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Accelerate SSL Innovation for Europe

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D4.4 List of Local Actors and Stakeholders

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Summary

This report constitutes deliverable D4.4: List of local actors and stakeholders.

The five local lighting cluster partners in the SSL-erate consortium organise Business Development Experiments, which are a central part of the project. The aim is to accelerate the development of innovative, intelligent SSL-based solutions and services, especially with regard to the use of green business and/or in human centric (health and wellbeing) concepts. Open innovation principles will be used to organise and execute the experiments.

In April and May 2014 each of the clusters partners organised local workshops to introduce the SSL-erate project, and explain the approach of Business Development Experiments and find potential participants and topics. The Clusters are currently consolidating consortia and projects for 16 Business Development Experiments, involving over 40 organizations.

This report provides an overview of the organizations that are willing to participate in the Business Development Experiments as well as of the currently planned experiments.

1 Introduction

This report provides an overview for each of the SSL-erate local lighting clusters, the organisations which are willing to participate in Business Development Experiments.

The Business Development Experiments in SSL-erate concern collaborations between actors and stakeholders (product developers and vendors, knowledge institutes, end users – presenting the demand side - such as cities, hospitals and schools) along a value chain in order to create substantial innovations, e.g. in generating green business growth or in promoting use of lighting for improving health and wellbeing.

The ambition is to move beyond current business and experiences. An important element is the use of open innovation tools to facilitate and accelerate collaborative innovation: jointly creating value, and realizing innovations, e.g. a new product, service, process, policy, business model, etc.

The Business Development Experiments are envisaged, practically, as follows:

- They concern realizing a substantial innovation, related to developing 'green business' and/or to improving 'health and wellbeing' (moving beyond 'current business').
- They involve some practical change or achievement 'in the real world', e.g., a SSL set-up in several homes of older people (more than a lab experiment or showcase).
- The innovation can be in technology, but also in service provisioning, collaboration, business model or funding scheme—whatever is needed to make the transition to SSL.
- They may be based on current initiatives as well as new to be defined projects within the local lighting clusters.

A first step in organizing these Business Development Experiments was a series of kick-off workshops which were organized by the five local lighting clusters in April and May 2014.

- Cluster Lumière, Lyon, 16 April
- Danish Lighting Innovation Network, Horsholm, 23 April
- Groen Licht Vlaanderen, Gent, 23 April
- Luce in Veneto, Bassano del Grappa, 30 April
- CICAT, Barcelona, 20 May

The goals of these Kick-off workshops were: to inform people about the SSL-erate project and its goal and scope; to identify business opportunities; and to invite organizations to participate actively in the Business Development Experiments. A total of 170 persons (from outside the SSL-erate project) were involved in these kick-off workshops (25 in CL, 8 in DTU, 7 in KUL, 35 in LiV and 24 in CICAT workshops).

The five local lighting clusters are currently working on the consolidation of 16 Business Development Experiments, involving over 40 organizations. The following Section gives an overview of the experiments and the participating organisations.

2 Business Development Experiments

Business Development Experiments are organized by the five local lighting clusters in SSL-erate; each has a different way of organizing these, dependent upon their local context and partners.

2.1 Cluster Lumière

Cluster Lumière is currently organizing five Business Development Experiments. They have chosen not to communicate details in this stage, in order to provide a safe environment for the participating companies. Meetings will be held in November 2014 to consolidate these experiments.

2.1.1 Dimmer of street lighting

Topic: simple and efficient dimmer of street lighting, with specific sensor (energy and cost saving).

Demand side partner: manager of network of 90,000 to 400,000 light sources.

2.1.2 Interaction of lighting with variable requirements

Topic: interaction of lighting with variable requirements in cities, and link with telecom infrastructure (citizen, use).

Demand side partner: one - three cities, 130,000 light sources.

2.1.3 Airport well-being through lighting

Topic: well-being on an airport through lighting (wellbeing).

Demand side partner: major French airport authority, involving five airports.

2.1.4 Lighting for underground spaces

Topic: lighting for underground spaces (wellbeing).

Demand side partner: major civil engineering partner in area of metropolitan train / underground stations (well-being).

2.1.5 Lighting for emotion

Topic: lighting for emotion in hotels, or other leisure places (well-being).

Demand side partner: Major international hotel/restaurant group (> 100,000 beds).

2.2 Danish Lighting Innovation Network

The Danish Lighting Innovation Network is working on two projects. These are part of the 'Innovation Networks' initiative of the Danish Ministry of Higher Education and Science and fit in the scope of the SSL-erate Business Development Experiment.

2.2.1 The window: daylight as well as artificial light

Due to energy restrictions and to the new architecture tendencies with large windows, a new way of thinking opened up to incorporate daylight and artificial light in one new type of window. Together with incorporating the daylight and artificial light function in one product, the project will also concentrate on day-rhythm lighting and how to use this more intelligently when combining the two in one product. The challenges in this are among others to ensure, that the product will have relevance for client-side and to ensure sufficient lighting from the artificial lighting in order to be a real substitution for ordinary lighting fixtures.

Companies/organizations involved:

- Universities:
 - **Aalborg University**, associate professor Ellen Kathrine Hansen
 - **DTU Electro**, associate professor Arnold KnottThe universities will provide knowledge about the different technologies and will function as project leaders.
- Window manufacture: **DOVISTA A/S**, R&D Concept Manager Eirik Bjørn
They will contribute with the design of the window.
- Power converters: **Nordic Power Converters** (SME), Mickey P. Madsen, CEO
This company will contribute with their knowledge within power converters. Daylight rhythm: **Simplight** (SME), Jonatan Kutchinsky, Founder, Senior R&D Consultant, Ph.D.
This company will contribute with their knowledge about artificial light in the product.
- Design & Architecture: **GXN (SME)**, Director GXN, Architect MAA, Partner 3XN, Kasper Guldager Jørgensen
This company will be included to ensure relevance for the architects afterwards (launching customer) but will also contribute to the overall design.

2.2.2 Better light, better usage

When people get older, they do not have the same ability to move and they need more light. Many companies offer solutions that can help day rhythm but the problem with these solutions is that they are too technical for elderly people. This project will test how elderly people use light and what they expect and want in terms of control of these products. The project aims to find a solution that is dynamic, easy to implement in private housing and finally is easy to control for people +65.

Companies/organizations involved:

- Universities:
 - **Aalborg University**, associate professor Michael Mullins
 - **DTU Photonics**, professor Paul Michael PetersenThe universities will provide knowledge about the different technologies and will function as project leaders.
- Daylight rhythm:
 - **Simplight** (SME), Jonatan Kutchinsky, Founder, Senior R&D Consultant, Ph.D.
 - This company will contribute with their knowledge about artificial light in the product.
 - **Dansk farveinstitut** (SME), Mette Terkildsen, CEOThese companies will be part of the project as product partners and through their knowledge about the elderly segment.
- Public partners:
 - **Danish Outdoor Lighting Lab**, consultant Ida Maj Emborg
 - **Gladsaxe municipality**, consultant Morten Holm ChristensenThe public partners will be part of the project in order to make the project results relevant and to ensure that the results will be used afterwards.
- Sensors
 - The project seeks to include a **company** with knowledge within sensors.

2.3 Groen Licht Vlaanderen

Groen Licht Vlaanderen (KUL) is currently organizing one (larger) Business Development Experiment. It could be counted as three experiments, since it will involve three customer segments and organize different experiments for each.

The project will be innovative ('high risk, high gain') and will combine several topics: integrating artificial and day-light, increased alertness with blue light, dynamic lighting, upgradability with new LED generations, pay-back via reduced electricity bill.

Some of the topics were already ongoing within Groen Licht Vlaanderen:

- Adapting & controlling artificial light to the daylight conditions (e.g. classroom project monitored by KU Leuven)
- Combining daylight and artificial light in one skylight (e.g. [EcoNation](#), [Solatube Smartled](#))
- Dynamic and improved lighting with control of alertness rhythm (melatonin suppression by amount of blue light) (e.g. [Tronixx Cura-B project](#), [Trilux Active luminaires](#))
- New business models (e.g. [Zumtobel Now!](#))
- Green strategies (e.g. [cycLED](#), [ETAP sustainability report](#))
- Maintaining a large part of the hardware by upgrading the LEDs when improved efficiency becomes available (e.g. [Schröder FutureProof](#))
- Intelligent control and communication between luminaires (e.g. [Schröder ' Smart Street Of Tomorrow'](#))
- Reduction of light damage to museum paintings (University of Antwerp and KU Leuven Lighting Lab)

The idea is that one (larger) experiment will enable more innovation than separate (smaller) experiments. The potential gain, in terms of market feedback, deployment acceleration, added value, is also much larger. The experiment involve different markets , e.g., elderly, schools, industry, offices, with differences in emphasis and stakeholders. The preparation of this experiment is relatively time consuming, so this Business Development Experiment may start later than other experiments.

Names of companies/organizations that are currently involved and participating in negotiation process:

- Luminaire manufacturers:
 - **ETAP**
 - **Trilux**
 - **Tridonic**
- Independent lighting research & knowledge center:
 - **KU Leuven Lighting Laboratory**
- Lighting consulting engineering firm:
 - **WeThink** (SME)
 - **REL-scan**
- Customer segments:
 - **Industry: Lotus Bakeries**
 - Offices, Schools: to be agreed
 - Elderly care: to be agreed

2.4 Luce in Veneto

Luce in Veneto is currently working on three projects. Interestingly, intellectual property plays a key role in all three projects: in two projects there is already a patent granted, owned by one of the project partners; and in the other project there is the ambition to obtain a patent.

2.4.1 Lighting Surface

New technology concerning a transparent varnish based on nanotechnologies particles for lighting / signalling on transparent surfaces (glass and or plastic) under LED illumination.

Value propositions ('gains and delights')

- Patented technologies
- Simple technologies to add light or signalling to transparent surfaces
- Low cost technologies (the varnish can be printed using normal ink-jet printers)
- Simply integration with urban furniture

Target markets and customer segments

- Cities
- Private entities (airports, shopping centers..)
- Public service companies (bus stops, street signals, crosswalks..)
- Museums
- Banks
- Hotels

Key partners

- **HELIV** (<http://www.helivgroup.com/>) (SME)
Heliv LIT was founded by a team of researchers working in the nanotechnology field, with a particular focus on the synthesis and application of optical materials. The founders envisioned the unique, yet wide application and commercial potential for such optical materials; in particular, their innovative use as light emitting coatings which can emerge from clear glass and plastics. Heliv group S.R.L was established in 2012 to bring this innovative and unique technology to the market.
Role in the project: Leader company, patent owner
- **HIKARI** (<http://www.hikari.eu/>) (SME)
Hikari was created to offer solutions for lighting, either standard or custom, mainly using the LEDs. Their fields of application are diverse: the illumination of architectural interiors and exterior, additional furniture, public lighting, private exhibition (letter boxes, banners, backlit panels ...), colour and light therapy.
Role in the project: Supplier of electronic and LEDs modules
- **METALCO** (<http://metalco.it/>) (SME)
Metalco is a SME company internationally known for its production of street furniture and pods. Founded in 1984 from the encounter of two young entrepreneurs, the partnership started its activity with a small production of modular fences, seating, benches, litter bins and cycle racks, characterised by innovative design and audacious colours. Metalco today boasts the broadest existing range of street and outdoor furniture and metallic modular fences, known in over 4.000 cities across 32 Countries.
Role in the project: Urban furniture company; they will develop some test products using this technology
- **MUNICIPALITIES**
Not identified yet.

Role: Tester (customer-side)

2.4.2 Hygienic Lamp

Coupling of UV-LEDs or UV-fluo with LEDs emitting in the visible spectrum with the function of local sanitising and lighting

Value propositions ('gains and delights'):

- Innovative way to deeply clean the medical spaces
- To obtain thin lighting fixtures (UV-LEDs or UV-fluo + LEDs emitting visible light)
- To control bacterial air concentration by modulating UV emission

Target market and customer segments:

- Hospital waiting rooms, dental clinics, gymnasium etc.

Key partners:

- **ARTE LIGHT** (<http://www.artelight.com>) (SME)
Company specialized in lamps assembling prototype realization and production. They have a dispositive for lamp inner assembly and test lamps through the monitoring station "martorana" to get the finished product and put in on the marketplace.
Role in the project: Mechanical part of the lamp
- **FAIRWIND** (<http://www.goodlight.it>) (SME)
The company offers solutions for lighting systems, either standard or custom, mainly using the LEDs technologies.
Role in the project: Development of the technology for the sanitising of the air through the new lamp; Electronic control
- **UNIVERSITA' BIOLOGIA** (<http://www.biologia.unipd.it/>)
Analysis of the bacteria in the air
- MANUFACTURER OF BIOMEDICAL EQUIPMENT (to be found)

2.4.3 QR-Code for Lighting Points

Patented system that enables data collection on installed LED products using the QR-Code technology.

Value propositions ('gains and delights')

This application of the QR-Code technology is useful:

- a) to facilitate the inventory of public lighting points installed or of future installation;
- b) for up-to-date monitoring of the installed lighting sources;
- d) for geolocalization of events and places of public interest;
- e) to create a data base that can be shared by the different offices of the Municipality
- e) for new uses of the patented QR Code

Risks ('pains and worries')

New technology that requires training and time to create the data base

- to clarify the value chain for the Municipality using this technology
- to define the ROI obtained by using this technology (investment plan)

Target markets and customer segments

Local Entities that need: a) to inventory and geo-localize the lighting points; b) to collect other information from each lighting point: installation date, kind of light sources, maintenance.

Key partners:

- **TULAIN** (<http://www.tulain.com/>) (SME)
Company owner of a patented system that allows traceability of products and documents
Role in the project: Leader company (patent owner)
- **IPA CAMPOSAMPIERESE** (<http://www.fcc.veneto.it>)
Federation of 11 Municipalities Tester
Role in the project: tester
- **COMUNE DI BASSANO** Municipality
Role in the project: tester
- **COMUNE DI VICENZA** Municipality
Role in the project: tester
- **LIGHTING COMPANIES** to be identified
Role in the project: tester

2.5 CICAT

CICAT is currently working on three projects.

2.5.1 Lighting in jewellery shops

Problem: How to illuminate diamonds and precious pieces properly with LEDs. The owner of the shop is hard to convince and not aware about LED technologies, which he associates with bad light quality.

Opportunity: One test will be done in a shop. If we succeed, the lighting system will be applied in other shops in Barcelona. It is a famous and representative jewellery in Barcelona so it can be a good example for other retailers.

Barriers: The owner is used to work with traditional light, it is difficult to illuminate all precious pieces as the owner wants. Cost of the luminaires is another barrier.

Companies involved in the project:

- **Grinium** (SME): Alfredo Arias, founder, and Marta Bellobi, co-founder. They are project developers, and have a direct contact with the interior designer of the jewellery. Grinium is a SME company founded in 2013 and composed of two engineers specialized in lighting and energy efficiency.
- **Bagués** jewellery shop: its owner and interior designer. Bagués is the only art jewellery and silversmith firm in Spain, and one of the few in Europe that can boast of having been in the business for almost two and a half centuries. The shops are located in the city centre of Barcelona in representative Catalan architecture buildings.
- **IED:** designer university. Italian Design School based in Barcelona, operating in the fields of training and research, in the disciplines of Design, Fashion, Visual Communication and Management.

2.5.2 Lighting in shoe shops

Problem: How can LEDs create a special ambiance and experience? The idea is to focus the light on the shoes exposed but also on the persons who enter the shop.

Opportunity: The opening of a new shop in Barcelona.

Barriers: (Convinced that led lighting is the most appropriate to create the effect.) Cost and maintenance, installation in the shop according to the architect's plans.

Companies involved in the project:

- **Lamp Lighting:** Ignasi Cusidó. Spanish lighting manufacturer who has a direct contact with the owner of CASAS shops.
- **Grup IDEA:** Miquel Àngel Juliá, international professional services company specialized in corporate architecture.
- **CASAS:** Shoes shop chain well known in Spain.

2.5.3 Lighting in hospitals' staff area

Problem: How to create light that reduces the stress of hospital staff?

Opportunity: the hospital want to change to efficient luminaires.

Barriers: Cost and maintenance. (Achieved that the hospital let us work and experiment with the staff.)

Companies involved in the project:

- **Fluvia:** Gonzalo Batista, Spanish lighting manufacturer, specialized in healthcare. They have a direct contact with the Hospital San Pau.
- **Simon Lighting:** Pablo Garzón, Spanish Lighting manufacturer, they are part of the Grup SIMON with Fluvia
- **Grupo Sering:** Jorge Gonzalez, Spanish laboratory. They have realized experiments with lights in hospital and the effect of light on patients.
- **Hospital San Pau:** Representative hospital in Barcelona (well known for its architecture).

3 Conclusions

A key objective of SSL-erate is to organize Business Development Experiments, which will aim to realize substantial innovations, in ‘green business’ and/or in ‘health and wellbeing’ (beyond ‘current business’) and to organize practical experiments (‘in the real world’). At present there are 16 projects being developed, involving more than 40 organizations, of which an overview has been given in this report.

There are several additional objectives in SSL-erate with regard to the nature of the experiments and hence participating organisations. In particular this concerns experiments and participants that involves (i) manufacturers of SSL (at least four projects), (ii) SMEs (four) and (iii) cities and actors from the building industry (five). The table below shows that these conditions are met in the projects that are currently elaborated.

	Development and manufacturing of SSL	SMEs	Cities and building industry
Cluster Lumière			
1. Dimmer of street lighting	X		X
2. Interaction of lighting with variable requirements	X		X
3. Airport well-being through lighting	X		
4. Lighting for underground spaces	X		
5. Lighting for emotion	X		
Danish Lighting Innovation Network			
6. The window: daylight as well as artificial light		X	
7. Better light, better usage		X	X
Groen Licht Vlaanderen			
8. One experiment in industry	X	X	
9. One experiment in offices or schools	X	X	
10. One experiment in elderly care	X	X	
Luce in Veneto			
11. Lighting Surface	X	X	X
12. Hygienizing Lamp	X	X	
13. QR-Code for Lighting Points	X	X	X
CICAT			
14. Lighting in jewellery shops	X	X	
15. Lighting in shoe shops	X		
16. Lighting in hospitals’ staff area	X		
Total	14	9	5