

**REPRO-LIGHT PROJECT DELIVERS PROGRESS AT LPS 2019**

The Repro-light project consortium convened at the LpS in September and delivered a series of lectures to the international audience. In 2017 Repro-light launched as a European research project aiming to support the European lighting industry in moving towards a more sustainable and competitive future. “The Repro-light project will harness innovative technologies and materials to design a **modular luminaire architecture** with a **smart production** scheme as part of the **circular economy**, a **reconfigurable customised** LED luminaire, the ‘Luminaire of the Future’.

Deidre Wolff, PhD candidate from **IREC** presented the findings of a comparative (to conventional LED luminaires) environmental life-cycle assessment. Wolff said, “The objectives were to assess the environmental impact of LED luminaires from raw material extraction, manufacture, use and finally, disposal. The outcome will inform policy development and reduce the impact of products throughout their lifecycle, while considering the principles of a **circular economy**. The circular economy looks at increasing maintenance, re-use, recycling and reducing the impact of disposal. We are aiming to design-out waste and pollution and keep materials in use in order to minimise environmental impacts of climate change and resource depletion.” Abiotic resource depletion is defined as: unsustainable extraction of non-renewable inorganic non-living resources. The European Commission has raised concerns around the depletion of reserves for future generations and produced a critical raw material list that identifies the elements that are both important for the EU’s economy and have a supply risk. As some of Europe’s LED elements come from China, reducing the quantities and transportation impact of the elements used in the production stage while maintaining the quality of lighting is a vital part of the Repro-light project. Hotspots to produce luminaires come largely from electronic components and thus consideration to optimise the size of these components and design for modularity and **exchangeability** must be given.

Wolff also reveals that 98% of luminaire environmental impact for some impact categories, including climate change, comes from electricity consumption in the use phase, not from the disposal or production phases. The project therefore considers reducing electricity consumption through use of higher efficacy LEDs and dimmable systems during daylight hours. Wolff says, “we will design a modular, exchangeable, serviceable, upgradable LED luminaire with an extended lifespan that reduces primary material consumption.”

Also on the Repro-light consortium, a key player in Europe, TRILUX. Dr. Sebastian Knoche, presented his lecture on Data Analytics in Connected Lighting Systems. Dr Knoche said “Intelligent lighting reacts to **data** from environments. Controllers communicate with the devices connected to cloud (**IoT**) and data flows from the luminaire into the cloud.” When asked what services can be derived from the data harnessed? “Significantly for the Repro-light project power consumption of a luminaire at any time of day can be analysed. The dimming curve over the day will change as the luminaire senses the natural light available. We have been able to calculate the energy savings compared to a system that is

on all the time. The savings were 10% in winter and up to 35% in summer (Germany based data). A luminaire designed for 50,000 hours could have a real lifetime of around 87,000 if employed in a lighting system that has control.” This latest research from the Repro-light consortium leads to significant elongation of the lifetime of a luminaire.

Also unveiled by Repro-light was the **user-centric** focus to the research. Ganix Lasa, PhD from Mondragon University explained, “A user-centric approach to develop the luminaire of the future considers sustainability, personalisation, modularisation, and most key, user perception.” Mondragon brings a human research approach and human perspective, whilst keeping sustainability forefront. The plan to create modular luminaire architecture and bring to market within 3 years is coming together. Lasa said, “There are three key aspects to the project; new technologies, sustainable materials, and user-centric design. Also we are looking at 3D printed parts, smart fast production, and multiple application and configuration. Through focus groups in different countries we can understand user-perspective and important data from stakeholders.” This report is available on the Repro-light website.

The consortium partners are well underway with their findings and further announcements are expected from the Repro-Light project soon.

#Europeancommission #horizon2020 #H2020 #sustainability #research #circulareconomy #lightingdesign #EUfunded #EURResearch #betterlighting

Consortium members are: Bartenbach, BJB, Grado Zero Espace, IREC, Luger Research, Mondragon Unibertsitatea, Rohner Engineering, TRILUX

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Press information can be found here

<https://www.repro-light.eu/downloads>

For more information on Repro-light please visit <https://www.repro-light.eu/>

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