

TVILIGHT

Smart Street Lighting for Smarter Cities

OpenSky IoT Pole-Mount

V06.02.2025



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 we are?

Specialist in Smart Outdoor Lighting



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

Urban Streets



Industrial Zones



Residential Areas



Train Stations / Railway Lines



Ports / Sea Terminals



School / University Campus



Bicycle Roads



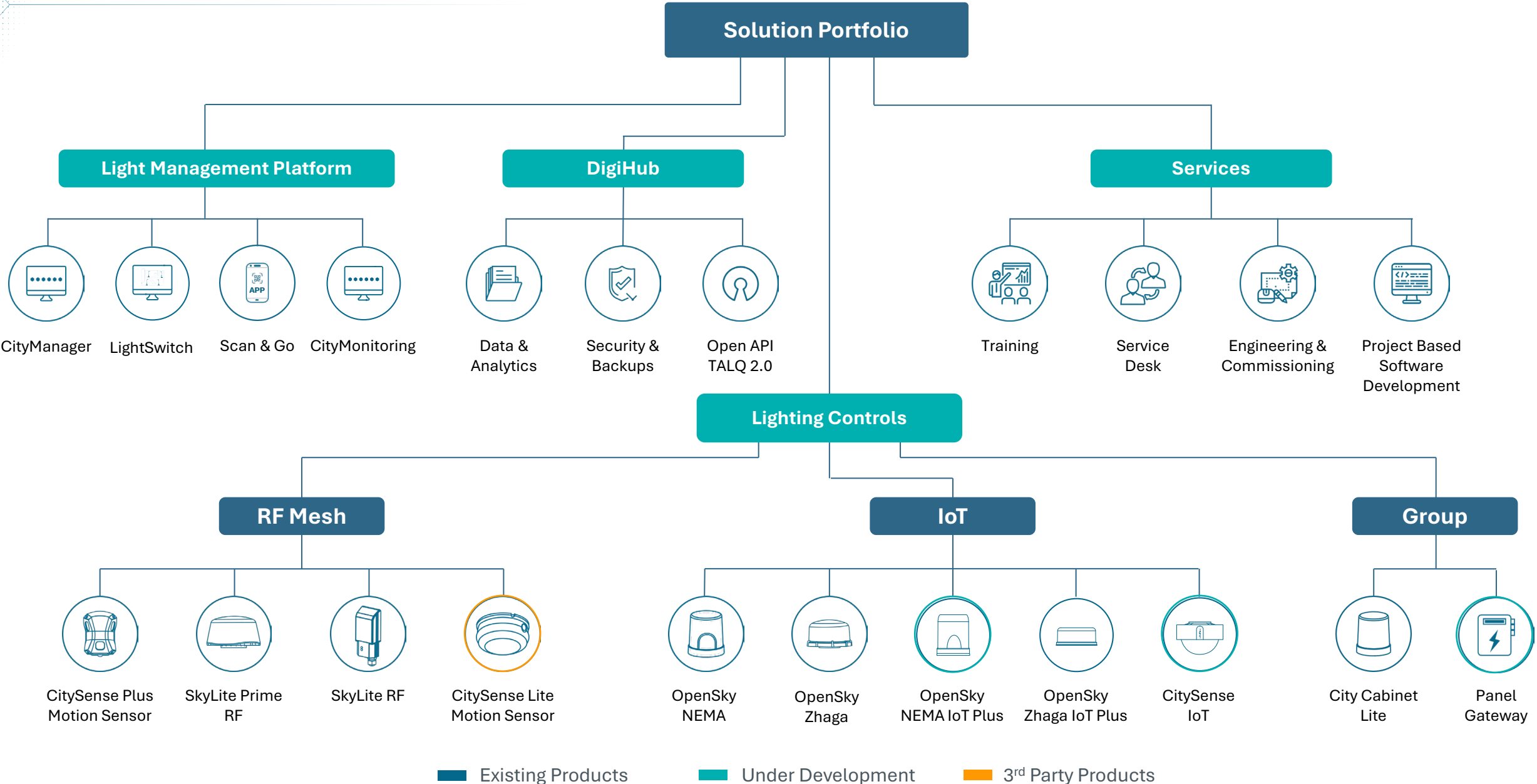
Outdoor Parking



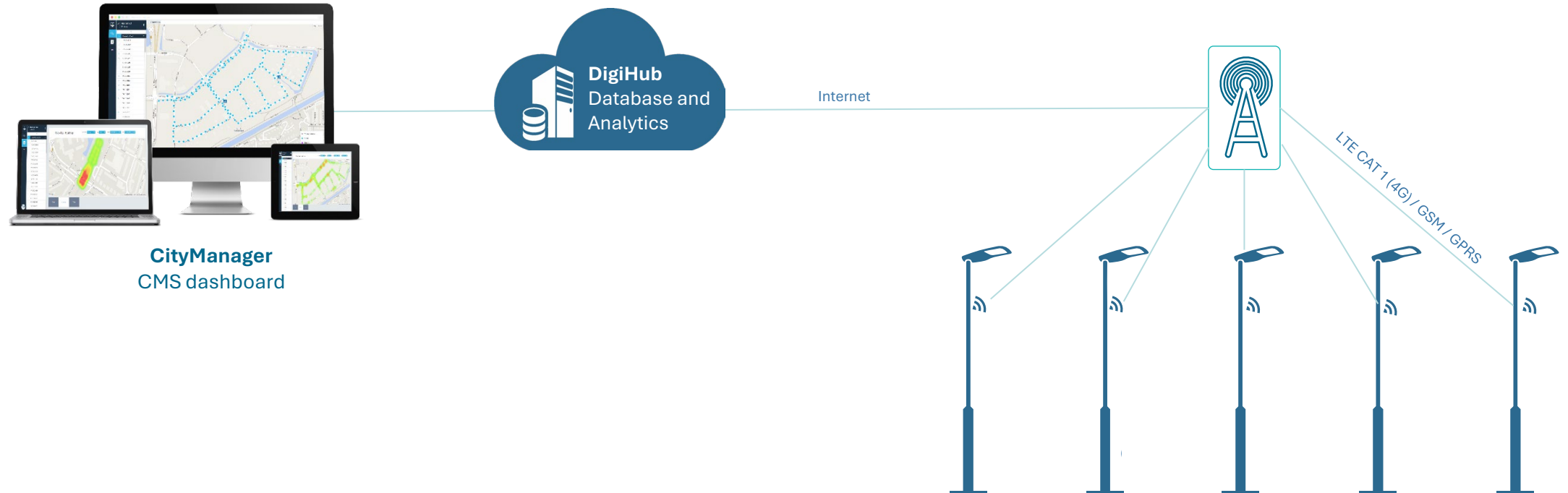
Public Parks



Smart Lighting Solutions



Smart Lighting with Secure IoT Network



Wireless Smart Lighting

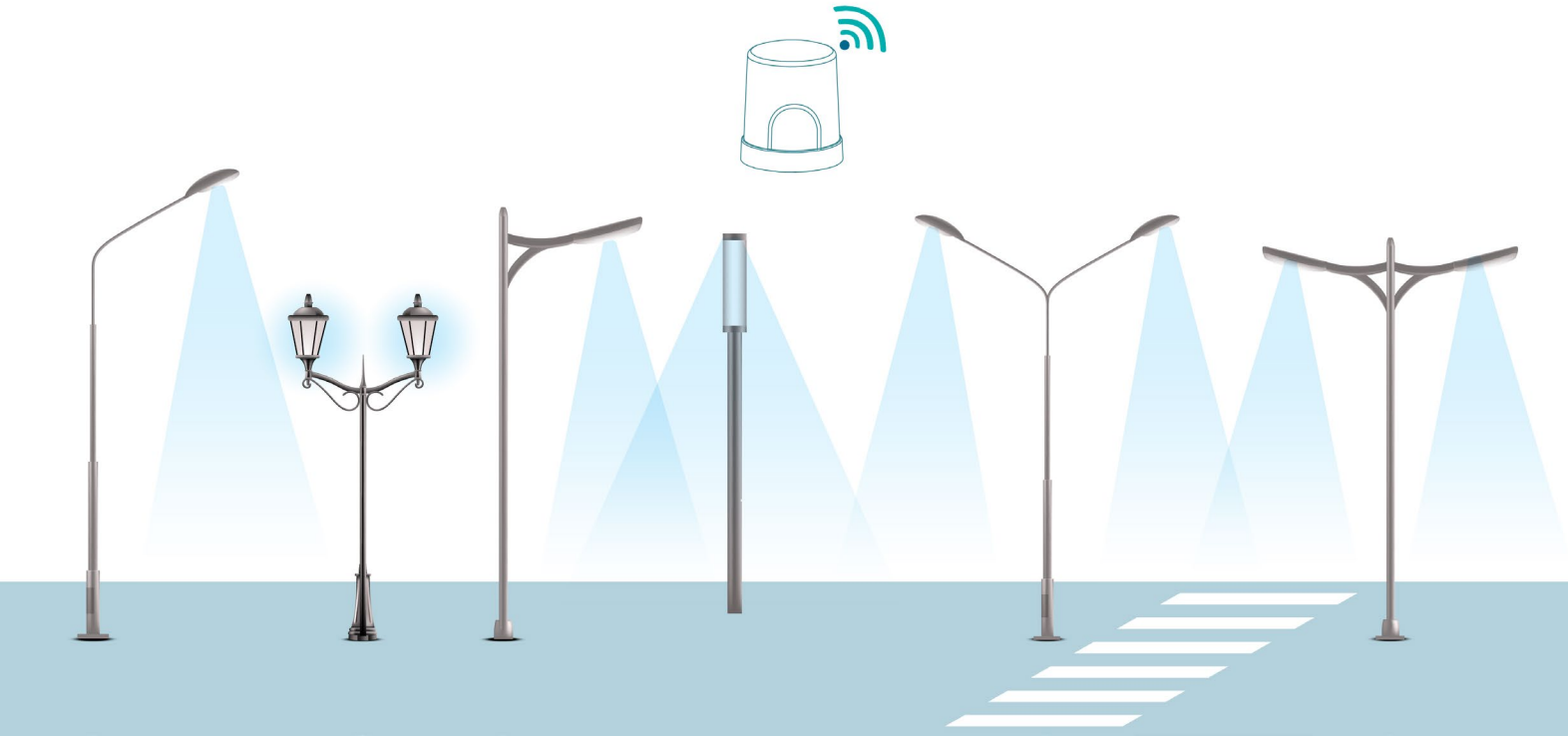
- Open Standard Cellular Network
- LTE CAT 1 (4G) and GSM/GPRS connectivity
- No local gateway needed
- Highest security standard regulated by 3GPP

IoT Pole-Mount Street Light Controller



- Remotely **monitor, manage** and **control** citywide streetlights
- **Single controller** for up to 4 LED fixtures (total max. 480W)
- Ideal for LED luminaires **without standard NEMA or Zhaga receptacle**
- Connects directly to local **secure cellular network**

Luminaire Agnostics, Vendor Neutral Solution



Freedom of Choice

- Select lamp fixtures from any suppliers / manufacturers.
- Prevent vendor lock-in. For example, fixtures from vendor 1 for main roads, while vendor 2 for the residential areas.
- Seamlessly connect and control any LED streetlight fixture / luminaire.

GEWISS

ZUMTOBEL

TRILUX
SIMPLIFY YOUR LIGHT.

HOLOPHANE
An Acuity Brands Company

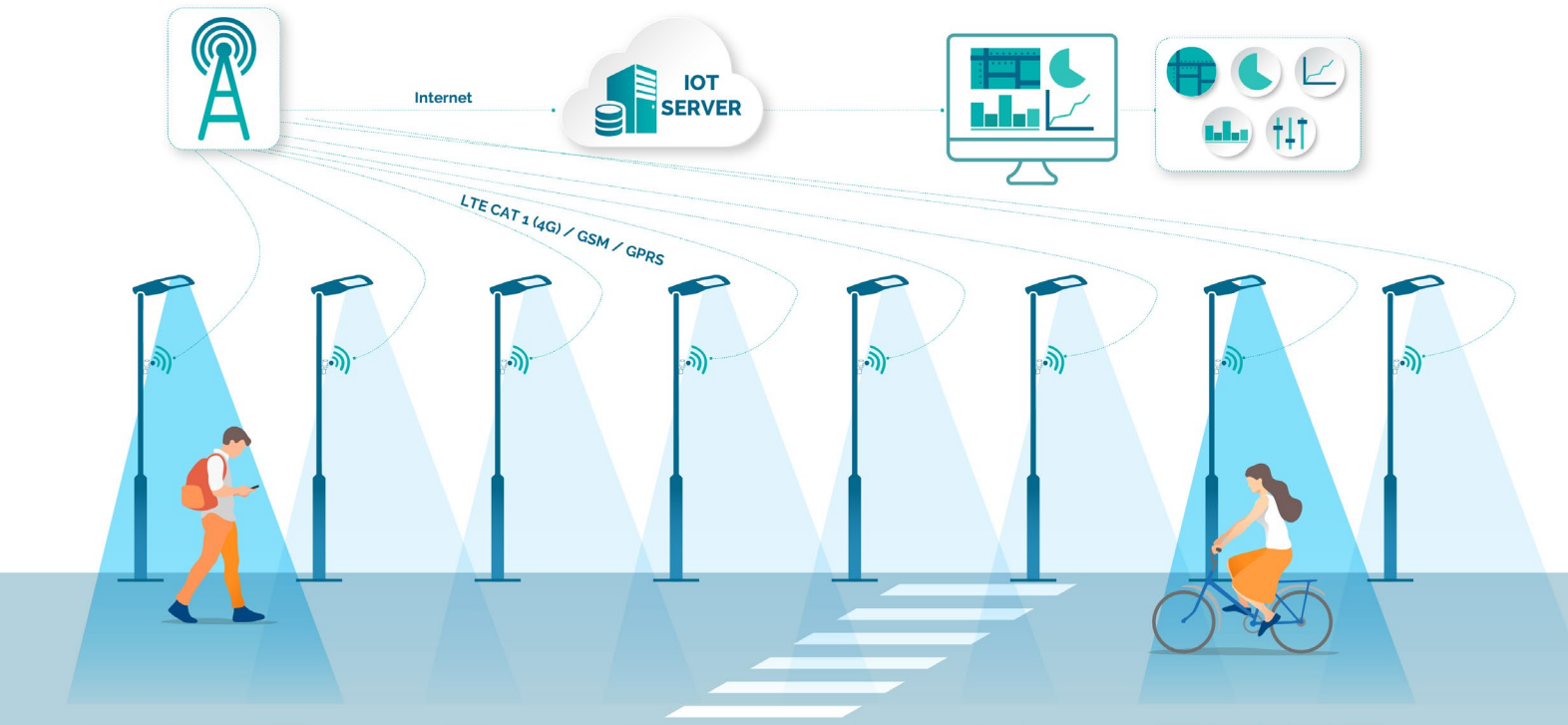
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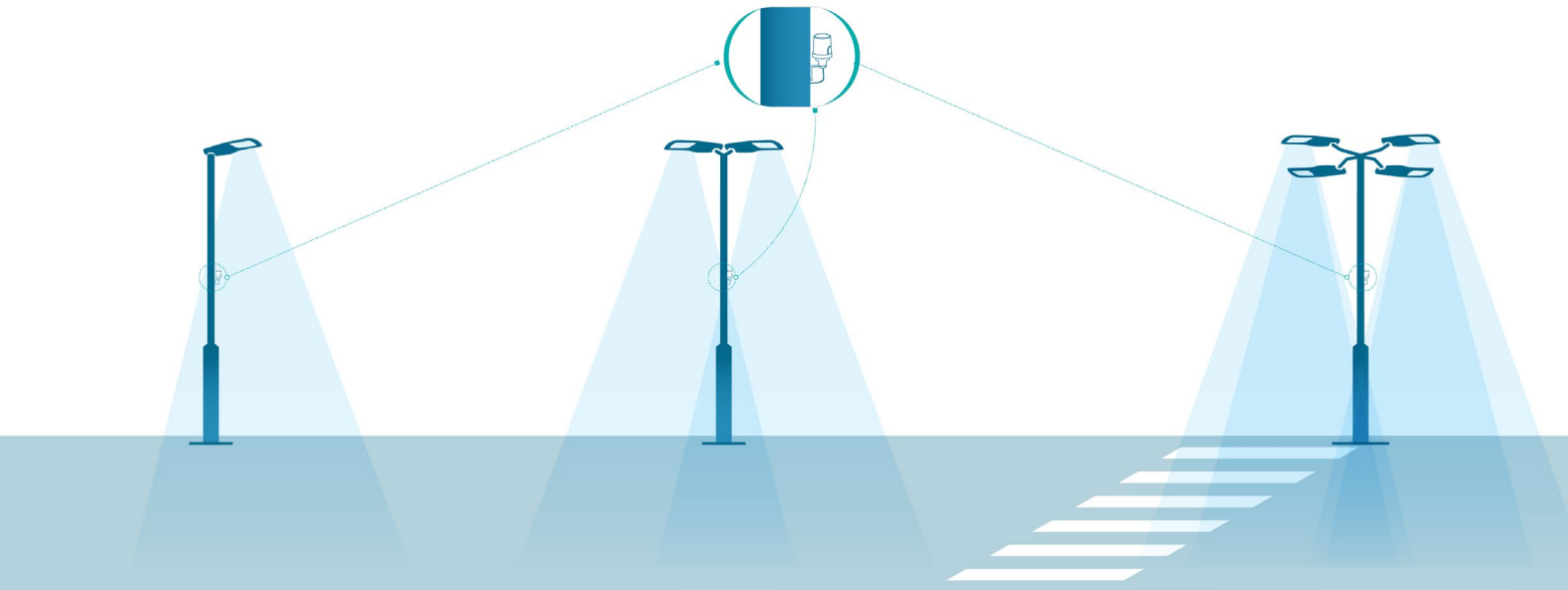
**AE
ΦC
ILLUMINAZIONE**



Lamp connects directly to local cellular tower

- Highest available security (3GPP)
- Fully managed network by local telco
- Excellent network uptime
- Automatically selects the best signal and the best operator: LTE CAT 1 (4G) / GSM / GPRS
- Long range, deep coverage

Suitable for Single, Dual & Four-Armed Poles



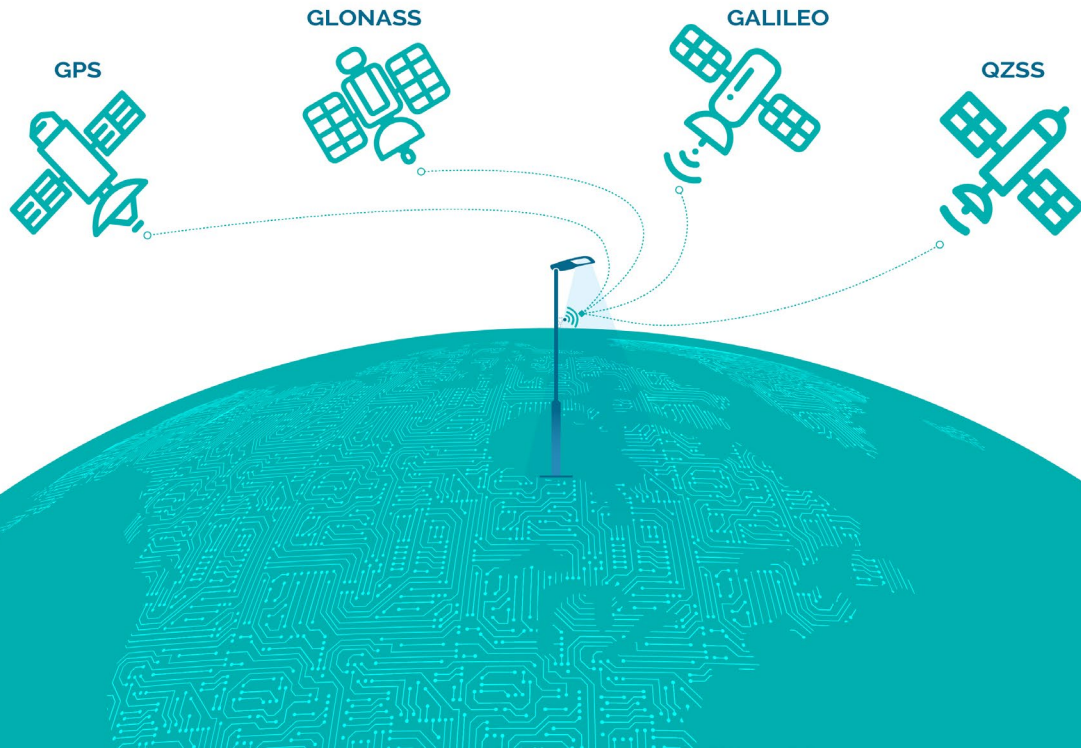
Single controller for up to 4 streetlights

- Control multiple LED luminaires (including switching and dimming) with a single controller
- Total load capacity: max. 480W
- No need for NEMA- or Zhaga-based luminaires
- An economical solution for a wide variety of luminaires and poles



Devices communicate directly with LMS

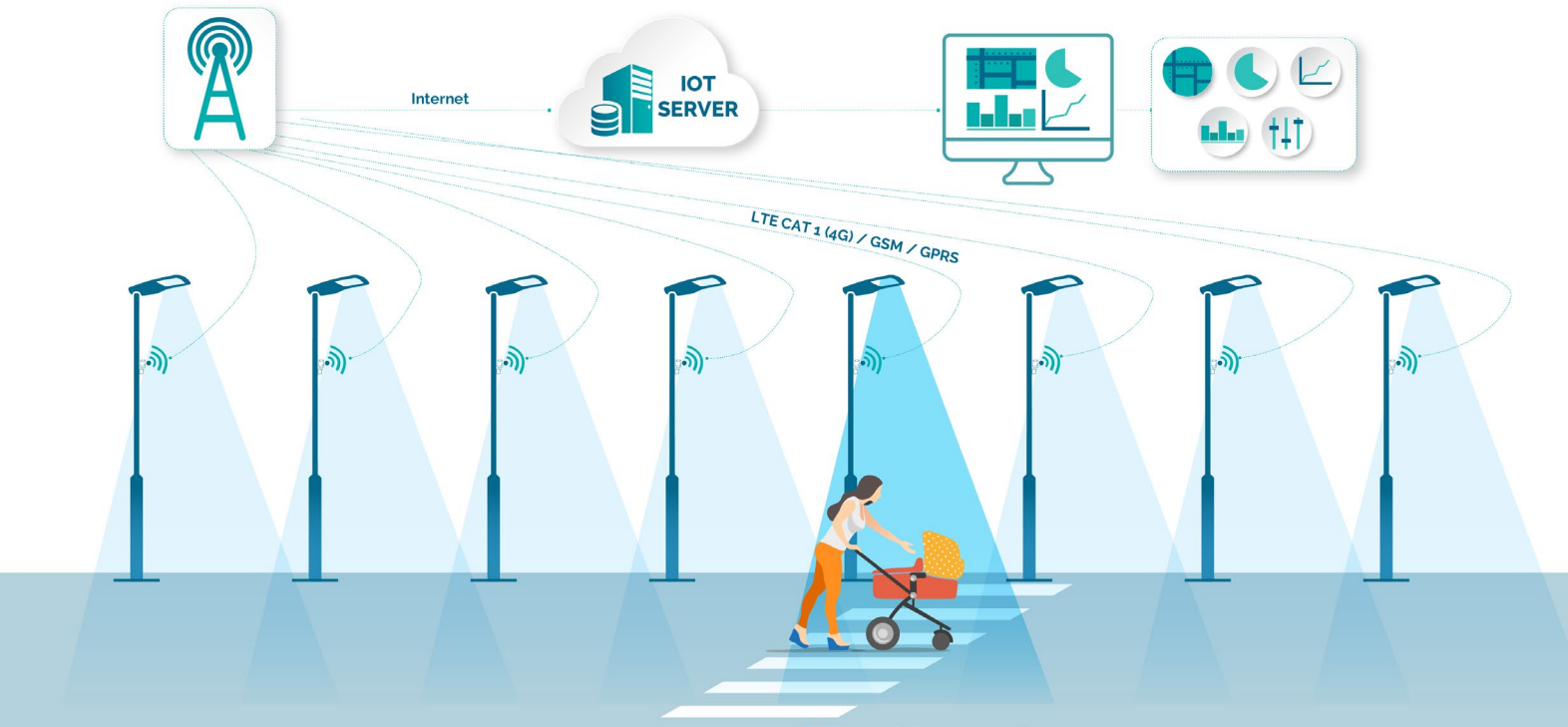
- Full control over individual streetlights
- Cost and hassle of multiple gateways eliminated
- Quick dimming / switching response



In-built GPS activates device

- Device geo-locates automatically upon power, and auto-registers to your LMS
- Eliminates all network engineering efforts

Point Level Control at Your Fingertips



Manage each light individually

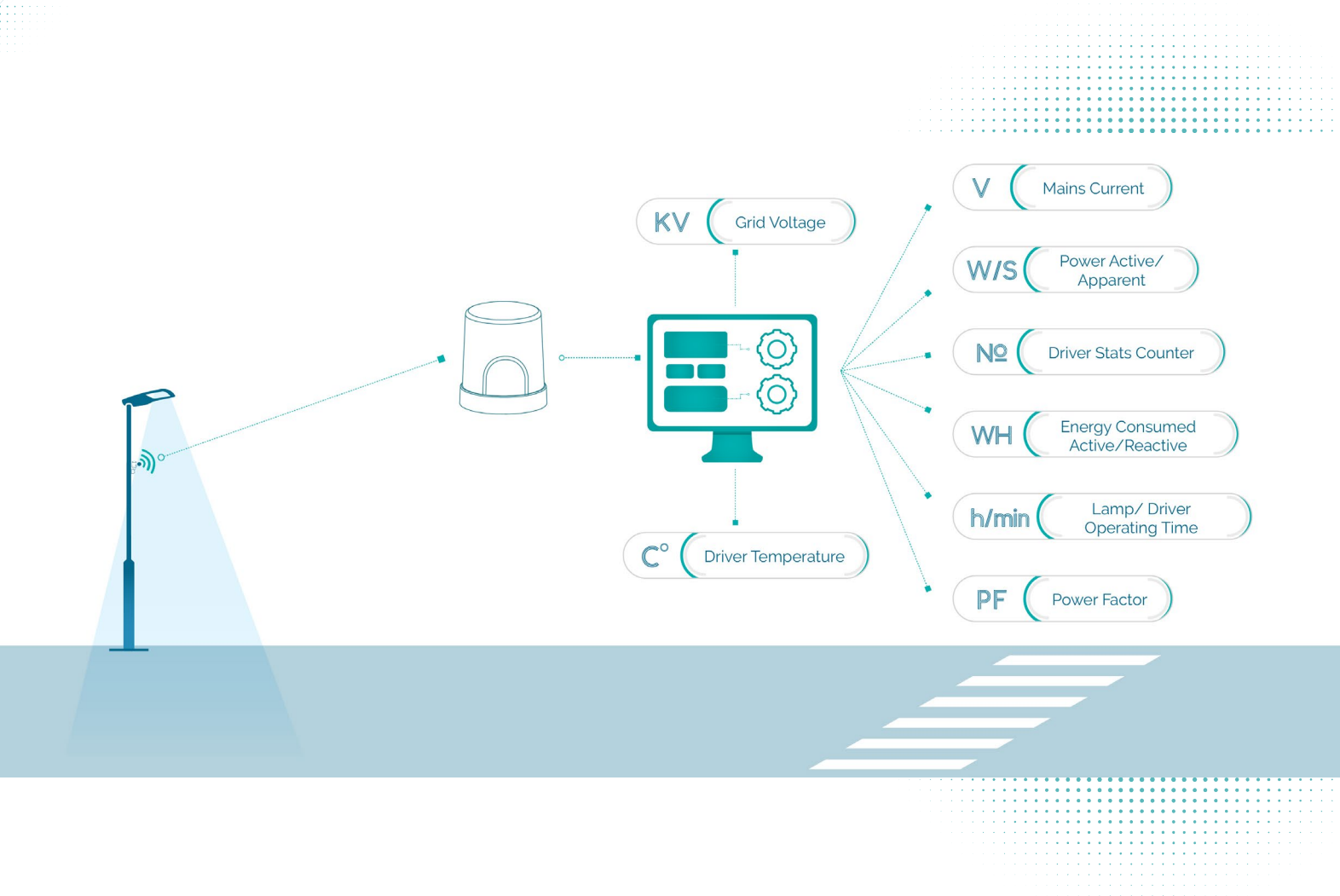
- Switch or dim each luminaire using custom light scenes
- Set different light levels for main roads, traffic junctions and zebra crossing
- Maintain flexibility to adapt light profile to future city needs
- Receive meaningful alerts and insightful data of every street light

Finer Control Over Dimming & Switching



Regulate light levels as situation demands

- Adaptive (Motion Sensor)
- Twilight (Photocell / Ambient Light Sensor)
- Time-based Light Scene
- Autonomous Mode
- AstroClock (Astronomical Clock)
- Calendar-based Schedules
- Central ALS (Photocell in City)
- Emergency (LightSwitch App)



Achieve Predictive Maintenance

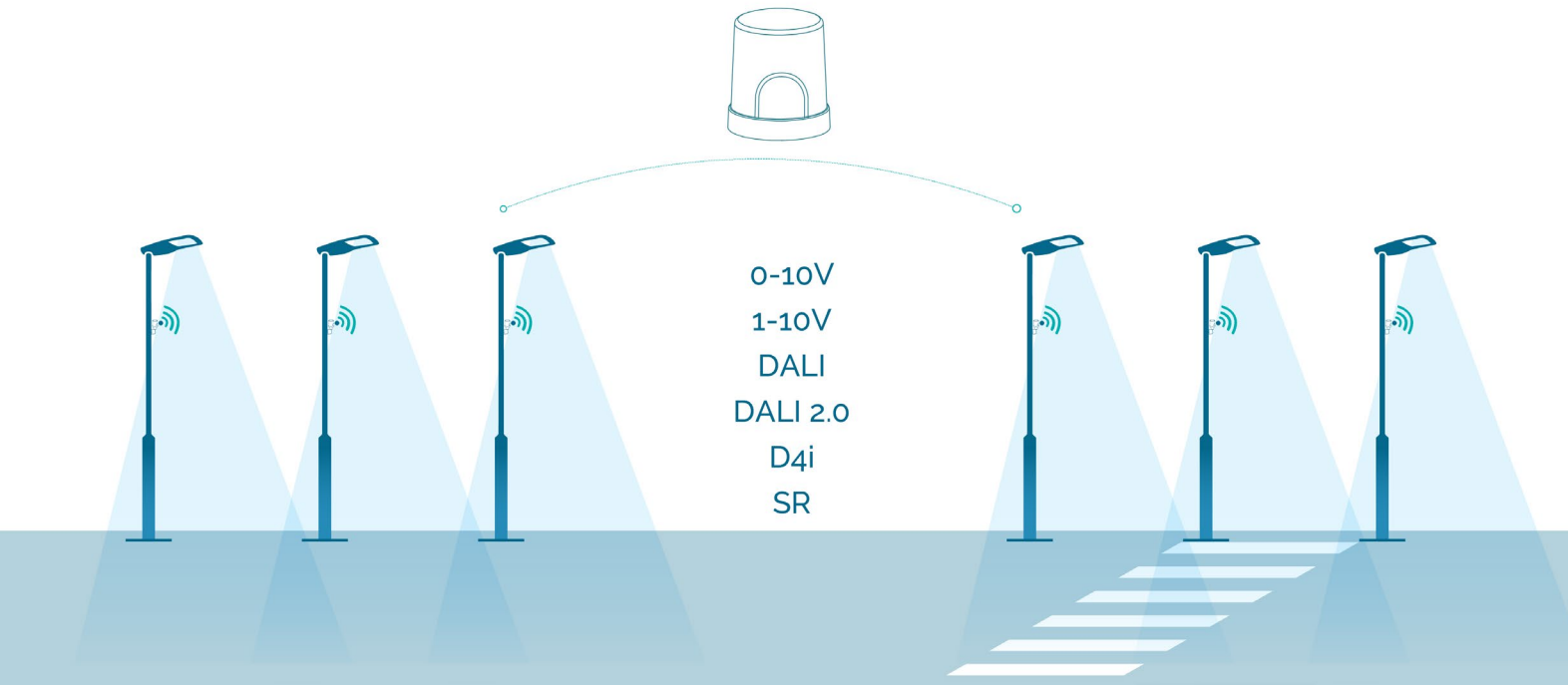
- Pairing Smart D4i Driver delivers advance luminaire, driver and power-grid data
- Data set includes driver temperature, input voltage/ power/ current/ power factor, etc.
- Notifications, alerts and error logs



Built on Open Standards & APIs

- Works with a range of IoT and Smart City systems
- Selected examples:
 - Cisco Kinetics
 - Siemens Atos
 - SixData luxData.light
 - Osram LumIdent

Flexible Dimming Control



Supports multiple dimming protocols

- 0-10V (analogue)
- 1-10V (analogue)*
- DALI
- DALI 2.0
- D4i
- SR

Max. 480W

Features to Improve Day-to-Day Operations...



Integrated Light Sensor

Integrated photocell (twilight sensor) enables streetlight switching based on the naturally available ambient light



Interoperable

Supports multiple dimming protocols (0-10V, DALI, DALI 2, SR, D4I and ANSI C137.4)



Timely Notifications

Receive all updates about your street lighting infrastructure via email and CityManager platform

Features to Improve Day-to-Day Operations...



Pole Knock-Down Alert

In-built tilt sensor sends an automatic alert if the street pole suffers damage due to car crash



Over-the-Air Updates

Thanks to the faster communication with the device, software updates take place in matter of minutes



IP66 + UV Stabilised

IP66 and UV stabilised housing protects the device in the harsh environment and ensures prolonged life

Business Case – Dortmund, Germany

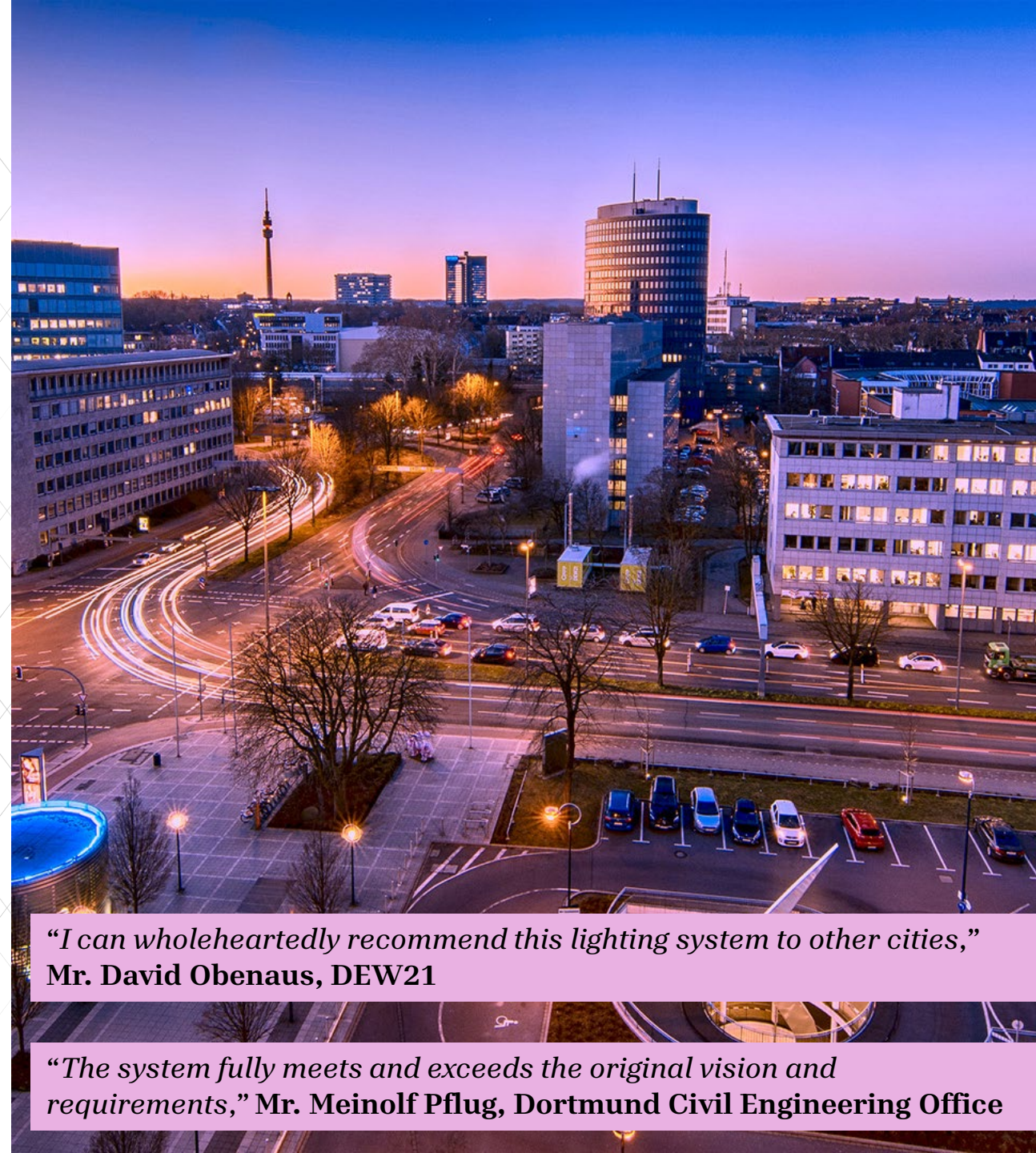
Overview:

- Location: Germany
- Client: City of Dortmund
- Status: 44.000 full operational smart street lights

Major Results & Benefits:

- Energy Savings: An average 65% every night
- CO2 Reduction: 1757 tonnes in 6 months
- Enhanced Safety: Improved public and traffic safety with precise illumination
- Cost Efficiency: Reduced maintenance costs through proactive fault alerts
- Smart City Ready: Open standards and APIs allow easy integration and future expansion

Partners:



"I can wholeheartedly recommend this lighting system to other cities,"
Mr. David Obenaus, DEW21

"The system fully meets and exceeds the original vision and requirements," Mr. Meinolf Pflug, Dortmund Civil Engineering Office

Business Case – Olympia Odos, Greece

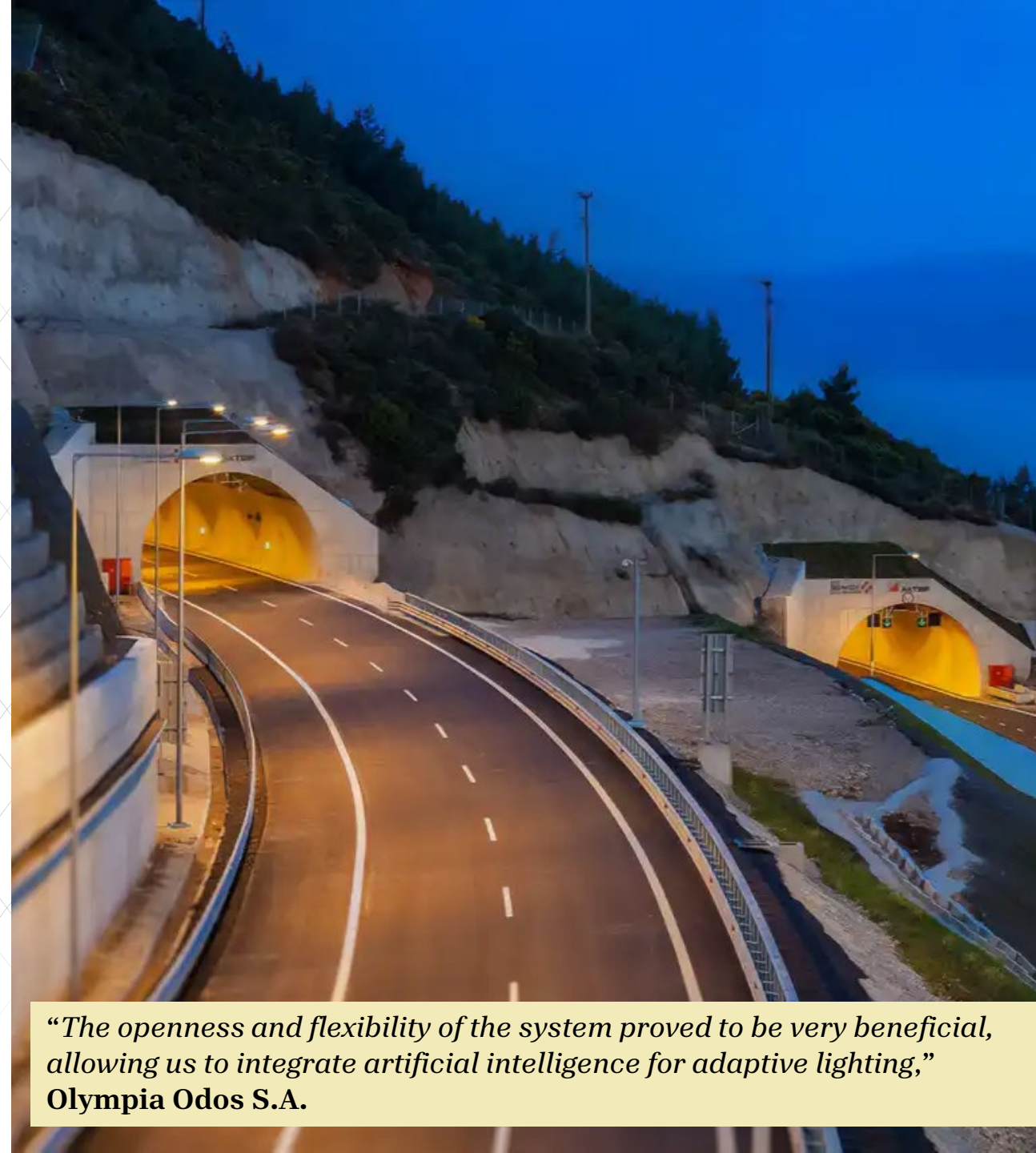
Overview:

- Location: Greece
- Client: Olympia Odos
- Status: 215 km highway, connecting Athens and Patras, has smart AI-driven street lights deployed which adapt illumination based predicted traffic and weather conditions

Major Results & Benefits:

- Energy Savings: 54% energy savings
- CO2 Reduction: Over 1702 tonnes of CO2 reduced in the last 6 months
- Enhanced Safety: Artificial intelligence ensure optimal light levels based on predicted traffic and weather conditions, boosting safety for drivers
- Cost Efficiency: Remote monitoring and control capabilities from the Twilight's light management platform enabled efficient maintenance practices, ensuring reduced downtime and overall associated costs
- Future Ready: Open API-based solution opens endless possibilities for the client to integrate various IoT systems to make the motorway safe and modern yet sustainable

Partners:



“The openness and flexibility of the system proved to be very beneficial, allowing us to integrate artificial intelligence for adaptive lighting,”
Olympia Odos S.A.

Business Case – Dutch Railways

Overview:

- Location: the Netherlands
- Client: ProRail
- Status: 10.000 platform lights, across 400 stations are equipped with motion sensors and are fully operational

Major Results & Benefits:

- Energy Savings: Over 40% energy savings
- CO2 Reduction: Nearly 94 tonnes in 6 months
- Enhanced Safety: Adaptive lighting increases safety for passengers and railway personnel
- Reduced Light Pollution: Positive impact on nearby residents and wildlife
- Cost Efficiency: Proactive maintenance with remote monitoring reduces costs

Partners:



"We wanted to achieve a few things – lowering energy usage and lighting pollution while ensuring public safety. Twilight's solution combined this beautifully," Eelco Krakau, Contract Manager, Prorail

"Motion sensor street lighting aligns perfectly with our sustainability goals. It's been instrumental in reducing our carbon footprint, making our stations eco-friendly." Maurits Pigeaud, Systems Engineer

Business Case – Münster, Germany

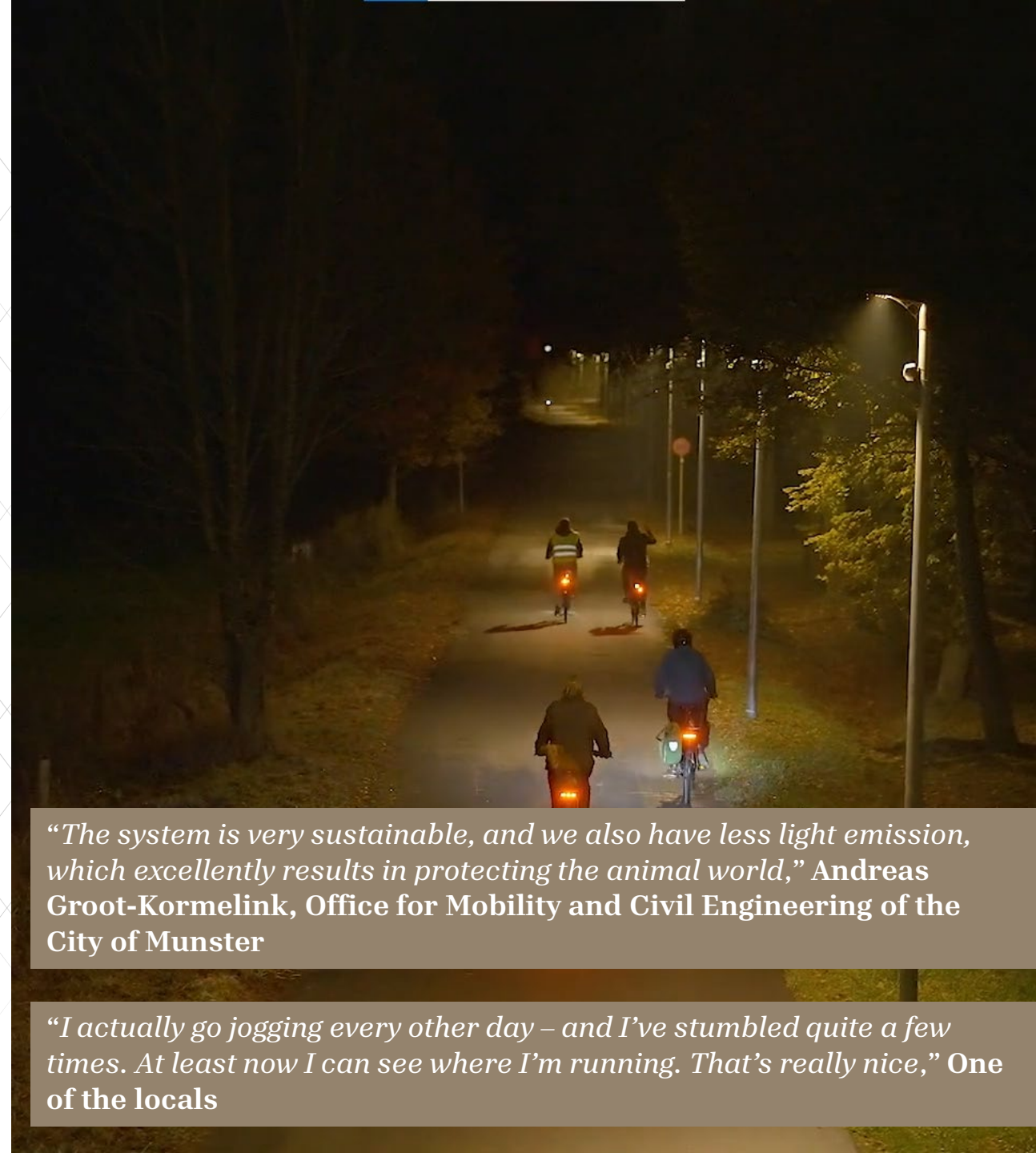
Overview:

- Location: Germany
- Client: City of Münster
- Status: All street lights on a 27 km bicycle path are equipped with motion sensors and are fully operational

Major Results & Benefits:

- Energy Savings: Over 70% reduction in energy usage
- CO2 Reduction: Significant decrease in carbon footprint
- Enhanced Safety: Optimal illumination for cyclists and pedestrians, when and where needed
- Environmental Impact: Reduced light pollution, benefitting nocturnal ecosystem
- Recognition: Winner of German Bicycle Prize for Infrastructure

Partners:



“The system is very sustainable, and we also have less light emission, which excellently results in protecting the animal world,” **Andreas Groot-Kormelink, Office for Mobility and Civil Engineering of the City of Munster**

“I actually go jogging every other day – and I’ve stumbled quite a few times. At least now I can see where I’m running. That’s really nice,” **One of the locals**

Business Case – Helmond, the Netherlands

Overview:

- Location: the Netherlands
- Client: Municipality of Helmond
- Status: 10.000 controllers and sensors across main and secondary roads, pedestrian and bicycle paths, residential areas, university and automotive campuses are deployed and fully functional

Major Results & Benefits:

- Energy Savings: Nearly 70% energy savings
- CO2 Reduction: Over 310 tonnes of CO2 reduced in the last 6 months
- Enhanced Safety: Improved overall safety with optimal illumination
- Environmental Impact: Reduced light pollution, benefitting citizens as well as nocturnal ecosystem
- Smart City Ready: Open API enables the city to incorporate diverse IoT applications to support smart city needs
- Cost Efficiency: Reduction in operating and maintenance costs thanks to precise control over lighting infrastructure and automatic fault notifications and luminaire health data

Partners:

heijmans



“Motion-sensing street lighting helps, because it allows to have just as much or as little light as needed. With Twilight, Helmond preserves citizen safety with maximum energy savings,” **Alfred Groote, Public Lighting Manager at the Municipality of Helmond**

Business Case – Chattogram, Bangladesh

Overview:

- Location: Bangladesh
- Client: Chattogram City Corporation
- Status: 4.800 smart controllers operational and potential project extension for 20.600 light points

Major Results & Benefits:

- Energy Savings: Over 30% energy savings
- CO2 Reduction: Over 90 tonnes of CO2 reduced in the last 6 months
- Enhanced Safety: Smart profiles and built-in ALS sensors ensure the streets remain well-lit always, boosting safety for public
- Cost Efficiency: Reduced maintenance costs thanks to total control over the public lighting infrastructure and proactive fault alerts from the system
- Smart City Ready: Open API-based solution lays a solid foundation the municipality to move towards its Smart City goals

Partners:



THORN



“With smart street lights that turn ON according to the ambient lighting level, it is a major benefit for the city in terms of improving safety of the Citizens during the overcast days,” Engr. M Mahbub Hussain, Managing Director of Trademajestic Limited

Business Case – Jaipur, India

Overview:

- Location: India
- Client: Jaipur Development Authority (JDA)
- Status: 7500+ IoT and RF Mesh motion sensor-based smart street lights deployed across the city, including the urban and rural areas

Major Results & Benefits:

- Energy Savings: 55% energy savings
- CO2 Reduction: Over 487.8 tonnes of CO2 reduced in the last 6 months
- Enhanced Safety: The solution ensured consistent illumination, improving safety and deterring unwanted activities
- Cost Efficiency: CityManager and a special request Citizen App from Twilight, streamed streetlight management, reducing frequent manual inspections and accelerating maintenance response, lowering operational costs
- Future-Proof Investment: Scalable solution enables Jaipur well-prepared for future growth, including total freedom to integrate other smart city applications

Partners:



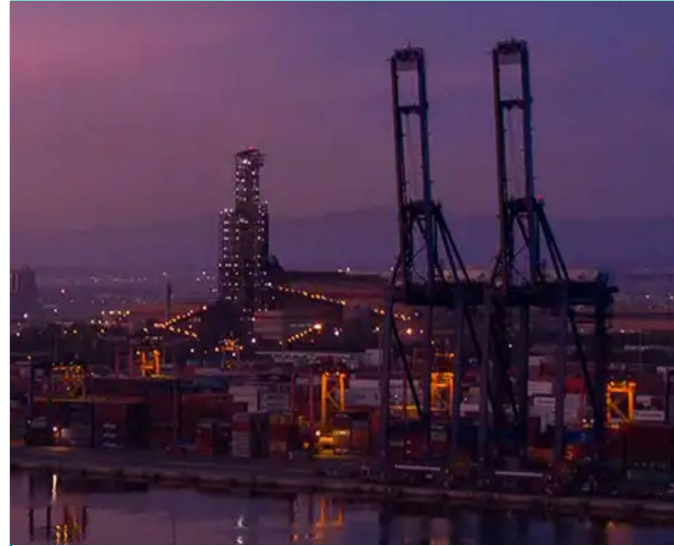
“Our city is benefiting in every aspect – from safety and security, to easy access to information, to overall improvement of our image and a stepping into the “Smart City” arena.” Shikhar Agrawal, Government of Rajasthan

Selected Case Studies



Motion Sensor Smart Street Lighting in Belgium

[Learn more](#)



Light on demand at Sohar Port & Freezone, Oman

[Learn more](#)



Largest Sensor-based Smart Lighting Project in India

[Learn more](#)

Selected Case Studies



Starry Night on the Island of Texel, NL

[Learn more](#)



Intelligent Lighting at famous Van Gogh village, NL

[Learn more](#)



On-Demand Lighting in Park space, NL

[Learn more](#)

Selected Case Studies



**Adaptive Street Lighting
Across Dutch Train Stations**

[Learn more](#)



**Adaptive Lighting Enhances
Cycling Experience, DE**

[Learn more](#)



**Solar Street Lights with
Motion Sensors, Middle East**

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We look forward to working
with you!

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