Smart city lighting

perspectives and challenges

20 May 2016 – Bassano del Grappa

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Overview

1) **LUCI - a network of cities on urban lighting**

2) **Cities implementing smart lighting initiatives worldwide**

3) **Future challenges and perspectives for smart cities**

LUCI

LUCI ASSOCIATION

The international network of cities on urban lighting

Created in 2002 by the City of Lyon

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Light – a tool for urban development


City of Guangzhou

CITIES CONFRONTED BY NEW DYNAMICS

- An evolution in life styles
- An energy crisis
- A competitive environment

Lighting - an answer to these new challenges

ABOUT LUCI

Three major objectives:

- **Exchange** - Facilitate exchange of information by organizing international conferences, field visits and other events.
- **Promote** - highlight best practices from cities and award prizes for exemplary projects.
- **Progress** - participate in a prospective vision of urban lighting

LUCI in 2016 – 66 member cities

Abomey (Benin)
Albertslund (Denmark)
Alingsas (Sweden)
Amsterdam (Netherlands)
Ans (Belgium)
Batumi (Georgia)
Brussels (Belgium)
Bucharest (Romania)
Budapest (Hungary)
Busan (S. Korea)
Chartres (France)
Copenhagen (Denmark)
Cordoba (Spain)
Derry~Londonderry (UK)
Dubrovnik (Croatia)
Durham (UK)
Eindhoven (Netherlands)
Eskilstuna (Sweden)
Ghent (Belgium)
Geneva (Switzerland)
Glasgow (UK)
Gothenburg (Sweden)
Guangzhou (China)
Gwangju (South Korea)
Hamburg (Germany)
Helsingborg (Sweden)
Helsinki (Finland)
Ho Chi Minh (Vietnam)
Hue (Vietnam)
Jelenia Góra (Poland)
Jericho (Palestinian Territories)
Jerusalem (Israël)
Jyväskylä (Finland)
Leipzig (Germany)
Liege (Belgium)
Lyon (France)
Malaga (Spain)
Marseille (France)
Medellin (Colombia)
Moscow (Russia)
Negombo (Sri Lanka)
Novi Sad (Serbia)
Osaka (Japan)
Ouagadougou (Burkina Faso)
Oulu (Finland)
Owerri (Nigeria)
Paris (France)
Perth (Australia)
Putrajaya (Malaysia)
Puebla (Mexico)
Rabat (Morocco)
Ramallah (Palestinian Territories)
Rotterdam (Netherlands)
Saint Etienne (France)
Saint Paul de Vence (France)
Seoul (South Korea)
Shanghai (China)
Skopje (Republic of Macedonia)
Stavanger (Norway)
Tallinn (Estonia)
Tartu (Estonia)
Toulouse (France)
Turin (Italy)
Ust-Kamenogorsk (Kazakhstan)
Valladolid (Spain)
Varna (Bulgaria)
Wuxi (China)
Yerevan (Armenia)

LUCI in 2016 - 48 associated members

AFE
Agence On
Alain Guilhot
Amsterdam Light Festival
Artichoke
Atlaj Rigu
Blachère Illumination
Budotechnika
C2 Smartlight
CDO LumiVille
Citelum
Citéos
Cluster Lumière
Cocoliche Lab
Commission of the National Capital of Quebec
Craig Morrisson
Dansk Lys
Eandis
EVESA
Forum Interart
GE Lighting
Gloabal 2000
Gridens Technologies
Guangzhou Guangya MF
Inéo
INSA Lyon
L'Acte Lumière
Leipziger Leuchten
Les Eclaireurs
Lumipraxis
Montréal en Histoires
Ocubo
Orpin de Lune
Osram
Partnership of the Quartier des spectacles - Montreal
Phanta Vision
Philips Lighting
Radiance 35
Sacred Places
Schréder
Spectaculaires
Strategies Unlimited
Sundrax
Telensa
Thorn Lighting
TU/e Intelligent Lighting Institute
Valopaa
VNISI
Werk
Xavier de Richemont
Yang Guang Lighting Service
ZHONGTAI Lighting

LUCI – 4 main annual events

- **LUCI Annual General Meeting**
  the international forum for cities on urban lighting

  2015 - Helsinki (Finland)

  2016 – Seoul (South Korea)

- **2 "City under Microscope" events**
  A LUCI city unveils its lighting strategy through technical conferences and site visits

  Nov. 2015 - Glasgow (UK

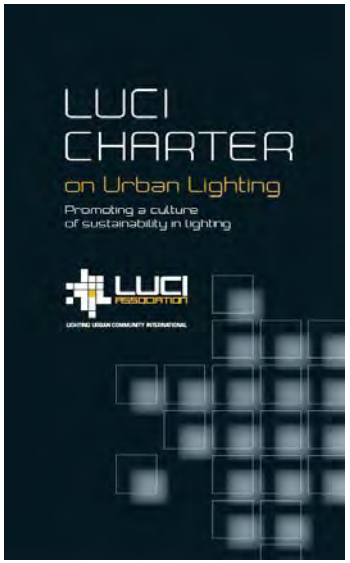
  April 2016 – Gothenburg (Sweden)

- **Lyon Light Festival Forum**
  conferences and networking events on light festivals and temporary urban lighting

© City of Gothenburg

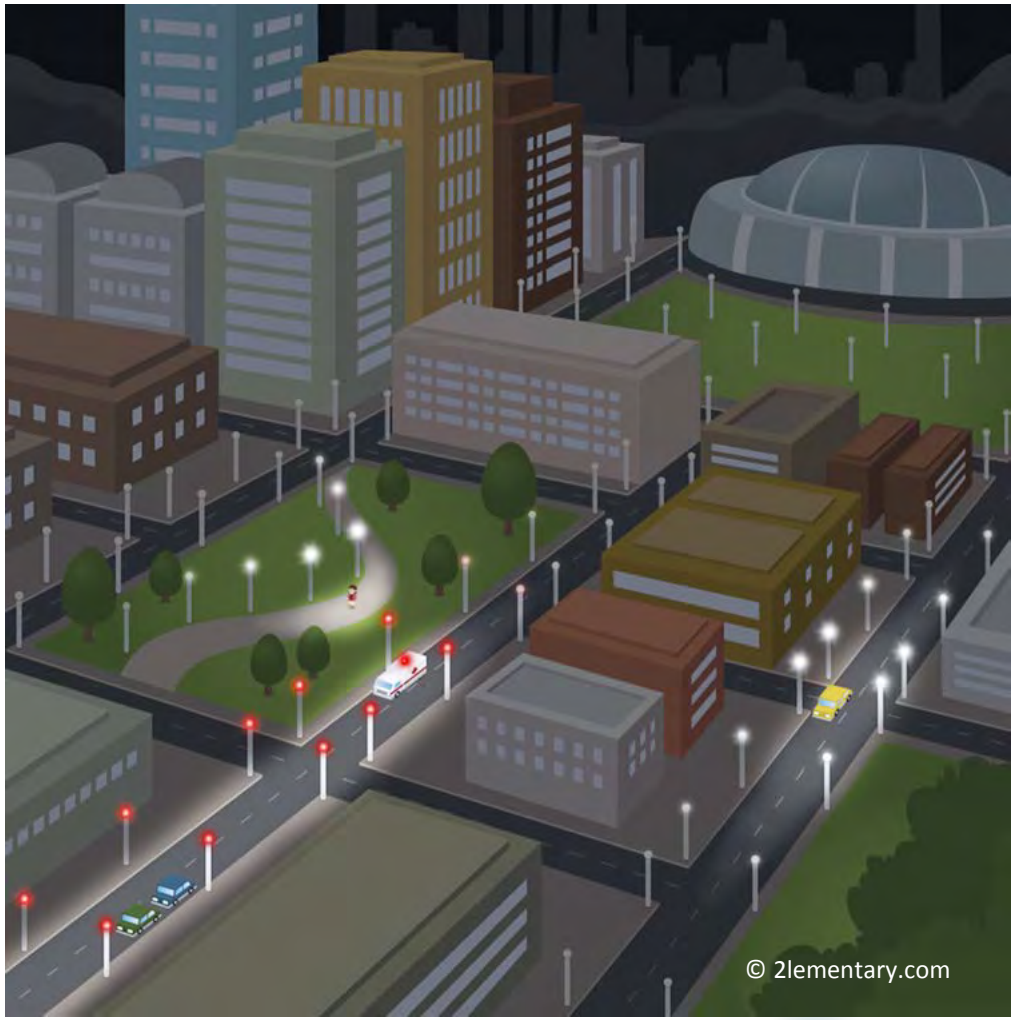
LUCI Charter on Urban Lighting

- Gives a clear vision of the issues to be taken into account in sustainable public lighting strategies
- Brings LUCI cities together on a common vision of lighting
- Marks the engagement of the LUCI network on sustainability



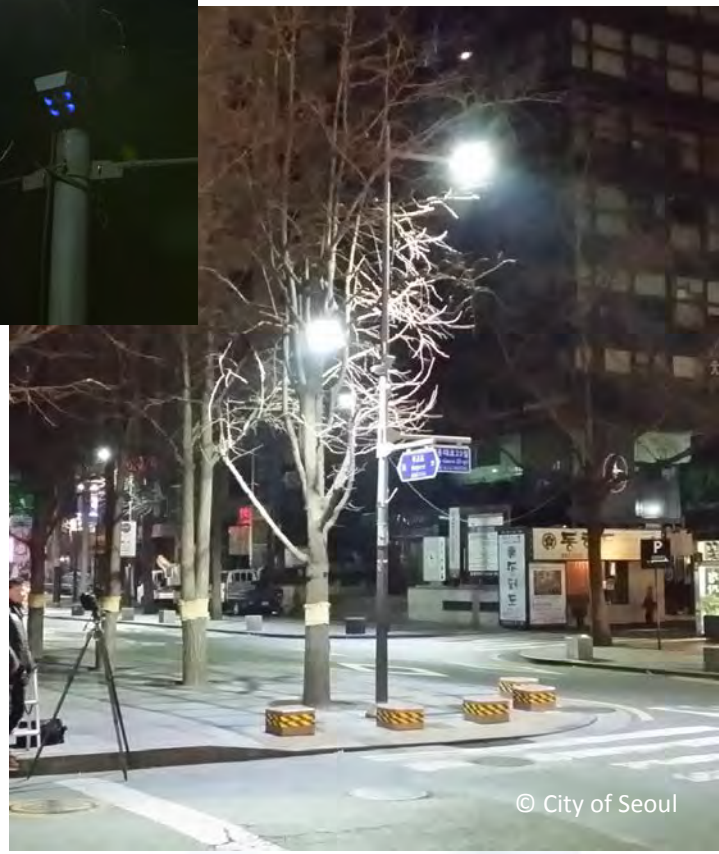
Urban lighting gets smart

- **Better control**
  - Reduced energy consumption
  - Reduced maintenance costs
- **New possibilities**
  - Lighting on demand
  - More citizen interaction
  - More reactive public services



Seoul (S. Korea)

- 2 pilot projects for on-demand lighting
- Lighting levels that vary based on local traffic conditions
- Light level set at 20 %, goes up to 60 ~100 % when a presence is detected
- Streetlight sensors also monitor and measure local environmental conditions such as weather
- Energy savings of 90 %.



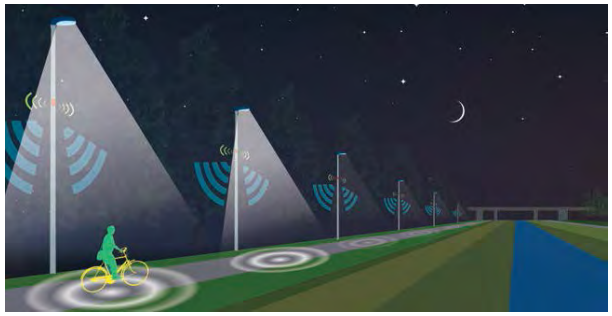
Glasgow (UK)

- Pilot project with 160 controllable LED lights
- Fitted with sensors that monitor air pollution, noise and footfall
- Lights increase in brightness as a cyclist or pedestrian approaches
- Lights increase in brightness if the noise levels rise and alert security services

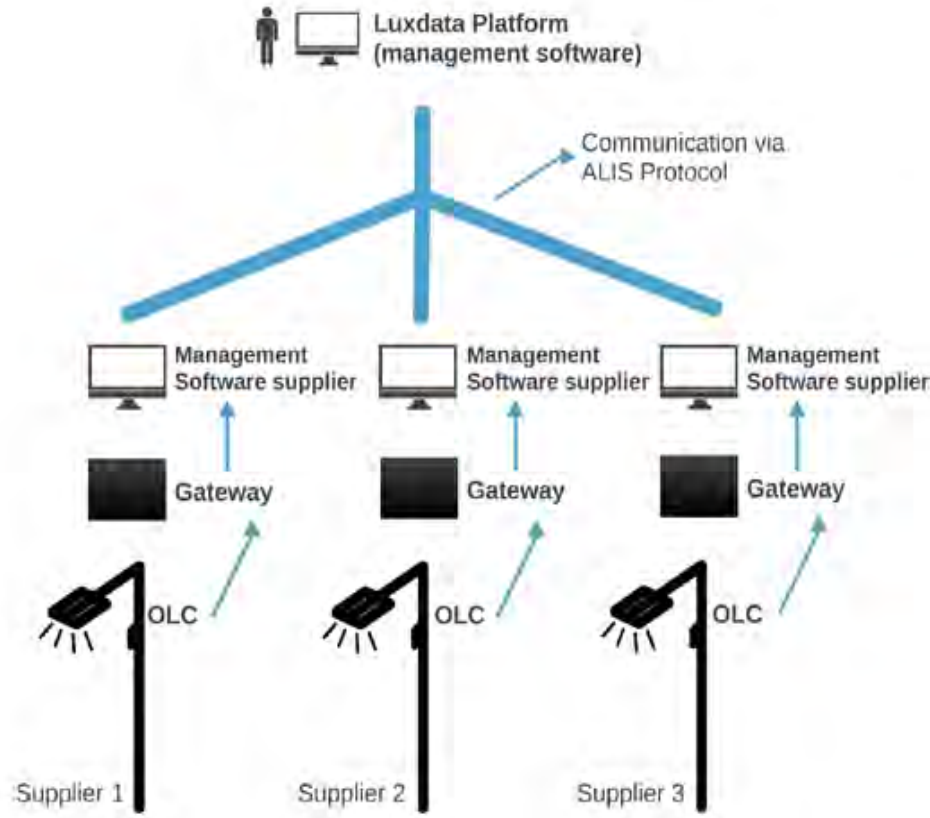
Eindhoven (Netherlands)

- Stratumseind Living Lab – lighting for crowd control
- Lighting poles as collection points to gather data
- Predict when the street is likely to become over-crowded and immediately adjust lighting to prevent incidents
- Elaborating a data-use policy to protect privacy of individuals

Rotterdam (Netherlands)



- First pilot project with dynamic tele-management and ALiS protocol
- ALiS protocol - a central platform where all systems can communicate with each other.
- Dynamic lighting from 7 different suppliers using ALiS
- Objective - ALiS protocol used as standard for dynamic public lighting



Lyon (France)

- Temporality - lighting that adapts to various requirements and uses of public areas and the people in them

- Certain sites and monuments in the city highlighted according to the time of night - inhabitants of Lyon experience the city differently

- Urban lighting more user-friendly and adapted to citizens' needs - people switch on and off the lamps in a public park

Smart lighting challenges for cities

- **What about data?**

  - privacy issues

  - ownership questions

  - need to establish rules

Smart lighting challenges for cities

- **Interoperability**

  - cities need to maintain their independence

  - work together on developing common protocols to be established

Smart lighting challenges for cities

- **New municipal competencies are necessary**

  - move beyond traditional lighting

  - integrate lighting in urban planning

  - move out of silo functioning, increase transversal cooperation between departments

Thank you

www.luciassociation.org