

# Smart Lighting for Safer cities

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## Today, artificial light is everywhere



### Multiples Usages:

- Monument Lighting
- Street Lighting
- Indoor Lighting
- Signage & displays
- Vehicles & transport
- Non-lighting Applications



### Multiples Functions:

- |                 |                    |                   |
|-----------------|--------------------|-------------------|
| ▶ See & be seen | ▶ Make secure      | ▶ Appreciate      |
| ▶ Locate        | ▶ Make feel secure | ▶ Enhance & fancy |
| ▶ Identify      | ▶ Communicate      | ▶ Create ambiance |



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# What is a smart lighting system?

A **smart lighting system** principal function is to **produce, at any moment, the right light**: where it is needed and when it is necessary. It should **adapt the quantity and quality of light to enhance visual performance** in agreement with the type of executed tasks. It must **guarantee well-being, health and safety of the end-users**. It should **not squander passively the resources of our planet and limit actively the effects of light pollution on the biotope**, or, any other impacts on the environment. Ideally, the system could **offer additional services** (geo-localisation, data connectivity...) to the end-users through Visual Light Communication protocols.

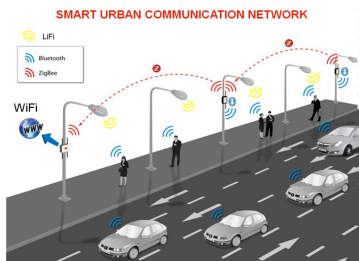
- Smart Lighting Functions
- Adapt dynamically the light quantity, light distribution in space and light quality (CCT, IRC, spectrum...) to optimise visual performance and respect any normative requirements
  - Avoiding any visual disturbance (glare, light flicker, strobe effects, shadows...) that can compromise end-user's security and well-being at any moment.
  - Always reduce energy consumption of the installation without compromising the above conditions
  - Actively limit the effects of light pollution on the eco-system and biotope, respecting that new sky-protection legislations/standards.
  - If necessary, relay information via VLC methods (eg. provide glocalization reference) .



"I installed an awesome smart light. It turns off when my parents enter my room so they can't see the mess."

# Smart Lighting for Safe and Smart Cities

- ▶ In smart cities, so-called **smart urban objects** can be used in public areas to **increase the sense of security of people**. Safety in everyday life is improved by overcoming barriers such as dark areas at night without being in obligation to squander energy for illuminating empty spaces. For instance elder people, which can enhance their participation in public life.

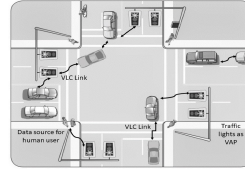
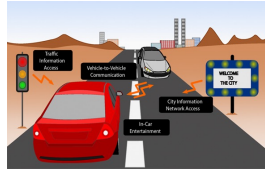


- ▶ **Connected smart lighting can reduce vulnerabilities** as it can recognize social alarms, hazardous citations, accidents and broadcast information to vulnerable public space users (i.e. elder or disable people).

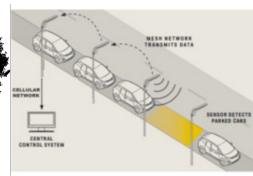
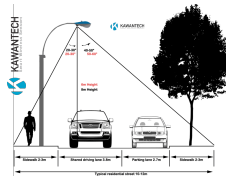


# Additional services

▶ A communicating lighting system can be used to regulate traffic. VLC/LiFi can be used for communicating from car to car or/and from city to car. Information can be used to adjust trajectories, reduce speed, prevent collisions. Transfer signals information to cars (traffic lights, speed limits...).



▶ A communicating lighting system can reduce car roaming for parking. Locate a parking spot in a city is time consuming and polluting action. Smart lighting poles can locate available parking spots and broadcast information to driver's mobile phones or direct to smart cars.



# Thank you!

