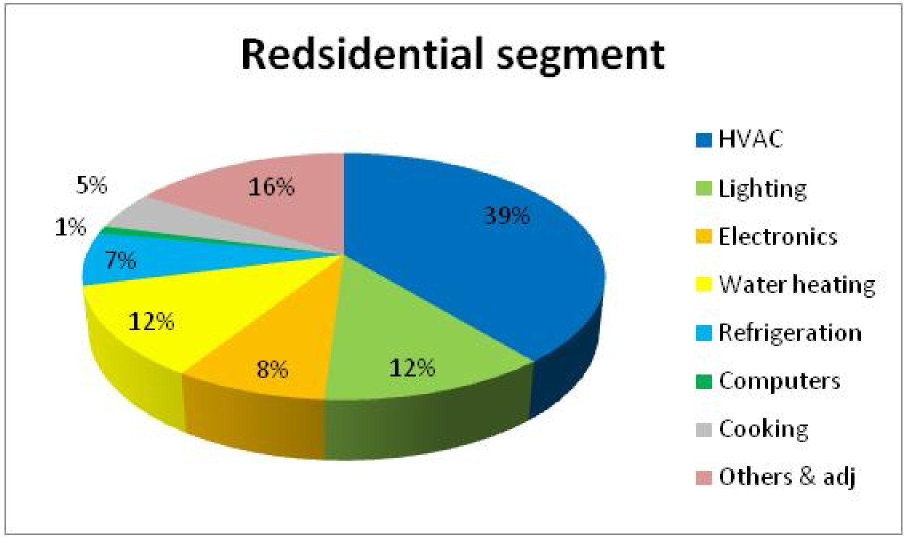
PHILIPS

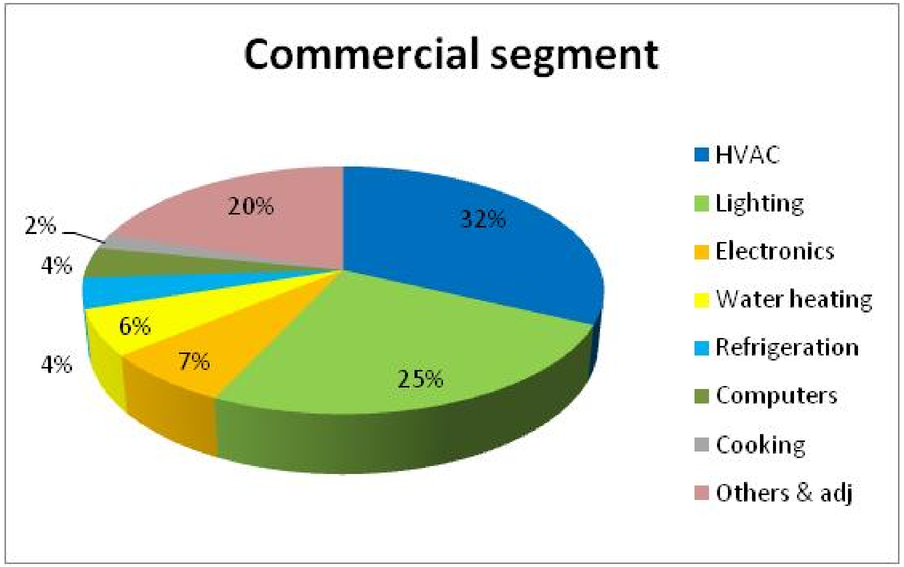
sense and simplicity

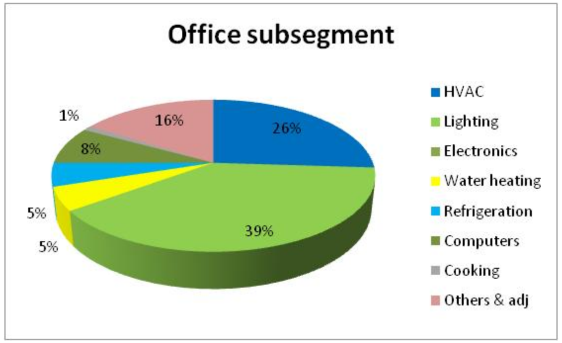
The enabling role of ICT in transforming existing buildings into energy efficient ones

Bruno Smets
CTO Office, Philips Lighting
April 13, 2010

Energy use in existing buildings







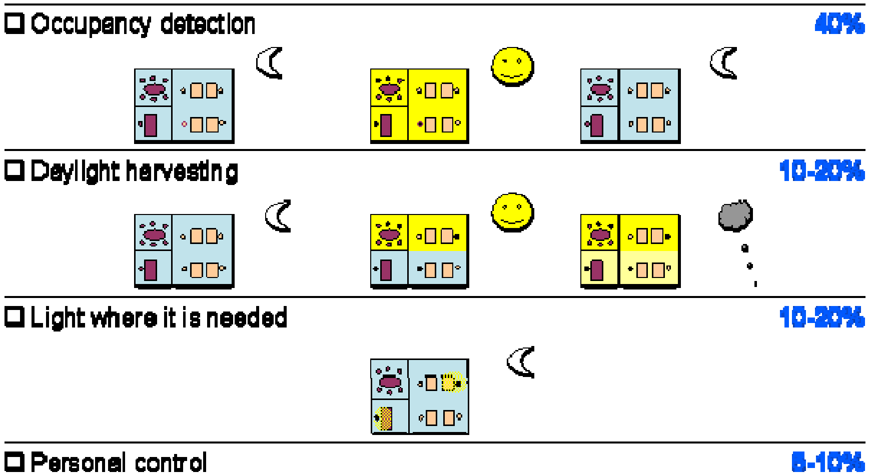
PHILIPS

LED lighting

- LED lighting is not just **another efficient light bulb**
  - 2010 GLS < LED < CFL< HID
  - 2015 GLS < CFL < HID ≤ LED
- LED technology enables the development of intelligent lighting
  - LEDs can be dimmed and switched much more easily than other lighting technologies, allowing to bring **light when needed**
  - LED point sources allow for more efficient optical manipulation, bringing the **light where needed**
- LED technology allows lighting to become embedded in solutions
  - Due to their size and life LED can be **embedded in materials**
  - **Digitalization** of lighting facilitates the interaction with other ICT functions

PHILIPS

Intelligent electrical lighting

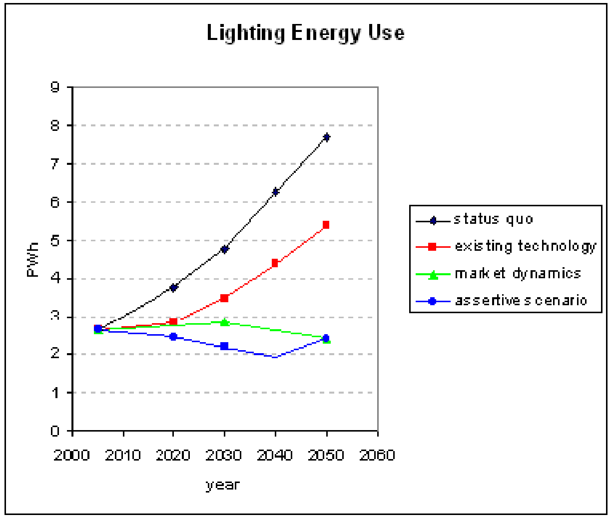


People

✓tend to react only when dissatisfied with a situation

✓want to be in control

✓like daylight and want to feel connected to the outside world

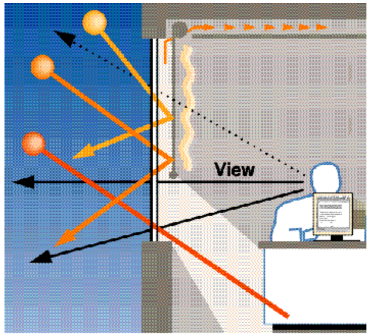


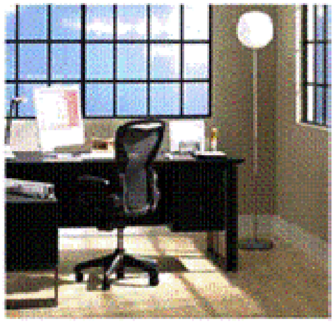
PHILIPS

Intelligent daylight and electrical light control

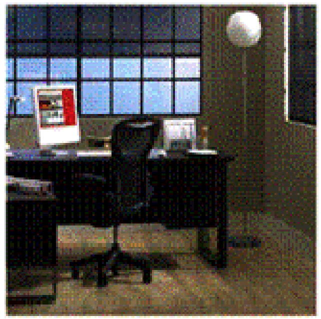
- Daylight is unpredictable and requires control

- Integration of electrical lighting and daylight control results in visual comfort while saving energy





2:30 pm: Afternoon sun makes it impossible to see your computer screen.

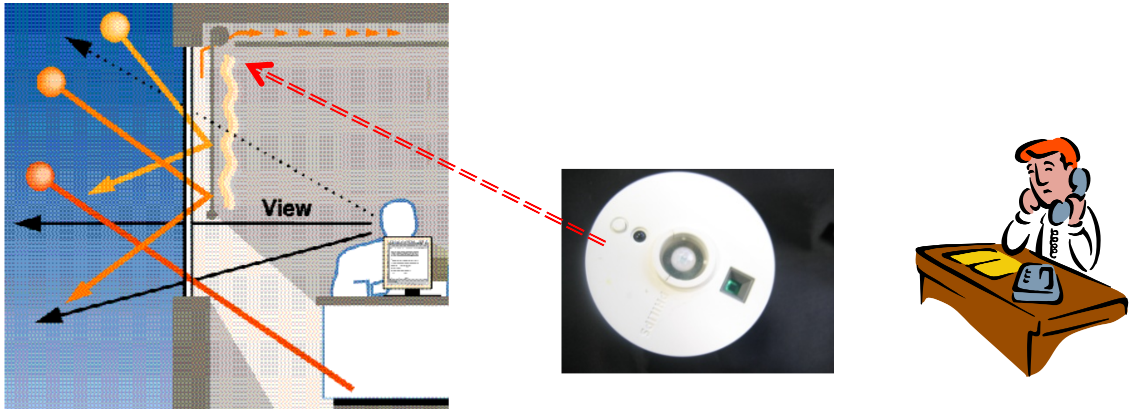


Glare reduced more than 80%.

Controlling lighting and room temperature

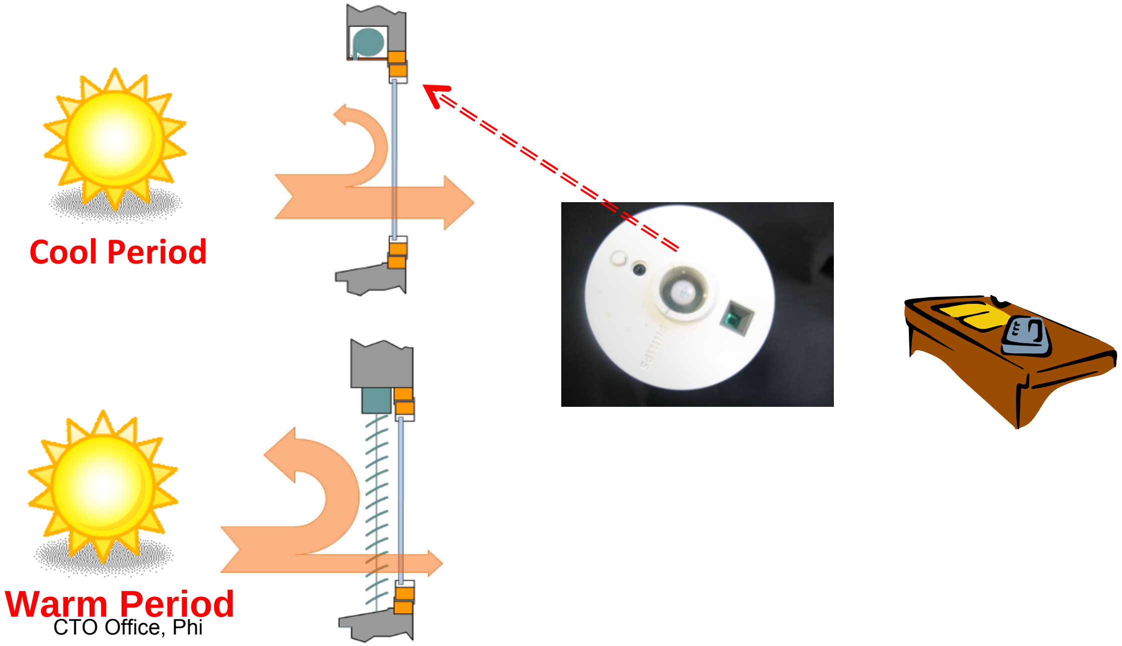
Office Occupied

➔ **Comfort Mode**



Office not occupied

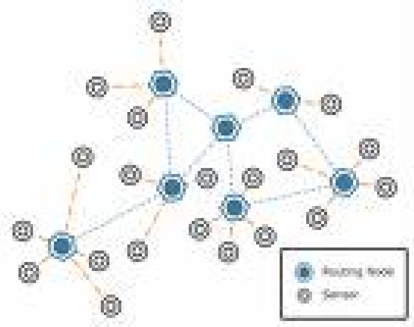
➔ **Energy Saving Mode**



Lighting embedded in total solutions

– Use of the lighting control sensor network to monitor

- the status of a building
- the traffic density on the road
- The pedestrian flow in urban areas



Role of ICT in the built environment

From **centralized intelligence** deciding on where to use the available energy

- Dimming the light at peak demand
- Less cooling to avoid black-out

towards **information exchange** between the subsystems resulting in additional energy saving

PHILIPS