



Let the sound shine

From Sound
the Right
Brightness





Trailslight SRL

www.trailslight.com



Where Ideas Are Born

It was a midsummer night, windows open, warm air carrying inside the sounds of the city.

Just before falling asleep, I listened to the noise of the traffic and realized I could distinguish well the type and speed of vehicles passing by.

A continuous flow, almost like a language.

I wondered:

"What if streetlights were not just standstill spectators, but could understand their surroundings, adapting to the city's rhythm?"

From that moment on, it was a sleepless night.

I spent the night imagining and laying the foundations of **TRAILS**.

A handwritten signature in black ink, appearing to read 'MR'.

Ing. Massimo Rebernig
CEO & Co-founder



The Solution to Spread Adaptive Lighting

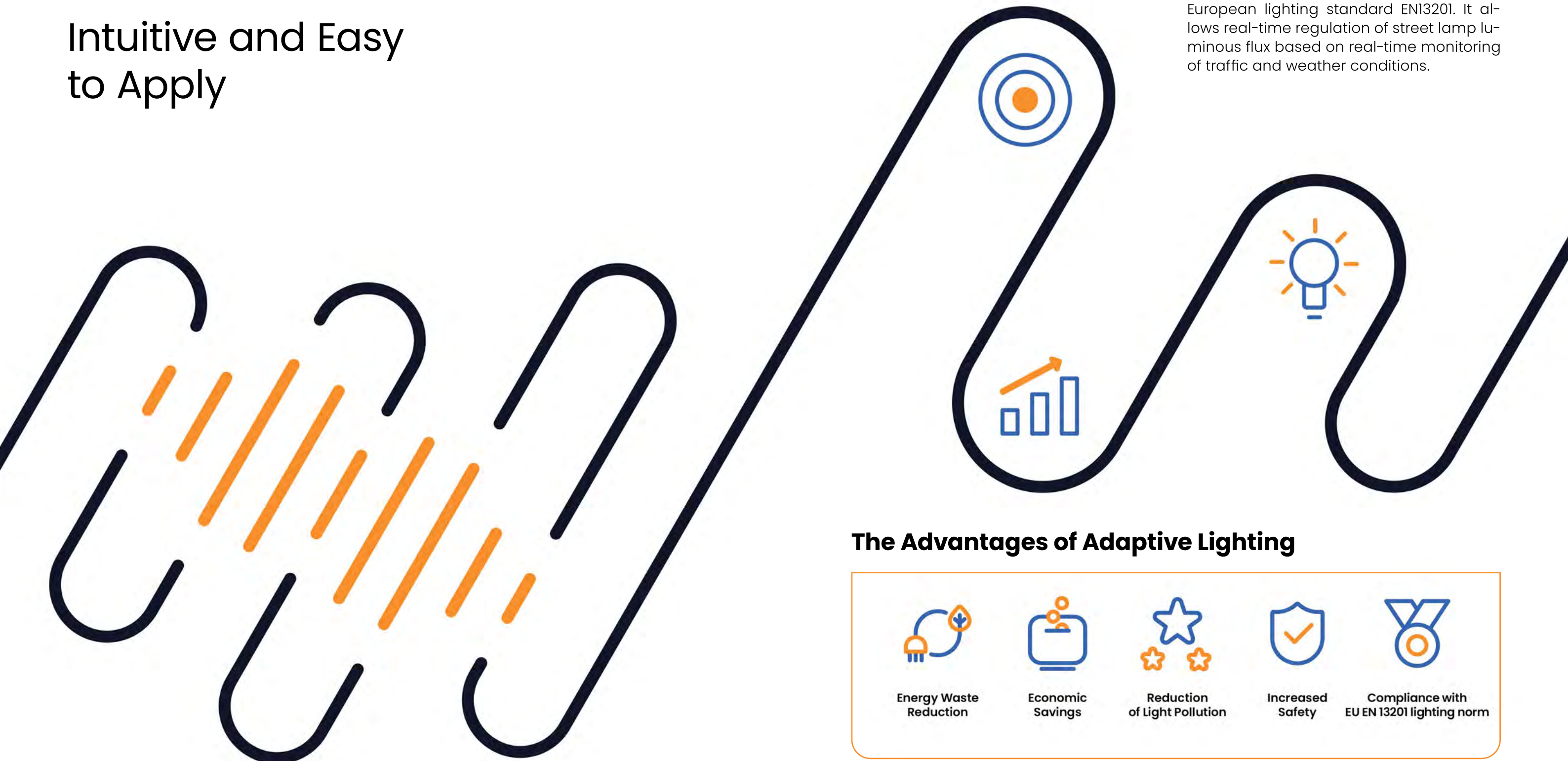
Intuitive and Easy to Apply

The Mission of TRAILSLIGHT

Spreading in global lighting markets the **patented TRAILS** method, which enables adaptive distributed lighting in full compliance with lighting regulations.

What is Adaptive Lighting?

Adaptive lighting is a method to adjust the brightness of street lights according to the European lighting standard EN13201. It allows real-time regulation of street lamp luminous flux based on real-time monitoring of traffic and weather conditions.



The Advantages of Adaptive Lighting



Energy Waste Reduction



Economic Savings



Reduction of Light Pollution



Increased Safety



Compliance with EU EN 13201 lighting norm

Traffic Recognition by Artificial Intelligence on Lamps via Sound

The Company

We are an Italian company dedicated to the global spread of the innovative **TRAILS** method (**Traffic Recognition by Artificial Intelligence on Lamps via Sound**), which introduces a significant change in the lighting industry.



Our team combines **STEM** expertise with a deep passion for innovation, aiming to disrupt public lighting control through future-proof solutions.

TRAILSLIGHT presents itself as a dynamic, ISO 9001-certified company, relying on technological leadership in its sector, as highlighted by awards and achievements.

We collaborate with top-tier national and international companies and cutting-edge institutions such as **ENEA**, **Bi-Rex**, **the Emilia-Romagna Region**, **ELIS Innovation Hub**, **the French Chamber of Commerce**, and many others.



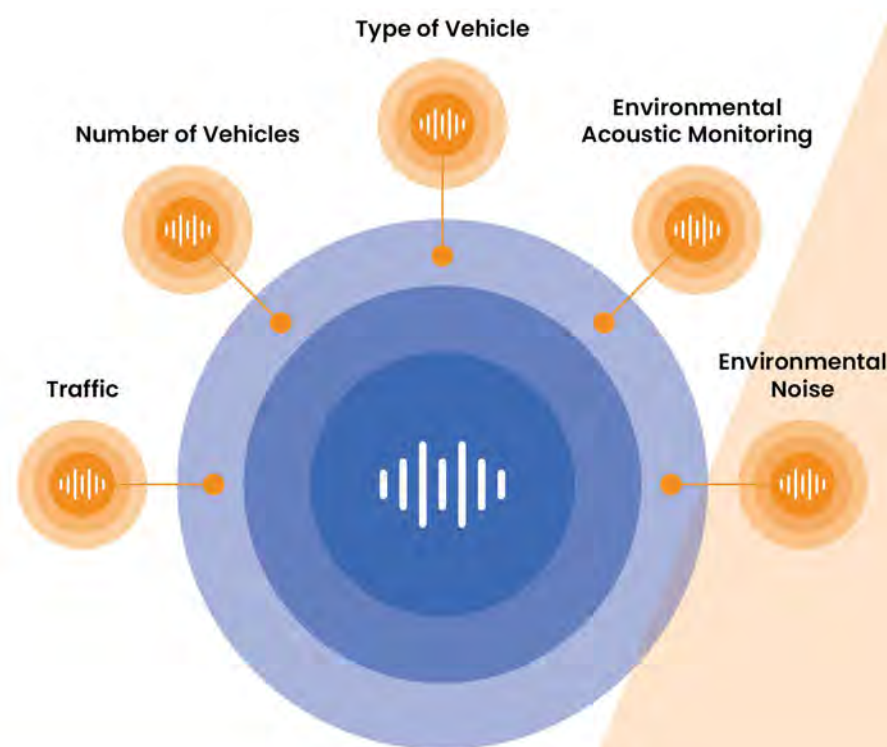
The collection and classification of sound data using artificial intelligence directly within lamp control edge devices enables a simple and pervasive implementation of adaptive street lighting, as prescribed in EN 13201 regulation.

By processing anonymous sound data gathered from distributed light points, **TRAILS** generates new datasets of information and innovative services that are strategic for energy savings and beneficial for citizens and Smart Cities.

TRAILS quickly, easily, and cost-effectively transforms every streetlight in your city into an advanced Smart IoT device, enabling maximum energy savings!

TRAILS is a simple and affordable solution to enhance urban sustainability, reduce energy consumption, and make Smart Cities safer.

Adaptive Lighting Through Sound Analysis



Our Technology

We transform every streetlight into an intelligent device capable of converting the environmental sound into useful information for energy-optimized and connected lighting plants.

TRAILS delivers the right amount of light, where and when is needed, reducing waste and improving sustainability. Thanks to advanced sound data analysis, it dynamically adapts to traffic and weather conditions while providing data on noise pollution levels and other events.

TRAILS not only enhances road safety and urban comfort but also contributes to energy savings and CO₂ emissions reduction, making cities smarter, more efficient, and more livable. In fact, each **TRAILS** device prevents CO₂ emissions equivalent to the CO₂ absorption of two trees.

From Sound, the Right Brightness

Key Elements

Easy

Simple installation on **ZHAGA** connectors with no external sensors need.

Sustainable

Up to 60% reduction in energy waste.

GDPR Compliant

Privacy-respect with no personal data collection.

Intelligent

Cutting-Edge Technology for Lighting Control at global level.

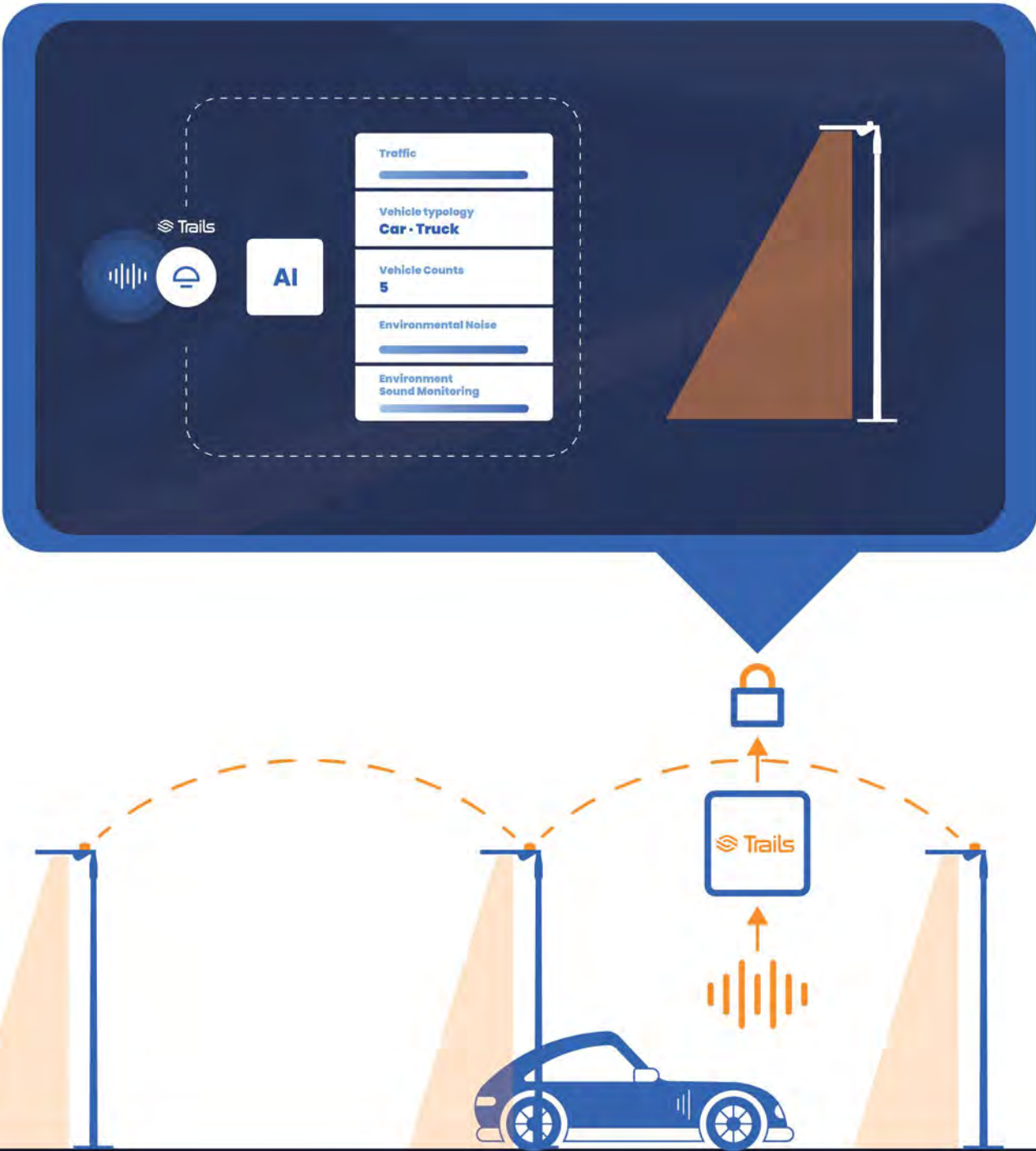


GDPR Compliant by Design

TRAILS systems do not collect audio but directly classify this latter, within the lamp or streetlamp control devices thanks to the use of edge AI networks.

out compromising privacy, following ethical principles and European directives, and in accordance with the best practices in digital security.

Our goal is to optimize urban lighting with-



The Benefits of Sound-Based Adaptive Lighting

Adaptive lighting drastically reduces energy waste, ensuring light is provided only when and where is needed.

Using **TRAILS**, street lights become intelligent, able to automatically dimming streetlight brightness based on both traffic and environmental factors to avoid unnecessary energy consumption.

TRAILS is convenient as the system is easy to deploy, lowering installation costs, optimizing management expenses, and making urban lighting more efficient, smart and sustainable.

Through AI and sound analysis, **TRAILS** offers a tangible solution to reduce environmental impact of human activity and improve urban quality of life.

Reduction of Energy Waste

Efficiency and Sustainability

-40% / -60%



Systems for Smart Street Lighting



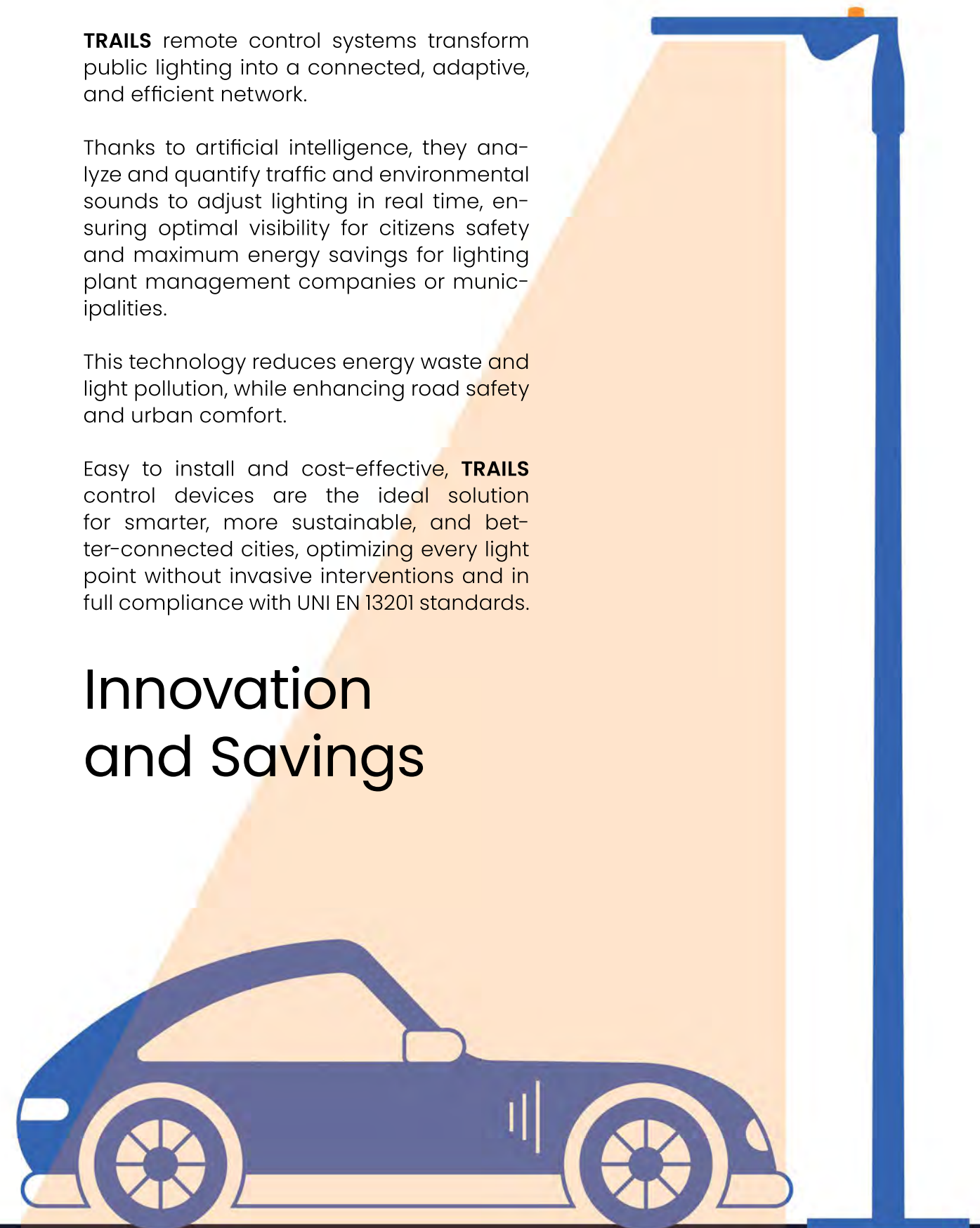
TRAILS remote control systems transform public lighting into a connected, adaptive, and efficient network.

Thanks to artificial intelligence, they analyze and quantify traffic and environmental sounds to adjust lighting in real time, ensuring optimal visibility for citizens safety and maximum energy savings for lighting plant management companies or municipalities.

This technology reduces energy waste and light pollution, while enhancing road safety and urban comfort.

Easy to install and cost-effective, **TRAILS** control devices are the ideal solution for smarter, more sustainable, and better-connected cities, optimizing every light point without invasive interventions and in full compliance with UNI EN 13201 standards.

Innovation and Savings



Street by Street Adaptive Lighting

Street-Conscious Adaptive Lighting

Each light control system **TRAILS** is able to become a sensor to quantify the traffic on the street through easy configuration available through **TRAILSCITY** platform

Thanks to the above-mentioned feature TRAILS is able to differentiate lighting flux in every street segment in which it is applied.

In fact, it directly relates the city street lighting plan design category with the real traffic presence in the street, allowing to obtain the maximum possible

saving by applying lighting norms.

Each **TRAILS**-controlled street is independent terms of regulations and fully compliant with **Adaptive Lighting** regulations (UNI 11248 / EN 13201).

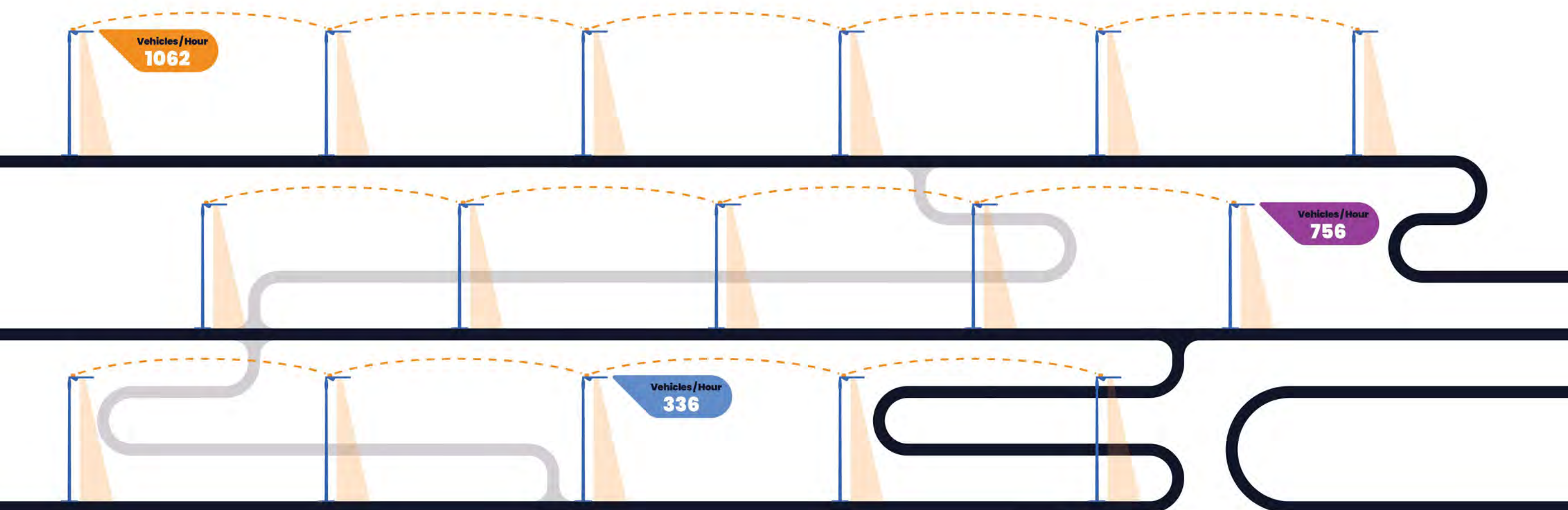
Thanks to its intrinsic flexibility, **TRAILS** makes widespread application of point-to-point light control systems highly cost-effective, optimizing lighting efficiency and offering new high-value-added services thanks to distributed sound analysis.

Lighting Category (EU/IT regulation)

M 2
Main Extra-Urban Roads

M 3
Secondary Extra-Urban Roads and Neighborhood Urban Streets

M 4
Local Extra-Urban Roads



Products



Adaptive Lighting

1

1 Trails Island Sound AI

Trails Island Sound AI is a Light Control System (LCS) for monitoring and diagnosing public and industrial lighting. It integrates directly on street lamps equipped with **ZHAGA** Book-18 connectors with 4 poles.

Thanks to Artificial Intelligence and sound analysis, **TRAILS** opens up new scenarios for Lighting Plants energetic and functional efficiency in the Smart City, Industrial, and Commercial sectors.

DALI-2 and D4i compliant, the device controls the LED driver to monitor the operating status of the lamps, manage light intensity and optimize energy parameters according to dynamic adaptive lighting profiles.

- ▶ LoRa 869 MHz Modulation
- ▶ DALI2 Compliant
- ▶ ZHAGA 40mm Compliant
- ▶ Over-the-Air Upgrades



2 Trails Island Link

TRAILS Island Link is a device designed for the interconnection between nodes and systems in Radio Frequency, operating on the LoRa protocol with a Mesh topology.

Through the RS-485 interface, the device works as a multi-master Cable Replacement solution, enabling in a clear, flexible, and multi-directional manner, wireless data exchange networks between various IoT devices.

TRAILS Island Link can be configured and updated via the TRAILS Gateway or through a local **TRAILS** Island Manager software, using USB or RS-485 ports.

- ▶ RS-485 Cable Replacement
- ▶ Industrial Grade
- ▶ AES-128 Encryption
- ▶ Extended Radio Coverage



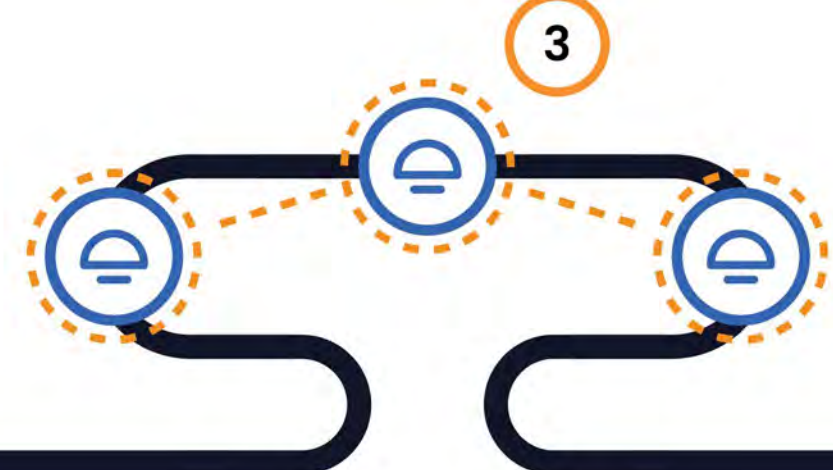
3 Trails City Platform

TRAILS CITY PLATFORM is a highly scalable City Management System (CMS) in terms of managed IoT points, designed to be interoperable and configurable to maximize the value of statistical data collected by **TRAILS ISLAND SOUND AI** field devices.

The platform enables accurate management and maintenance of lighting systems and supports the delivery of high-value-added services derived from pervasive sound analysis, ensuring GDPR Compliance by Design.

It integrates heterogeneous process data into a single central supervisor, guaranteeing full interoperability and the highest levels of security. The platform is available in both SaaS and On-Premise versions.

- ▶ Plant Managing Framework
- ▶ Scalable Back-End & Storage
- ▶ HTML5 Control & Insights Supervision
- ▶ Open API



Light Management and Beyond

Traffic Classification

Automatic classification of light and heavy duty vehicles to support Smartcity traffic planning.

- ▶ Light Vehicles
- ▶ Heavy-Duty Vehicles
- ▶ Traffic Intensity Index

Weather Monitoring

Reporting of critical weather conditions to prevent risky situations related to local adverse conditions or geological risks.

- ▶ Pertubance Intensity
- ▶ Pertubance Duration
- ▶ Setting of Threshold for Meteo Alerts

Noise Mapping

Mapping of environmental noise to identify and monitor areas at risk of noise pollution, providing valuable data to improve urban livability.

Definition of critical noise pollution thresholds.

- ▶ Class 2 Phonometer (IEC 61672 Standard)
- ▶ Continuous Equivalent db Measuring
- ▶ SoundMaps Generation in TRAILSCITY platform
- ▶ Heatmaps to highlight hazardous Noise Pollution Areas

Safety Warning

Detects critical sounds such as ambulance sirens and alarms.

On-demand updates to enable recognition of key events like accidents, potholes, human screams for improved road and public safety.

- ▶ Ambulance Sounds
- ▶ Alarm Sounds
- ▶ On-Demand Recognition Instruction of Events of Interest: screams, accidents, potholes...



Trailslight SRL

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Operational Headquarters:

Via Bruno Buozzi 52
40057, Granarolo dell'Emilia (BO) Italia
+ 39 051 76 54 19
info@trailslight.com

Registered Office:

Viale Abramo Lincoln 84/a
40139, Bologna (BO) Italia
P.IVA e CF: 04072381207





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www.trailslight.com

info@trailslight.com

