



# LIVING LAB: SAVING ENERGY WHEN OTHERS PAY THE BILL

## CHALLENGE

Many energy conservation interventions use a financial incentive. This is not relevant in cases where others pay the bill, such as energy use at work, in hotels and in residential rentals with all-inclusive utilities.

Innovations that provide feedback on energy and water consumption are a promising intervention to target energy and water conservation in scenarios where others pay the bill.

## RESEARCH QUESTIONS

How can we motivate people who don't pay water and energy bills to use less water and energy without the use of financial incentives?

How is the water usage of these users affected by interventions with a technological innovation that offers real-time feedback on water usage?



innovation  
lighthouse

[www.innovationlighthouse.org](http://www.innovationlighthouse.org)

## INNOVATION

The Amphiro device is installed in showers and provides real-time feedback on water temperature and volume of water used (in litres) or energy consumption (in kilowatt hours).

An image of a polar bear on ice is displayed and the iceberg melts as more energy/water is consumed.

Bluetooth is used to transfer data collected by the devices.

## EXPERIMENT

Amphiro devices and measurement equipment were installed in 256 rooms at The Student Hotel Rotterdam and Den Haag in the Netherlands.

Measurement equipment recorded, at 10-15 minute intervals, data on water usage and energy consumption in the rooms.

Study was conducted in three stages:

1. Pre- intervention (baseline date)
2. Intervention
3. Post-intervention (one month after device use).

## RESULTS & IMPACTS

Per room, per year



### Environmental

-17% = -3760L

-215 kWh

60 kg CO<sub>2</sub>e



### Economic

€18,49 Savings

Payback time = 37 months



### Social

Increased awareness & long term behaviour change

Continued water use -10% after device was removed

## CONCLUSIONS

This study has:

- Measured the effectiveness of a technological innovation on hotel guest water-saving behaviour.
- Gathered detailed information on individual energy and water use of students and short-term hotel guests.
- Resulted in new scientific knowledge and practical insights for organizations who want to stimulate savings in cases where users don't pay for utility bills.
- Demonstrated that interventions that provide real-time feedback about energy and water use are a way to significantly reduce costs, carbon emissions and contribute to the education and behavior of hotel guests.

Based on the results of the living lab, The Student Hotel has installed Amphiro devices in all rooms of their newly developed hotel in Florence, Italy, and is considering a further roll-out.

### LIVING LAB PARTNERS



### FUNDING PARTNERS

