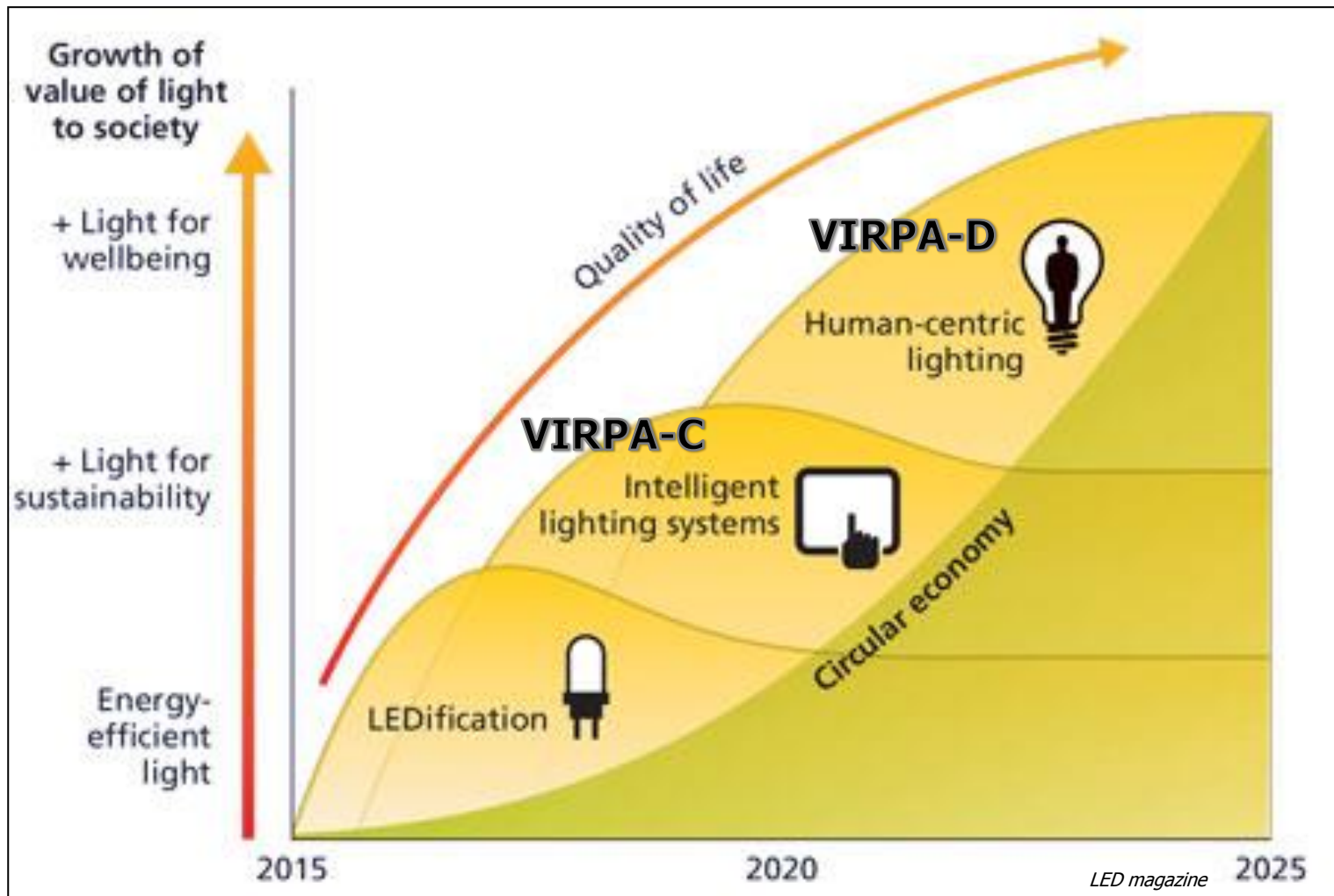


Helvar

Älyvalaistus ratkaisut ja trendit

VIRPA-C loppuseminaari

LIGHTING & VIRPA



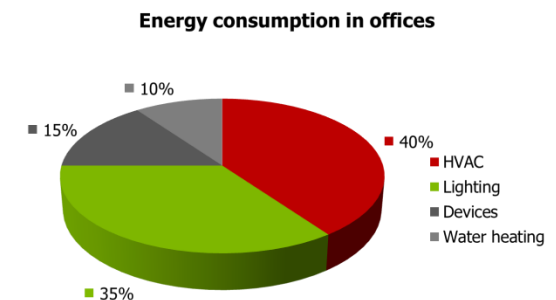
WHAT IS LIGHTING CONTROL NEEDED FOR?

- To increase human wellbeing
 - Effortless lighting
 - Right light at right place
 - Human centric focus

- Flexibility in lighting
 - Create and recall scenes
 - Combine lighting with other building automation

- To adapt to changes
 - Layout changes
 - Refurbishment

- To generate energy saving
 - Artificial lighting stands for 35 % of the total building consumption



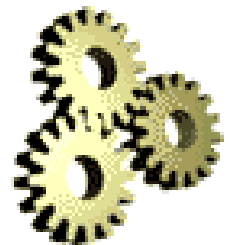
CHALLENGES IN LIGHTING APPLICATIONS

The implementation of a lighting site is **seldom optimal**

- The needs are **not yet known** during the design phase
 - Lack of information (space use, occupants, behaviour, et.c.)
 - **Initial setup difficult** to get right
- Too **much work needed** in the commissioning stage
 - Wiring
 - Programming, et.c.
- The final use of the space might be demanding
 - Occupants **need training** of how to use the space
 - **Layout changes** in office/building
 - New tenants
 - Need for **refurbishment**

AI CAN MAKE BUILDINGS INTELLIGENT

- More intelligence in nodes like sensors, luminaires
- Increasing number of data gathering sensors
- Buildings connected to the cloud
- Available technology for data analytics and machine learning
- Adds up to new opportunities e.g.
 - Heat mapping & occupancy rates
 - Navigation
 - Location tracking



TECHNOLOGICAL LIGHTING SOLUTIONS WITH AI

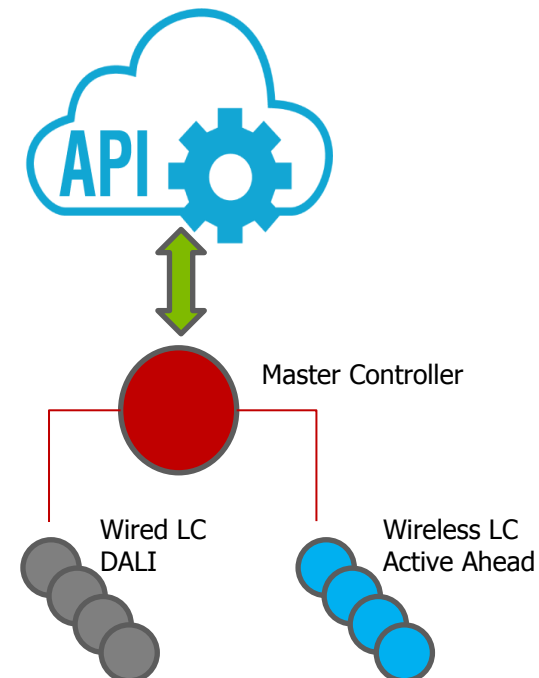
- **Wireless** infra structure, **easy** to maneuver lighting
 - Intelligence decentralized to **each luminaire**
 - Communication protocol: **(BLE) mesh**
 - Adverts are repeated for a defined number of hops
 - **Reliable and fast** transmission of messages
 - No need for **additional wiring** to achieve lighting control
 - **Manual** lighting control with **mobile devices**
- Sensoring technology develops
 - **Predictive lighting control** based on peoples moving patterns
 - Camera solution, several cameras needed for good coverage, expensive!
 - Learning algorithms measuring **presence detection** and **people flow**
 - Machine learning algorithms **between the lighting and displays**
 - **smart plugs** in the power cord to advert activity in the display



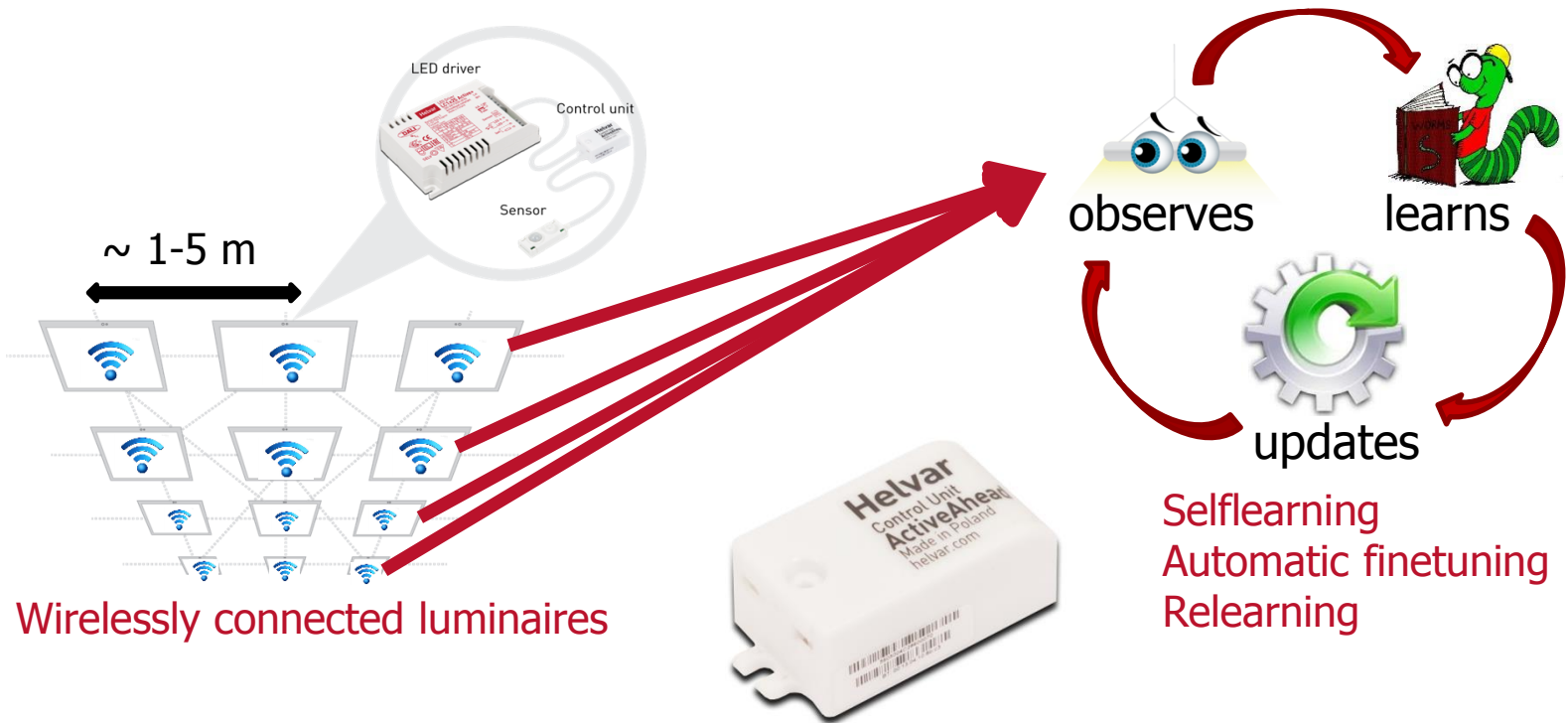
DATA ANALYZE IN THE CLOUDS

The Lighting Systems form also **sensor networks**, that connects to the cloud

- **Monitoring** the energy consumption/saving
- **Navigation and location**
 - People location
 - Guiding
 - Asset tracking
- Digital services in the building automation
 - **Control** functions:
 - Air condition
 - Elevators
 - Blinds control
 - **Utilization** rate:
 - Optimization of space usage
 - Reuse of space
 - Need for cleaning
 - **Service** offering:
 - What needs to be done and when



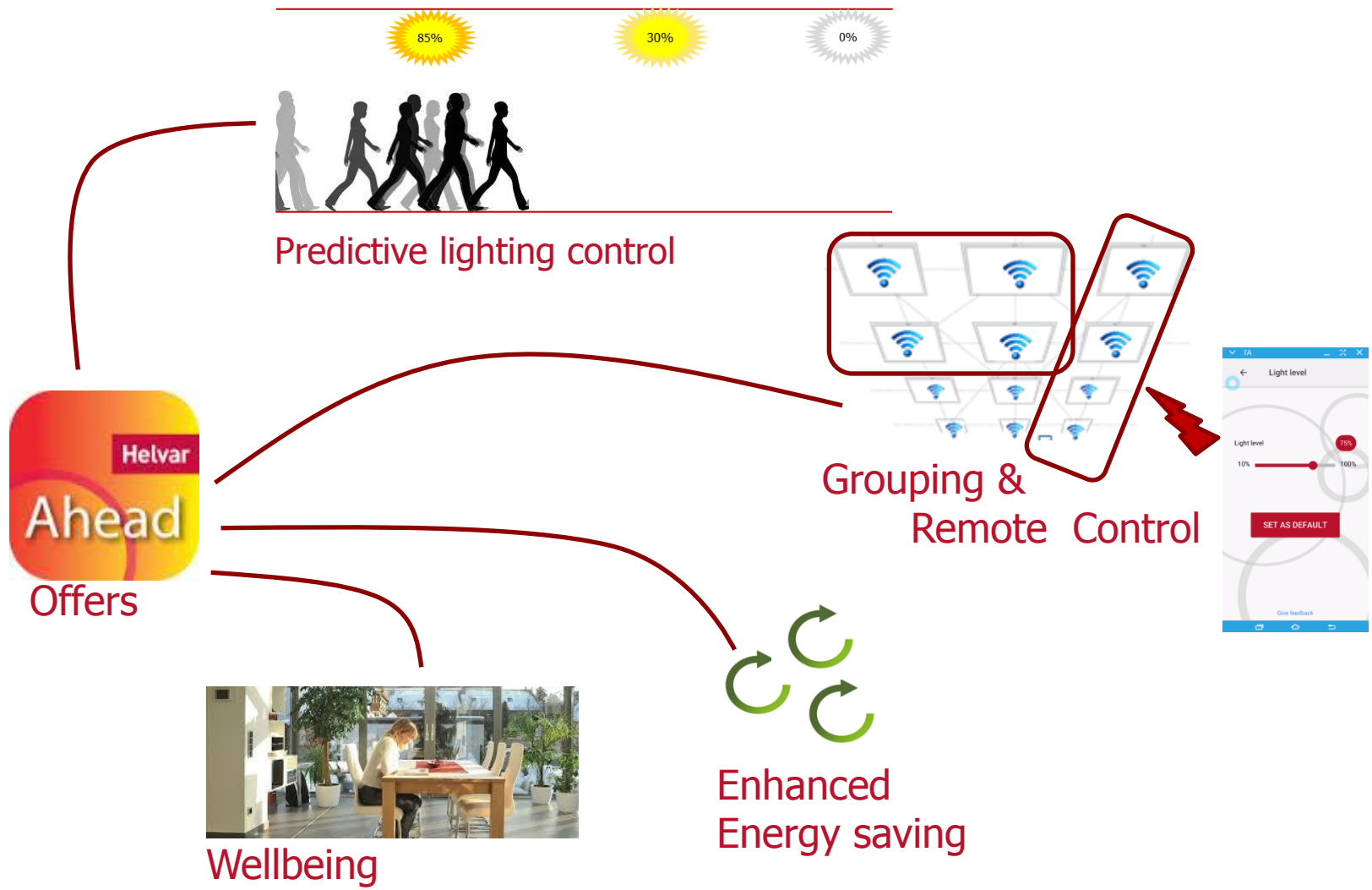
EXAMPLE WITH ACTIVEAHEAD LC SOLUTION



Wirelessly connected luminaires



ACTIVEAHEAD - ALWAYS ONE STEP AHEAD



THANK YOU



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