Schréder
Experts in lightability™

From **smart lighting** to **smart cities**

Enabling open, fluid, connected and safe cities

Schréder, experts in **Lightability**™

Schréder is the global identity of over 35 intensely local companies. For more than a century, we are **experts in Lightability**™. We embrace the power of light to bring change that goes far beyond lighting. We connect people and technology, we make cities smart and secure, ready for the future.

With our partners, we create **practical, sustainable and beautiful solutions** tailored to locations as diverse as Rome's Coliseum, Brussels' Grand Place or the Channel Tunnel.

Our innovative street lighting is the ideal infrastructure to integrate **connected technologies** to make any city, big or small, smart.

2,600 employees worldwide share our passion to light up our world and make it smart.

Synergies for **smart cities**

Schréder solutions enable smart cities.
Our modular luminaires use open standards that are compatible with other innovative technologies, so that your city can benefit from the smart solution that fits your needs, now and in the future.

A win-win solution

Smart cities seem complex, but they do not have to be. The lighting grid is the perfect gateway to collect data and **deliver smart services** without investing in costly parallel infrastructure, but only if **open technology** is used to connect to the different actors in energy, mobility, water, waste...

As founding member of the uCIFI Alliance, Schréder delivers **full interoperability** between connected technologies for smart cities. With the technology we use, the lighting infrastructure become the hub to collect and transport data for multiple services through the city.

Schréder has joined forces with **industry experts** to create fully integrated smart city solutions with a network of aesthetic and **energy-efficient luminaires**, tailored to your needs and budget. With Schréder technologies, you are ready for the ever changing future.

Schréder, member of

uCIFI

Non-profit organisation intending to bring on the market open-source, multi-transport and multi-supplier solutions to enable connected devices for smart cities and utilities to talk the same language.

TALQ

Consortium aiming to define a globally accepted smart city protocol for central management software to configure, control, command and monitor heterogeneous smart city device networks.

LoRa Alliance™

Non-profit association committed to enabling large scale deployment of low power IoT through the LoRaWAN open standard.

Smart lighting
with Schréder

Local authorities care for their citizens by providing infrastructure that ensures safety, well-being and sustainability. Innovative technologies play an active role in creating a new generation of smart, safe and social environments and in reducing costs.

Owlet is Schréder's range of **smart control solutions** for public lighting. It provides a variety of `light on demand' options and dimming scenarios, through a system of ingenious sensors and user-friendly control interfaces. They give cities the power to **provide the right light in the right place at the right time**, and especially to dim it when nobody is around to enjoy it.

Real-time monitoring and location systems indicate failure and energy consumption, allowing a more efficient asset management and maintenance. Interventions can be planned more accurately, reducing malfunctioning and operational costs at the same time.

4 reasons to choose **Owlet**

Energy savings of up to 85%

Schréder's expertise in implementing quality lighting solutions has helped cities worldwide to **reduce their energy bills by up to 85%** compared to installations with traditional light sources. Owlet combines the efficiency of LEDs with a range of control features:

- **Constant Light Output** - compensates the light output depreciation when lamps age
- **Virtual Power Output** - adapts power output according to the standard requirements
- **Selective Dynamic Lumen Output** - adapts the light to the real needs of the environment

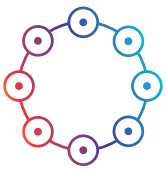
Light on demand

What a waste of energy and money if spaces are lit at full power, when nobody is using them! Owlet has **dimming scenarios** and **light-on-demand** features to adapt the lighting to the real needs of the place and the time. **This drastically reduces the carbon footprint** of a city and the payback time of a new installation. .

Asset management

Owlet offers online tools to **monitor every single lighting point** of your installation at any time. It detects operating issues as they happen (broken lamps, device temperature, surges...). If problems arise, the system switches to a default program ensuring that the lighting installation does not turn off inadvertently.

Full interoperability



Schréder technologies are completely interoperable and can integrate technology from other suppliers to provide maximum benefit for the city. APIs ensure that the Schréder installation can **communicate securely with third party equipment** via the cloud. This enables cities to combine smart lighting with other city management applications e.g. traffic lights, environmental sensors, security devices...

The Schréder `open standards' policy enables planners to easily **expand, connect and upgrade** smart solutions according to the changing needs of the city, without being bound by proprietary technology and restrictive contracts.

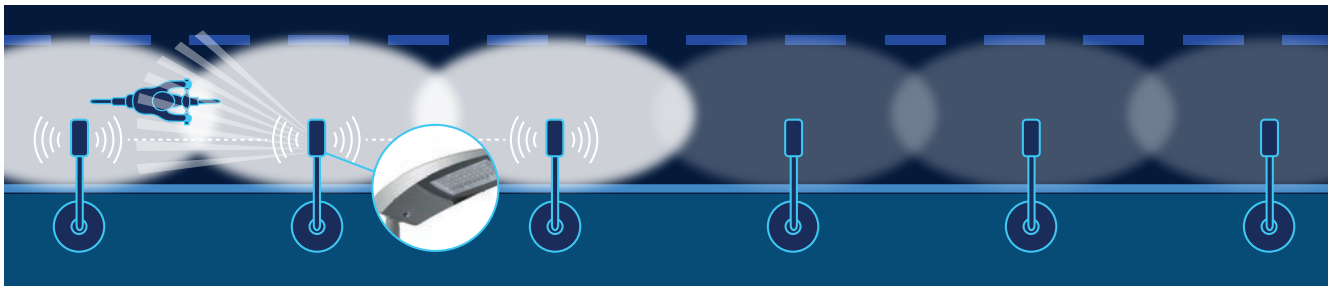
The right light. Anytime. Anywhere.

The conversion of outdoor lighting to LED technology significantly reduces energy consumption. Additional savings can be generated by control systems offering light-on-demand features while ensuring the ultimate user experience.

By combining dimming and motion detection, only the precise amount of energy that is necessary to provide **safety and comfort to people** is used. Thus, drivers, cyclists and pedestrians experience optimised lighting levels all along their route for a pleasant and secure journey. With sensors available for all kinds of applications, Schréder delivers **solutions tailored to the real needs**. They optimise the operational benefits for the city and the user's experience while respecting with lighting standards.

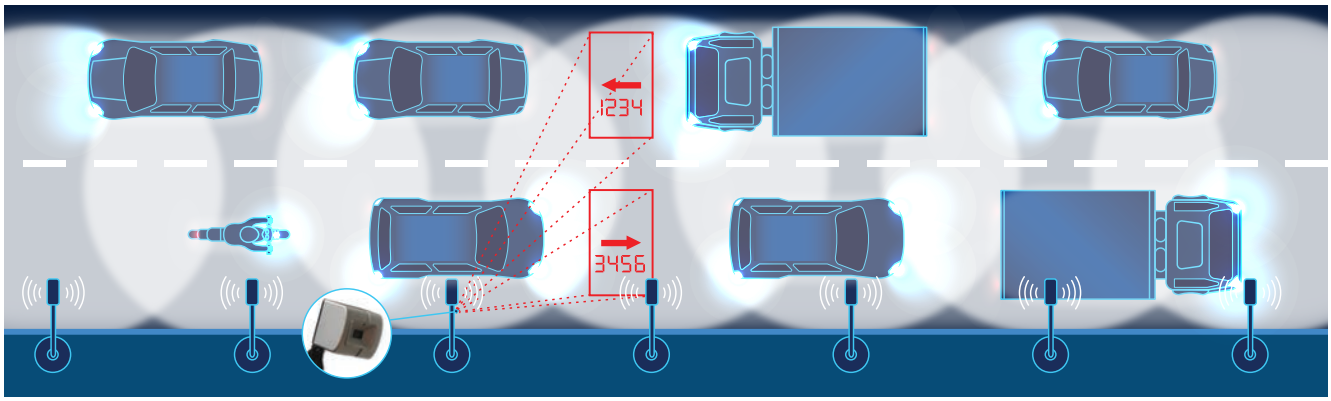
Three types of sensors

From rural bike paths to main roads, from residential streets to parks, from commercial districts to car parks, Schréder offers light-on-demand solutions adapted to the real needs of the place and the people using it.
To choose the best technology for a particular application, we analyse the critical features versus cost. Factors such as the speed range or direction, object sensitivity and environmental factors influence the choice of a sensor.



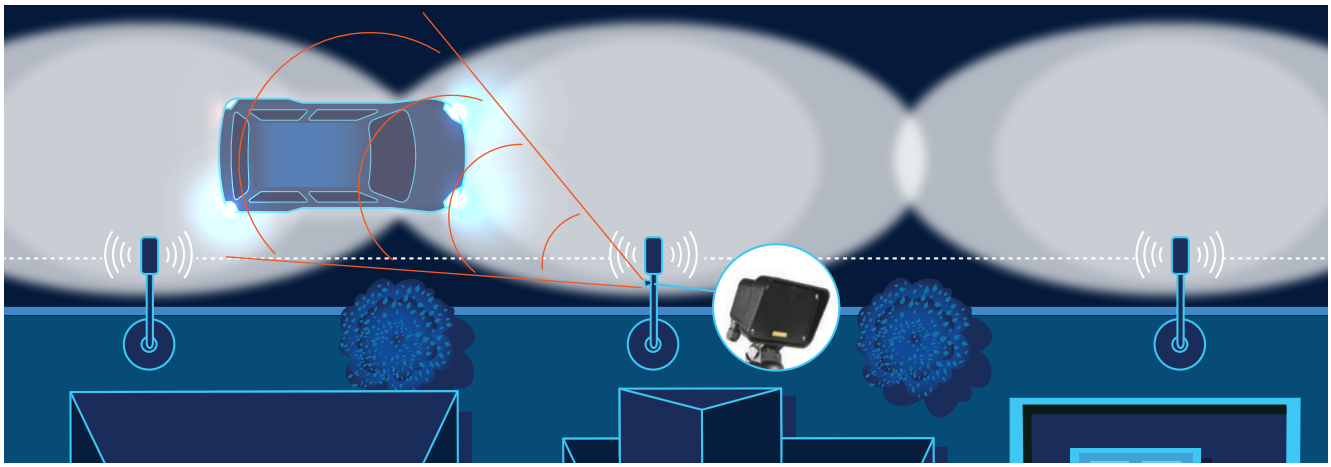
PIR

Traditional motion sensors were designed using passive infrared (PIR) as it is an economical and simple detection device. The PIR sensor detects changes in the amount of infrared radiation it is receiving and converts this adaptation into an electrical charge to trigger a signal that increases or dims the lighting level.



Radar

Radar uses the Doppler principle to determine the object's motion, speed and direction. It transmits a waveform and reflects off an object that is in the sensor's field of view. This reflected waveform is received by the radar transceiver and converted into a command for the light-on-demand scenario.



Optical sensor

Optical presence sensors work with virtual loops that are easy to define according to the type of road. They can cover multiple lanes in both directions and qualify the type of vehicle (motorbike, car and lorry) to enable the right lighting levels.

Local or remote?

Our solutions can work in a local autonomous network with luminaires communicating in a closed loop or in an interoperable network with a connection to a remote platform. In this case, the scenarios can be adapted at any time and the data can be retrieved to feed third party applications.

Smart city:
enhancing the future now!

Every city, big or small, faces a number of similar challenges. Any opinion poll will tell you that citizens are concerned about safety, mobility and connectivity. With innovative technology, city planners can make sure that residents feel more secure, that they can move around more freely and are connected to the bigger world.

Local authorities can improve opportunities for citizens and their well-being by providing them with the state-of-the-art services that they deserve. But what will the future bring? Smart solutions need to be **FutureProof and open** to work with a variety of alternative and future applications.

Open city

There are hundreds of smart solutions. The challenge is to connect them to each other in a coherent way. The future belongs to flexible open platforms that guarantee **interoperability** between the lighting grid and a variety of sensors and applications from different technology partners.. Open partnerships make smart city solutions cheaper and Futureproof.

Fluid city

People are increasingly mobile, but transport systems do not often follow suit. **Dynamic lighting solutions** incorporating sensors form the backbone of real-time traffic information systems. They can **improve urban mobility** and enhance **road safety**, making your city a more attractive place to live and to visit.

Feeling secure is a basic human right. Schréder has delivered a strategic breakthrough to address these challenges through advanced lighting technology that complies with standards of safety for lighting public spaces and **security features**. Smart columns equipped with cameras, light rings and intercoms for instance, can provide additional support for law enforcement in multiple ways: **prevention, identification, analytics...**

Connected city

People gather where they can connect. And where people gather, they interact. In addition to the **social aspect of sharing**, entertaining and connecting, smart columns with 5G or WiFi can also be used to inform citizens and provide digital services. These hotspots are a source of **revenue and digital opportunities** for cities while increasing data coverage on their territory.

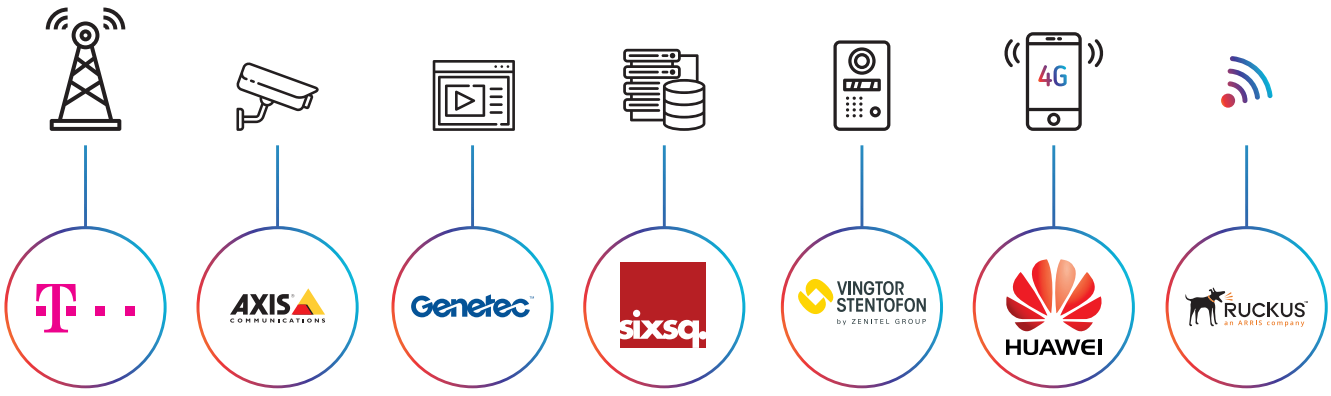
Open city

Enable collective intelligence

The lighting grid enables smart city applications. It is well developed in most urban areas and provides a network of data collection points and potential service points without having to add more infrastructure.

Collaboration only works if smart equipment connects and communicates with each other. Schréder is a member of strategic alliances such as LoRa, uCIFI and Talq that develop **common standards and open platforms** to guarantee the interoperability between different smart solutions. Our Owlet IoT dynamic lighting system for instance, is based on open standards. Therefore, it can interact and exchange data with related systems such as traffic management sensors, environmental monitoring systems and security devices. This interoperability generates a wealth of smart possibilities at reduced development costs compared to proprietary equipment.

Schréder collaborates with **undisputed experts in their field** to deliver its smart solutions: Deutsche Telekom for a Smart City platform, Axis for IP cameras, Genetec for video management software, SixSq for advanced data processing, Zenitel for intercom equipment, Huawei for mobile broadband and Ruckus for Wi-Fi hotspots. Through our partnerships, we combine our individual strengths to deliver **state-of-the-art integrated solutions**.



Fluid city

Drive sustainable mobility

Public spending is increasingly under scrutiny. However, a lot of energy is wasted on lighting roads and parks when nobody is using them. Yet the technology exists to detect the traffic flow and increase or decrease the lighting levels accordingly. Such dynamic lighting not only improves safety and urban mobility, but also reduces energy costs and light pollution.

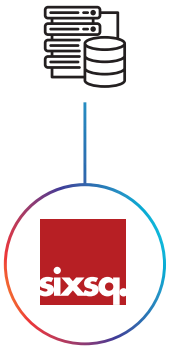
Sensors that detect people or vehicles coming, and interact with the lighting network to increase the lighting level ahead of their arrival, are a good solution for areas with low traffic (e.g. residential streets, bike paths or parks). But on a busy road with many cars, this type of system could create a disco effect or generate no energy savings at all.

Therefore Schréder, together with SixSq, created **VolumLight™** to deliver more refined and efficient scenarios that fully comply with the latest EU lighting standards.

Optical sensors on smart luminaires detect the traffic volume in both directions (up to 4 lanes) and not simply the individual cars. They reduce the lighting levels when traffic is light and move them up again when traffic peaks to generate **substantial energy savings**. VolumLight™ is the perfect solution to **enhance safety and comfort** for motorists while **reducing disruptive light pollution** for the local wildlife and residents.

Collect data and share

Compared to basic dimming solutions, VolumLight™ typically provides additional energy savings of 30%. It also gives city managers valuable data about traffic flows (for each type of vehicle) on the roads. They can be used to feed real-time traffic management systems or Apps.



Winner of the 'Watt d'Or' energy award 2018

Connected city

Stimulate social interactions

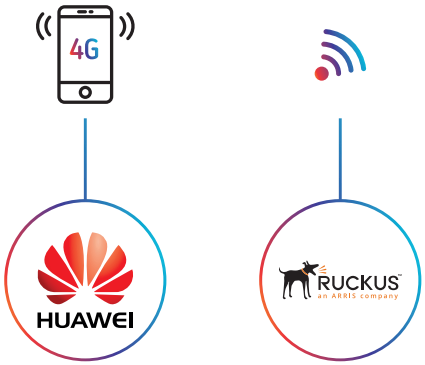
Free Wi-Fi connectivity is now considered a prerequisite for any city looking to drive innovation and make the urban experience more enjoyable for both residents and tourists. As a city, you can make a real difference by providing a high-speed internet connection for both. This not only encourages social interaction but also brings digital services to all.

Our lighting columns are not only ideal for delivering dynamic light solutions, but also for providing a number of other services. They can easily deliver connectivity in a specific area (e.g. through Wi-Fi or 4G). What's more, part of the bandwidth can be allocated to city operators while the rest is reserved for public use.

Adding a new feature to a lighting column is a **clever and cost-efficient solution**. It gives connectivity operators access to pre-approved sites, to the available power supply and to regularly maintained infrastructure. In addition, our modular system is **versatile and Futureproof**. It can be easily adapted to integrate new modules and product evolutions in the future (e.g. 5G or other future standards).
To help cities to deliver **state-of-the-art connectivity** to their inhabitants, Schréder cooperates with technology experts. Huawei provides its outdoor small cell emitter to ensure next-generation connectivity for everyone. Ruckus does not only offer Wi-Fi for all, its hotspots also generate a wealth of anonymous information about visitors, which can be used to plan services more accurately.

A new source of revenue

Using the lighting infrastructure to deploy 4G/5G connectivity across the city can also generate a new source of revenue and/or savings. Telecom operators are keen to find new sites for their cellular infrastructure and will pay for them. Different business models exist; the operators can pay a rental fee to the city or purchase the smart column so that the cities get free lighting.



Safe city

Protect communities

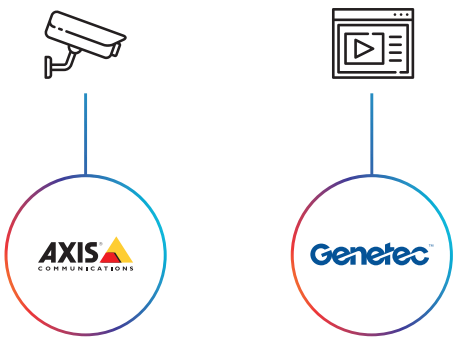
Most cities have poorly lit, neglected areas. Due to their bad reputation, residents tend to avoid these places.
With the Shuffle, a modular lighting system, Schréder provides unique opportunities to improve lighting and safety at the same time, without duplicating costs. Shuffle maximises investment in new technologies to meet multiple challenges at the same time.

Our lighting columns are the ideal smart solution to heighten security in different ways. By installing high-quality **intercoms**, cities can offer support or a direct link to security personnel in case a problem arises. The availability of these SOS buttons effectively improves the **feeling of safety**.

State-of-the-art **CCTV cameras** (Axis) keep an eye on critical areas. Public places usually see a large decline in crime when video surveillance is used. Advanced software from Genetec can **analyse footage** e.g. recognise number plates, count people, detect intruders,... When suspicious behaviour is detected, the law enforcement services are notified and can intervene appropriately. Last but not least, a light ring can **send warning signals or guide emergency services** to the place of intervention. A variety of interconnected solutions can be customised and integrated in one aesthetic column. Pre-cabled modules and quick connectors facilitate installation.

Core mission

The oldest duty of a governing body is to protect its people. With growing populations and constant evolutions, this can be a hard challenge. Technology such as intelligent lighting columns installed throughout the entire city contribute to creating a sense of safety and well-being for citizens and visitors.



Schréder **smart projects** all over the world


Santiago (Chile)


Maasbracht (The Netherlands)


Lima (Peru)


Trier (Germany)


Crans-Montana (Switzerland)

Open city

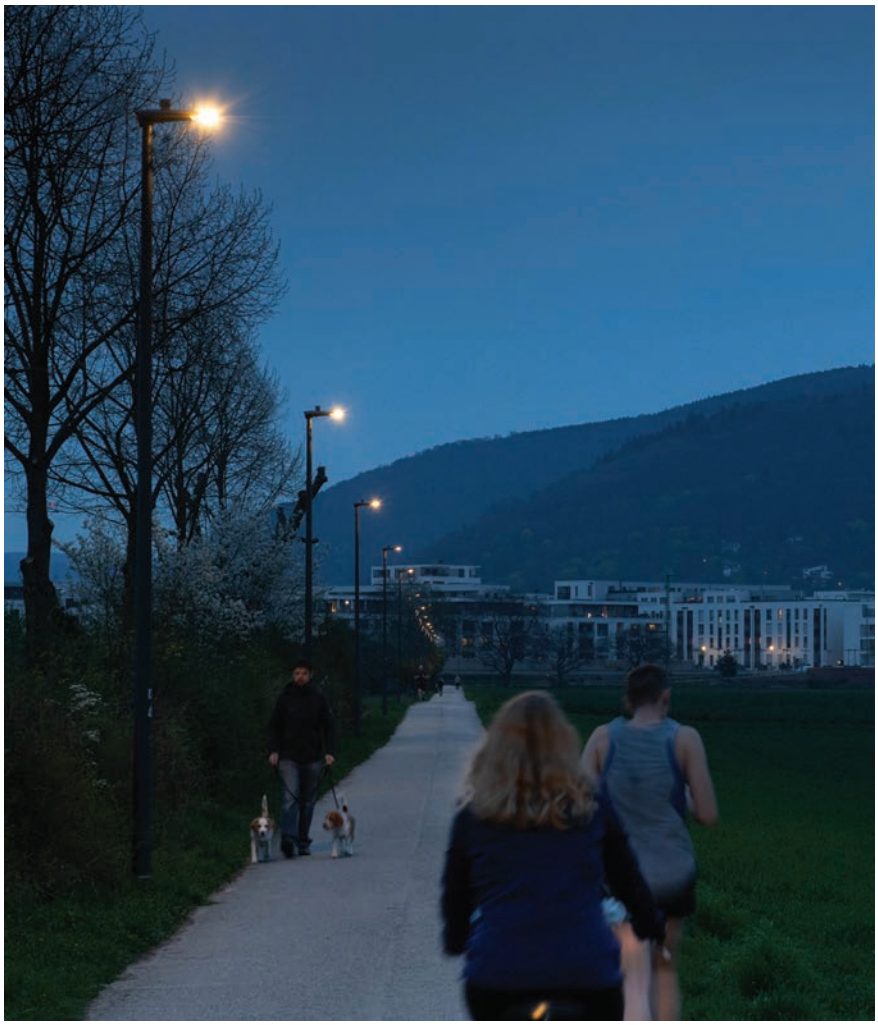
Deutsche Telekom

Deutsche Telekom and Schréder are showing how interoperability works. Thanks to an easy-to-operate IoT platform, they have integrated outdoor lighting in a system that monitors various parameters. With an Owlet IoT API, Deutsche Telekom connects environmental sensors to the lighting infrastructure that becomes the hub to collect and transport data. The lighting levels are adapted according to the weather conditions. The platform also monitors the luminaires. This is only possible thanks to the Owlet architecture which is based on open standards.

Antwerp

As part of its Digipolis program, the city of Antwerp has appointed Imec, a world-leading R&D innovation hub in nanoelectronics and digital technologies, to explore how technology can improve the quality of urban life. This experiment has started using smart lighting solutions.
Imec is combining various sensors with the Owlet IoT platform. These sensors will, for example, pick up on the sound of a bouncing ball on a basketball court and and automatically turn up the light, so that the players have the right light for their game.

Fluid city



Heidelberg

The university city of Heidelberg is part of a global network of leading smart cities. The city recently inaugurated a new bike path to link the Diebsweg neighbourhood to the city's high-tech Bahnstadt district. This bike path is lit by luminaires fitted with motion detection sensors and managed by the Owlet IoT city management system. This means they can remain dimmed when cyclists are not using the path, ensuring a dark environment for wildlife - and energy savings for the council. Then, as a bike approaches, the lighting increases in intensity.

Zurich

On sections of its main roads, the municipality of Zurich wanted to reduce light pollution while optimising safety and comfort for motorists. They chose Schréder and its partner Sixsq to implement an innovative solution called VolumLight™. Motorists are delighted as they always have the right amount of light - during both off-peak and rush-hour periods. The lighting levels are gradually adapted so that motorists and residents barely notice the light changes. By adapting the lighting levels according to real-time traffic data, the city of Zurich has achieved additional energy savings of 30%.

Toulouse

The city of Toulouse launched a regeneration plan in 2015 to regenerate the emblematic areas of its city centre. As part of its plans to create a citizen-centric space where residents and visitors can relax, stroll, meet people or participate in recreational activities, the lighting was replaced on Saint Pierre Square along the banks of the River Garonne. Schréder provided Shuffle lighting columns fitted with WiFi and CCTV cameras to create a safe and connected urban space with a welcoming nocturnal ambiance.

Canada

The Bell Center in Laval is the new hotspot for sport and entertainment in Quebec. To light the outdoor spaces, the city a lighting solution that would harmoniously blend into the contemporary architecture while creating a sense of safety and well-being for visitors.
The Shuffle has perfectly met their expectations by providing a warm white light and CCTV cameras to ensure the security of the premises at all time. Some Shuffle column also include WiFi modules that provide network coverage for the entire square. Both residents and visitors are delighted with this new service.

Andenne (Belgium)

Lucca (Italy)

Connected city

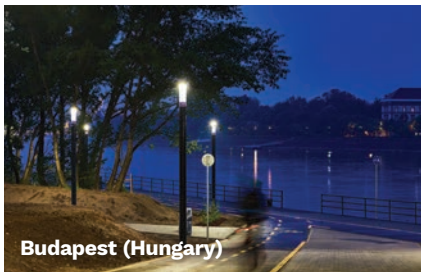
Crawley

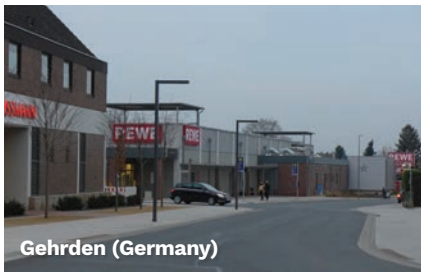
Queens Square, a pedestrianised zone that lies at the heart of Crawley town centre, was renovated to create an inviting, distinctive and enjoyable public space that would encourage more people to visit, stay and make use of the area.
The local council opted for the Shuffle column fitted with WiFi modules to provide a smart interactive platform for the future.

Wavre

For decades, this square has been the second largest in Belgium. Every Wednesday, the city welcomes a market on the square and it regularly hosts local events and festivities. The local authorities were keen to provide better WiFi, with 4G coverage, for both residents and visitors. With Proximus - one of the national telecom operators - and Huawei, Schréder delivered Shuffle Site with a small cell to enhance mobile connectivity.


Brussels (Belgium)


Budapest (Hungary)


Gehrden (Germany)

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