

TVILIGHT



Case Study Dortmund

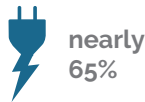
TVILIGHT helps turn Dortmund's 36.000 street lights into a Smart City platform

Individual light management and control help the city improve energy efficiency, increase public safety, reduce CO2 emissions, and lower maintenance costs.

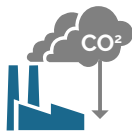
Dortmund selects Twilight's smart light management solution to individually monitor & manage the citywide street lighting infrastructure



36.000 street lights already installed and fully operational (March 2024)



Smart lighting solution has proven to save nearly 65% energy beyond the saving generated by switching to LED street lights



It helped prevent over 1757 tons of CO₂ during the last 6 months through smart switching and dimming



Project partners include Trilux and Lunux for LED streetlights, DEW21 for management, and SPIE SAG for operations and installation

Project Summary

Location:	Dortmund, Germany
Project size:	36.000 LED street lights
Client:	City of Dortmund
Application Areas:	Main roads, secondary roads, residential streets, parking lots
Products:	SkyLite & SkyLite Prime (wireless controllers), CityManager (light management platform)
Project Partners:	DEW21, SPIE SAG, TRILUX, LUNUX

Customer Need

We were searching for an open and flexible light management system



Decades-old public lighting infrastructure resulted in poor illumination with increasing operating and maintenance costs. Inadequate lighting conditions also compromised public and traffic safety. We wanted to address these issues in an efficient way. At the same time, we wanted Dortmund to be future-ready through smart connected infrastructure,



*Mr. Meinolf Pflug
from the Dortmund Civil Engineering Office*

"The cable infrastructure and the cabinet switching points are not owned by the city and therefore cannot be used for switching or controlling the streetlights. Furthermore, many of the streetlights are required to be powered 24 x 7h due to multiple infrastructural reasons," adds Mr. Jan Wieseemann, Project Manager from lighting specialist Trilux.

Dortmund underwent intensive planning and tendering phase. It was naturally important to meet the lighting and road safety requirements. A significant reduction in costs and CO₂ emissions were also expected. The City Council also expressed a strong desire to make public lighting infrastructure flexible and open for future use. Furthermore, the smart lighting system should be able to interoperate with other smart infrastructure and be Smart City ready.

"This extensive market exploration process formed the basis for the specifications of the new lighting systems in Dortmund," concludes Mr. Pflug.

Smart Lighting

Individual lighting control provides unprecedented flexibility



Wireless smart lighting system was selected as most the preferred solution. As an all-round solution, it improves illumination and safety, reduces cost and cuts CO2 emissions. Due to the system's openness and flexibility, it also offers a foundation to host innovative systems that would help us become a smart city,



City of Dortmund

"Individual light management and control provide unprecedented flexibility", adds Mr. Wiesemann. Most of the streetlights in Dortmund (8th largest city in Germany, Ruhr Metropolis) are being converted from traditional lights to state-of-the-art LED streetlights, which also include intelligent lighting controls.

Project partners include Trilux for LED streetlights, DEW21 for project management, SPIE SAG for operations and installation, and Twilight for the light management system (LMS).

As of March 2024, 36.000 smart street lights have been already installed and fully operational. The solution saves nearly 65% energy, and it prevented over 1757 tons of CO2 during the last 6 months through smart switching and dimming.

Project Achievements

Visible benefits from day one

Smart wireless street light controllers (OLC) and the advanced CityManager light management system from Twilight enable the system operators to efficiently monitor, manage and control entire public lighting infrastructure remotely.

Smart Monitoring

With intelligence installed in every street light, Dortmund is now able to monitor entire public lighting infrastructure remotely from a centralized command center



"The system works very well and has the desired LMS functions," explains Mr. Wiesemann. "This includes the lamp status (on/ off), fault analysis and reporting (24/7), monitoring of the energy consumption data and the alert messages (24/7). In addition, individual light profiles can be checked and adjusted at any time online based on the specific needs of a given location."

"Performance of all the street lights is clearly visible in the light management system. Together with smart monitoring, this provides an unprecedented degree of transparency for the operator of the installation. This is what future smart light looks like today!"

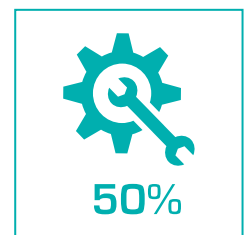


This is what future smart street light looks like today!



Reduced Maintenance Costs

Automatic fault alerts/ notifications help turn expensive reactive maintenance to effective and economical proactive maintenance.



Twilight's light management system helps pinpoint where and what type of failure has occurred to enable the maintenance crew to arrive at the right location and perform the repairs swiftly. This, in turn, reduces unplanned night patrols, and ultimately the maintenance costs.

Improved Safety

Right light at the right place at the right time clearly improves the safety perception of citizens.



Twilight's smart street lighting solution offers precise control over the street lights, enabling the city to provide adequate illumination that boosts both citizen safety and traffic safety.

Motion sensor-based light-on-demand system will be used at selected locations in the city to enhance the public's need for safety.

Smart City Ready

Open standards and Open APIs-based solutions enable easy integration and interoperability between different systems. For instance, the LMS is being inter-connected to the local asset management system (SixData) through Open API to leverage monitoring and servicing effectiveness.

"Flexibility and interoperability of the system are important. The experts at Tvilight have therefore designed an open system to be able to develop further software functions," explains Mr. Pflug.



"This system will soon be able to control citywide lamp switching through a couple of centralized ambient twilight sensors that accurately measure visible light levels in the city. Data from these sensors will be used by the LMS (through open API) to automatically switch street lights. Thereby benefiting from a uniform light switching as well as achieve a further energy saving of 5% - 10% when compared to local switching," explains Ms. Heide Jeuken, Commercial and Operations Director at Tvilight.



Project Outcome

I wholeheartedly recommend this smart lighting system



We are very pleased with the system. All the requirements of this large and ambitious project are amply met. Excellent partnership and solution-focused collaboration is one of the success factors



*Mr. David Obenaus
from DEW21, a StraBelDo consortium partner*

A statement that the city and Trilux fully endorse. "The system fully meets and exceeds the original vision and requirements," adds Meinolf Pflug.

"I am convinced that this project in Dortmund demonstrates the value of the light management system and puts smart connected LED street lights as a way forward for other European towns and cities. We are fully convinced that other municipalities will adopt this solution and it will become the new standard," clarifies Mr. Stefan Metzner, Head of Outdoor Lighting Sales, Trilux.

"I can wholeheartedly recommend this lighting system to other cities," says Mr. Obenaus. "After we jointly mastered the technical challenges at the start of this unique project, I fully support this project.

"Major cities from Germany, as well as neighboring nations, have already contacted us. My colleagues from the local authorities in other cities are very interested in the project," adds Mr. Pflug.

A woman with long, dark, curly hair, wearing a bright red jacket, is looking up and smiling at a streetlight at night. She is holding a curved, white, modern streetlight fixture. The background is dark with blurred city lights, creating a bokeh effect.

**Making streetlights smart is our passion.
What's yours?**

About TVILIGHT

TVILIGHT PROJECTS B.V. is a European market leader specializing in motion sensors, wireless lighting controllers, and a complete portfolio of street light management software – to manage, monitor, operate and maintain citywide public lighting infrastructure. Our smart lighting platform and open API allow integration to city's preferred software platform and thus constitute an open, reliable and future-proof base for Smart Cities and the Internet of Things. The company has installed over 800 projects globally across 20+ countries, including iconic cities and critical infrastructure around the world. Twilight's international projects include Amsterdam Airport Schiphol, Dutch Railways, Port of Moerdijk, Seoul, Beijing, as well as some of the largest German cities such as Düren, Münster, Cologne, Dortmund, and Berlin. To discover more about us and our products, visit <https://tvilight.com>

References: [Trilux \(DE\)](#), [Trilux \(NL\)](#), [Lunux](#), [Dortmund Smart City](#), DEW21
March 2024