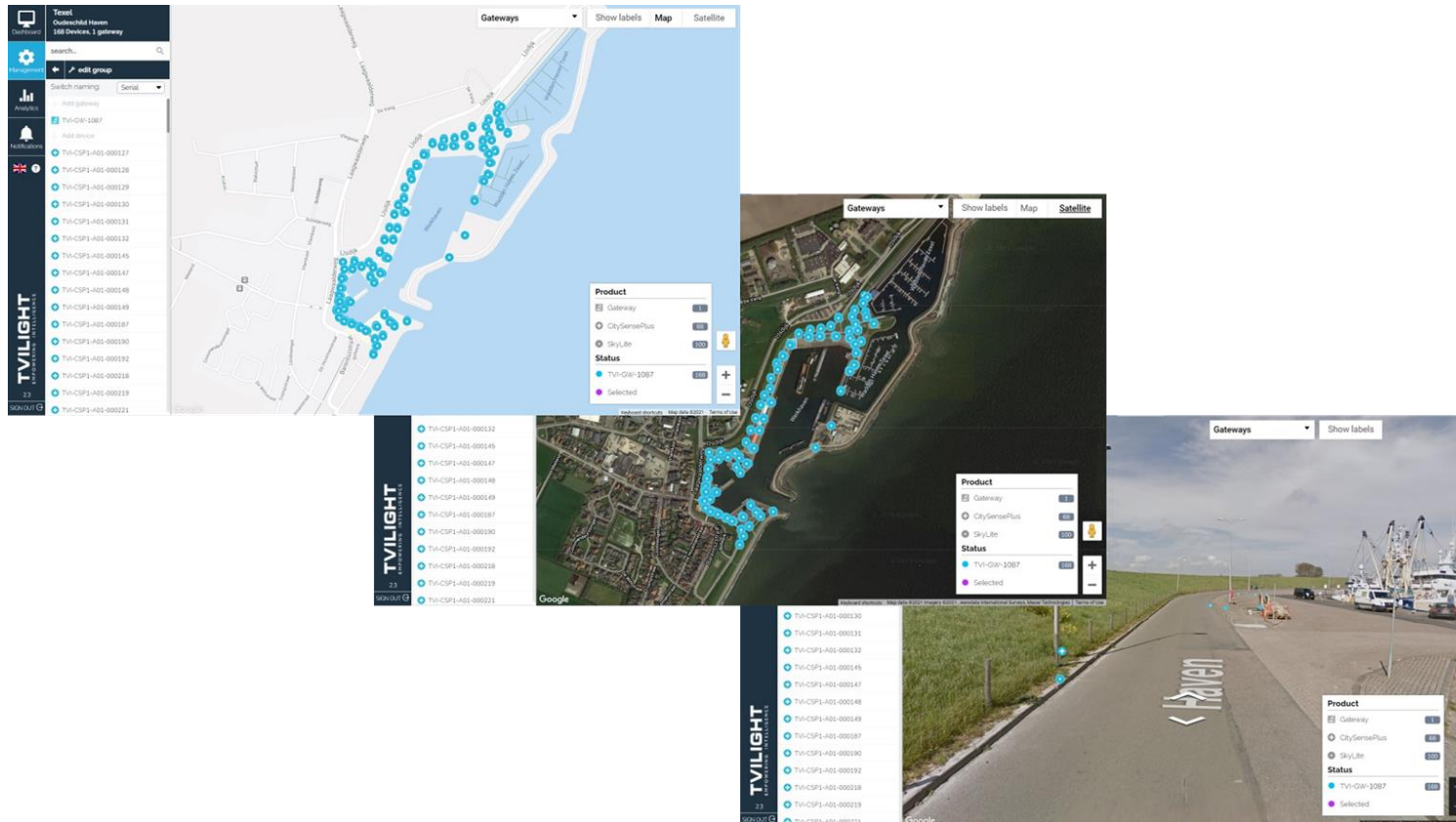
- Device Information:** ATCO College Drive, Device: 031, Online status: ONLINE, Last settings change: 13/12/2018 - 21:40.
- Search and Navigation:** A search bar and tabs for General, Settings, Network, Reports, Changes, and Luminaire.
- Network settings:** A section with a 'Current neighbours settings' table and buttons for 'Change neighbours' and 'Clear all neighbours'.
- Map View:** A map showing a residential street layout with streetlights. A tooltip for device 'TVI-CSPMPB-A02-000051' is visible, showing its status as 'Selected'.

Serial	Name	Pole ID
TVI-CSPMPB-A02-000066	032	739796
TVI-CSPMPB-A02-000053	033	739795
TVI-CSPMPB-A02-000050	030	739797
TVI-CSPMPB-A02-000006	029	739799
TVI-CSPMPB-A02-000004	035	739794
TVI-CSPMPB-A02-000052	TVI-CSPMPB-A02-000052	739800

Set neighbour lighting triggers with ease

- On a map view, locate and set the corresponding streetlights that will trigger upon human detection
- Helps create a safe-circle-of-light, boosting road-users safety perception

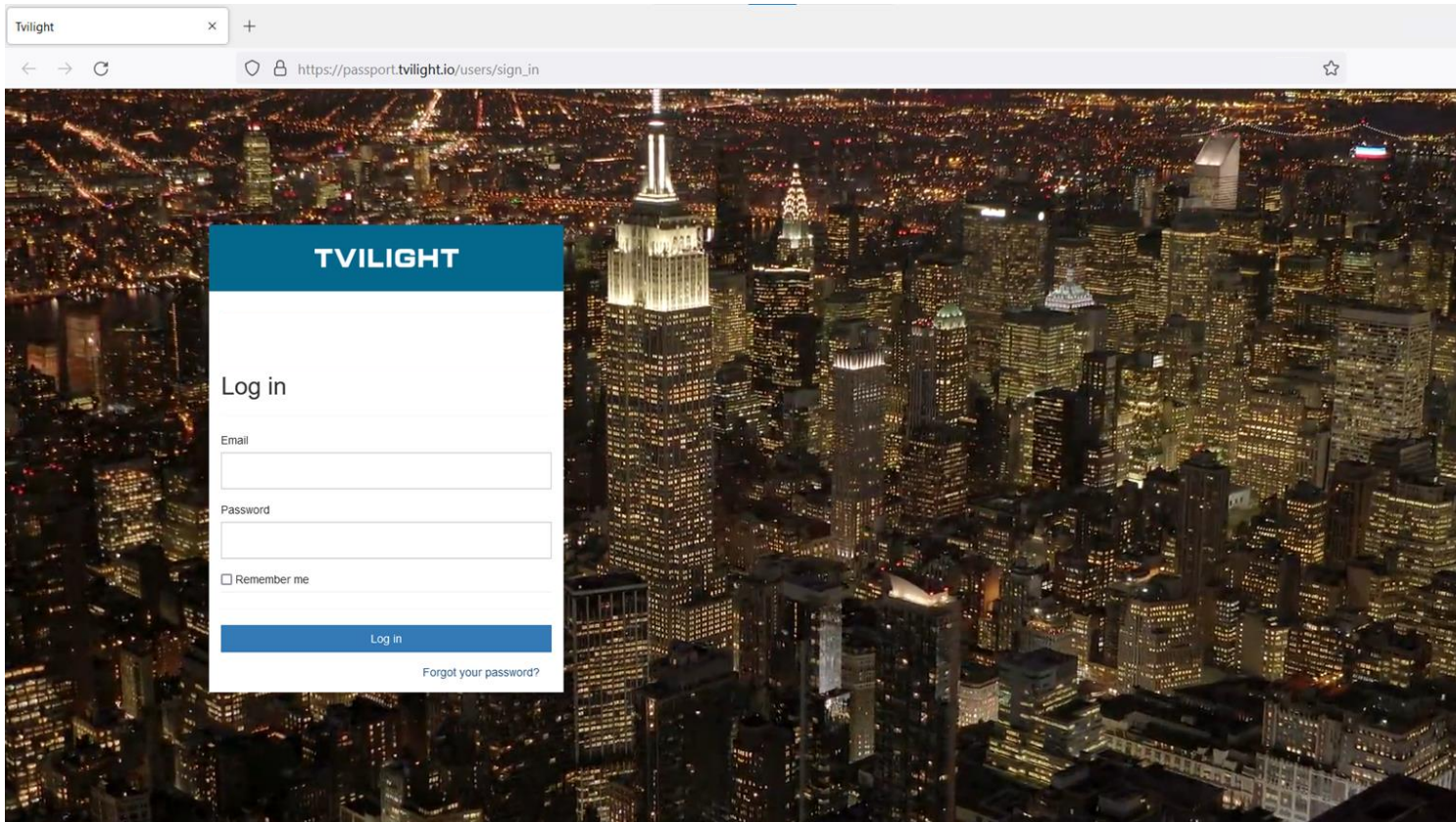
Different Map Views for Better Perception



Understand your lighting terrain

- Map view (with terrain option)
- Satellite view
 - Tile map
 - 360° Street view (if available)

Welcoming Login



Refreshing login screen that inspires

- Dynamic login screen
- Customization option available

Right Control with the Right Person

Ability Advanced user

Advanced user

Usage stats

49 USERS 0 APPLICATIONS

Ability information Advanced user

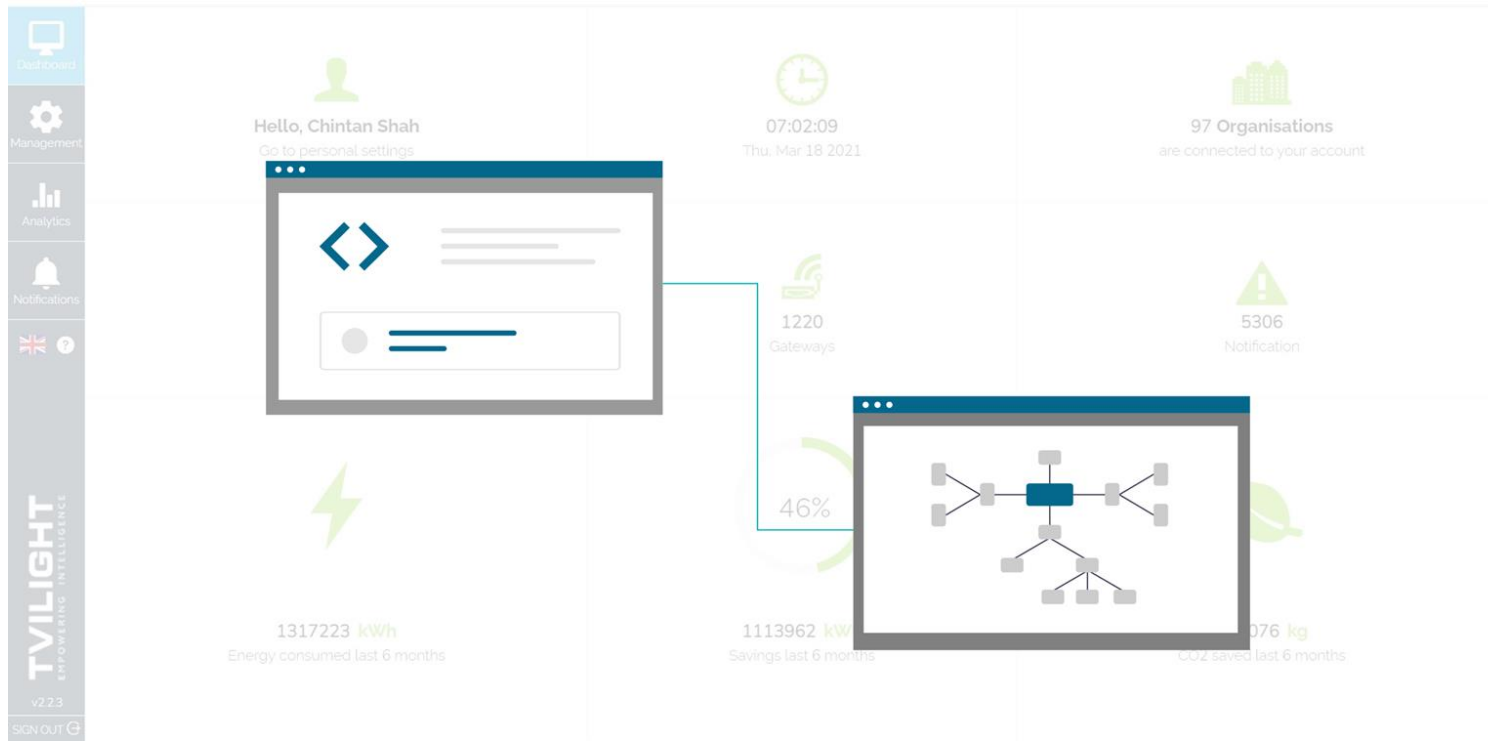
	advanced	create	read	update	delete
Meta	no	no	yes	no	no
Gateway	no	yes	yes	yes	yes
Device	no	yes	yes	yes	yes
Application	yes	no	yes	no	no
User	no	no	yes	no	no
Organisation	no	no	yes	no	no
Ability	no	no	yes	no	no
Report	no	no	yes	no	no
Profile	yes	yes	yes	yes	yes
Group	no	yes	yes	yes	yes
Monitor	no	yes	yes	yes	no

v2.2.3

Simple user rights management

- Decide who can access CityManager
- Defined the level of permission:
 - Read only access
 - Admin access
 - Custom access:
 - Device management
 - Lighting profile creation
 - Analytics only

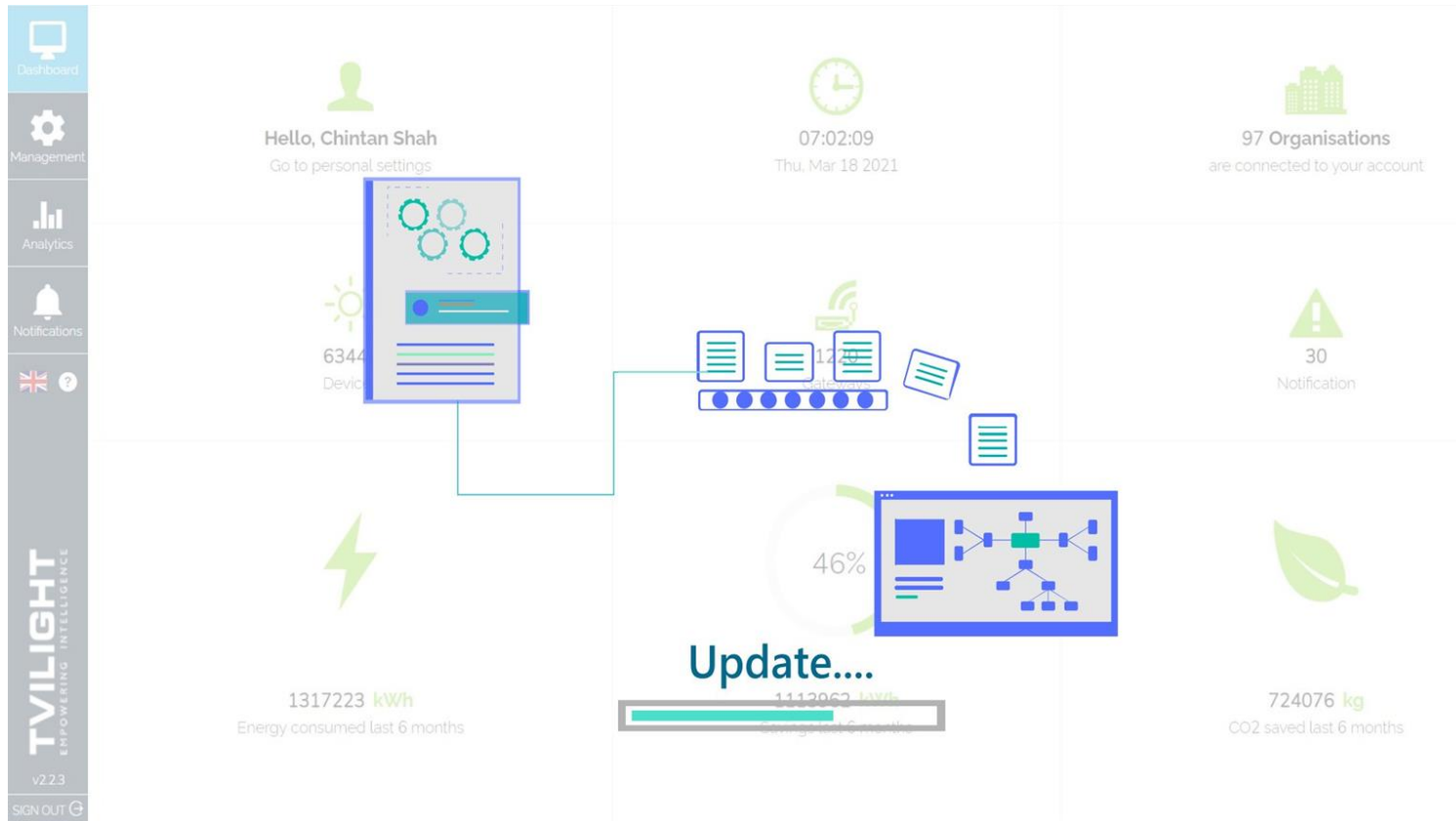
Rules Engine to Interoperate City Infrastructure



Customization on demand

- We will help you build customized logics, conditions and events to generate alerts, alarms or trigger actions
- Imagine streetlights turning bright when fog hits your town or when visibility drops significantly

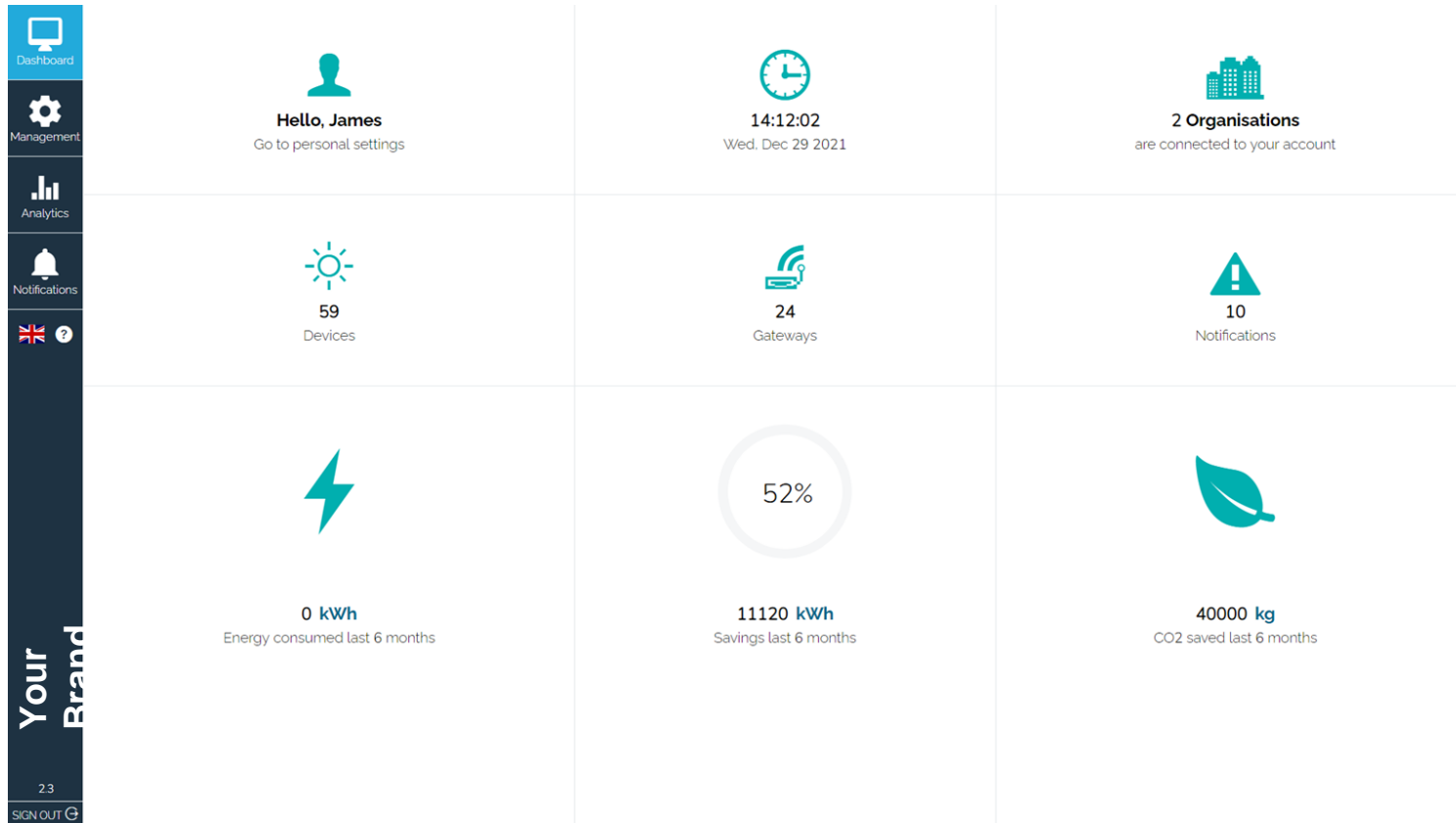
New Features with Regular Updates



Addressing your needs is our priority

- Features and functions are introduced regularly based on our customers feedback and request

CityManager with your own Branding



Version to reflect your own brand

- For premium partners and customers, we can customize and help with your own branding

Manage Group Lighting

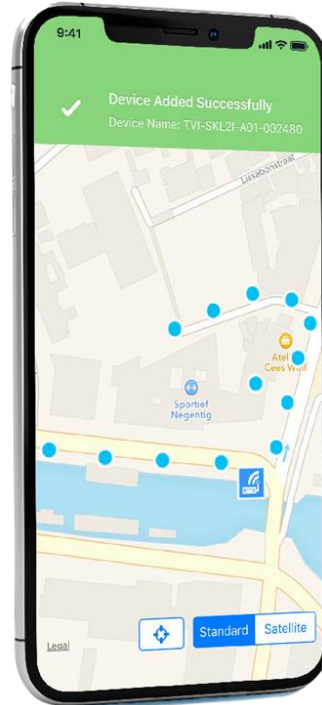
Partner application

The screenshot shows a web-based configuration interface for a lighting program. On the left, the 'Program' details are set: 'MyCityProgram' name, 'MyCity2' and 'MyCity' tags, a range from '01-01' to '12-31', 'daily' repeats, and 'every day' repeat on. A summary shows 'All year' and a burn time of 'On: 1670 Dim 1: 2408 Dim 2: 0 Total: 4078'. A graph below shows a year-long lighting schedule with green and yellow shaded areas. On the right, a map of Aarhus is shown with a location pin at 56.15562, 10.20468. Below the map, 'Light sensors' are set to 'BBG Analog1' and 'BBG Digital', with a 90-minute activation. A 'GridWatch' clock shows sunrise at 07:32 and sunset at 18:44. The interface includes 'Dim 1' (23:00) and 'On' (06:00) settings, 'add twilight action', 'add fixed action', and 'Delete' buttons.

Dedicated application for Group Control

- Manage citywide Feeder Pillars and Control Cabinets through our dedicated software application
- Advance switching control, real-time monitoring and alarm management

Mobile Apps to Support Commissioning & Maintenance



Scan & Go for easy commissioning

- Makes device commissioning easier / hassle-free for the crew on the field
- Available for both Android and iOS platforms
- Dedicated Apps (HiLight, Light Switch) for emergency and maintenance support

We are Here to Support You



24x7 Service Desk

- You have your own portal where you can avail:
 - Information request
 - Demo project request
 - Technical assistance
 - CMS feature request
 - Technical suggestion
 - Replacement / return request
 - Knowledge repository
- Service Desk

Features to improve day-to-day operations...



Intuitive User Interface

The entire system is carefully designed so that users can easily understand and use it. Multilingual option is also available



Perfect Controllability

Whether Mesh devices or IoT devices or both, the platform offers seamless controllability to the users



Map-based Visualisation

Each connected luminaire is represented on a graphical interface on Google Maps, coordinated with GPS

Features to improve day-to-day operations...



Secure & Reliable

Advanced VPN and data encryption ensure that the system meets international standards. ISO and NEN certifications for system servers.



Accurate & Real-Time Data

The platform provides automatic analysis and evaluation of lighting data including status reporting and failure alerts



Automatic Failure Reporting

The platform can identify several lighting-related faults and automatically send failure reports to the concerned personnel

Client Testimonials



Jan Wiesemann,
Trilux

"Individual light management and control provide unprecedented flexibility. Performance of all the streetlights is clearly visible in the light management system. Smart monitoring provides an excellent degree of transparency for installers and operators. This is what future smart light looks like today!"



Meinolf Pflug,
Dortmund Civil Engineering
Office

"The system works very well and has the desired LMS functions. This includes the lamp status, fault analysis and reporting (24/7), monitoring of the energy consumption data. Individual light profiles can be checked and adjusted at any time online. I wholeheartedly recommend this lighting system to other cities."

Urban Streets



Industrial Zones



Residential Areas



Train Station / Railway Lines



Ports / Sea Terminals



University Campus



Like it.

Why not give it a try?

Want to learn more?

Need a quick demo?

Contact us at: info@tvilight.com

We look forward to working with you!

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TVILIGHT Projects B.V.
Beechavenue 162-180
1119 PS Schiphol-Rijk
Amsterdam, the Netherlands
www.tvilight.com