

Next generation intelligent lighting systems beyond retrofit

Introduction

- **Paradigm shift** in illumination driven by disruptive technology developments in **solid-state lighting (SSL)**.



- First stage (today) is about cost effective **retrofit LED lamps**.
- Enlight focuses on the **next generation intelligent LED systems** leveraging the intrinsic qualities of solid-state lighting technology.

Objectives:

To exploit the full potential of solid-state lighting through breakthrough innovations on:

- **non-conventional**,
- **energy efficient**,
- **intelligent lighting systems**,
- **beyond LED retrofit applications**.



with the aim of 40% energy reduction compared to LED retrofit systems.



Approach:

Technology objectives:

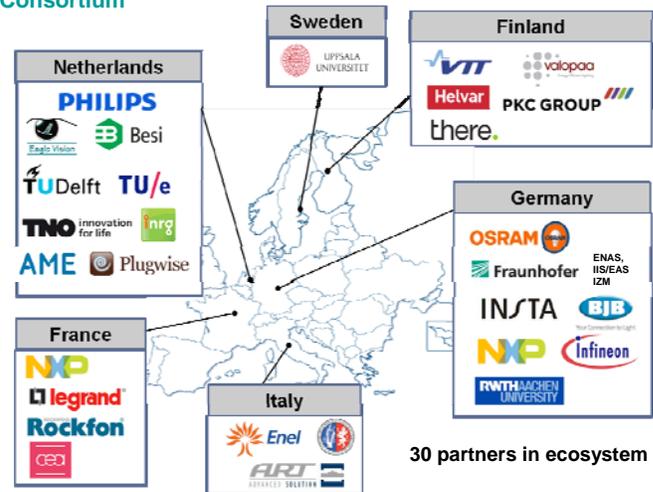
- **Optimal LED lighting modules**
The optimal use and integration of LEDs, optical design, and heat management systems, the integration of electronics and controls in modules.
- **Future non-conventional luminaires**
Exploring cost-effective solutions that support freedom of design, integration of novel features such as sensors and sound, and architectural flexibility and serviceability.
- **Adding intelligence to lighting systems**
Developing reliable activity sensors, smart algorithms, architecture and interfaces. Key themes : data mining to detect usage patterns, interface to building-automation and power grid, interoperability between devices.

Application areas:



- **Hospitality**
Developing intelligent energy-saving functionalities to enhance comfort
- **Office**
Seamlessly integrating lighting to facilitate the offices of the future, using data on perception, psychology, design, and human factors.
- **Power Grid**
Impact of new devices and lighting systems on the distribution grid.

Consortium



Consortium is built on two of the largest **global lighting players** and leading **semiconductor industry** players, prominent **knowledge institutions**, a **utility company** and innovative medium-sized and small enterprises.

Partners represent the entire lighting value chain

Impact:

- **Saving up to 40% energy consumption for lighting.**
Substantial **reduction of global CO₂ emission**.
- **Accelerating market uptake and cost effective mass market lighting solutions** that combine:
 - **'More illumination'**: focusing on efficiency, cost, miniaturization and revolution in form and fixture;
 - **'More than illumination'**: added intelligence, interaction management fueling novel applications and solutions.
- **Strengthening European technological leadership** in next generation intelligent SSL solutions.



Expected results:

- Validated **application and demonstration scenarios** for hospitality, office and power grid.
- **Specification of module and system interfaces** for next generation intelligent lighting systems;
- Prototypes of **optimal LED lighting modules**, accurate and cost effective **sensors and controls**;
- Contributions to **standards and standardisation initiatives** such as Zhaga, NEMA, IEC CISPR, Zigbee, IETF.

Project info:

- June 2011 – June 2014
- Coordinator: Philips Lighting