



OpenLivingLabDays 2017



“Leveraging Behavioural Change for Energy Efficiency in Public Buildings”

Intro and Questions

Krakow, September 1st 2017

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CONTEXT (1/5)

Energy Performance of Buildings Directive (2010/31/EU)

RATIONALE

Buildings are responsible for 40% of energy consumption and 36% of CO₂ emissions in the EU. While new buildings generally need fewer than 3 to 5 litres of heating oil per sq.m per year, older buildings consume about 25 litres on average. Some even require up to 60 litres.

Currently, about 35% of the EU's buildings are over 50 years old. By improving the energy efficiency of buildings, we could reduce total EU energy consumption by 5-6% and lower CO₂ emissions by about 5%.

Source: <https://ec.europa.eu/energy/en/topics/energy-efficiency/buildings>

CONTEXT (2/5)

Energy Performance of Buildings Directive (2010/31/EU)

KEY PROVISIONS

- All new buildings must be nearly zero energy buildings by 31 December 2020 (public buildings by 31 December 2018)
- EU Member States must set **minimum energy performance requirements** for new buildings, for the major renovation of buildings, and for the replacement or retrofit of building elements (heating and cooling systems, roofs, walls etc.)
- EU Member States must establish inspection schemes for heating and air conditioning systems or put in place measures with equivalent effect.
- **Energy performance certificates** are to be included in all advertisements for the sale or rental of buildings.

Source: <https://ec.europa.eu/energy/en/topics/energy-efficiency/buildings>

CONTEXT (3/5)

Energy Efficiency Directive (2012/27/EU)

Art. 5 - “Exemplary role of public bodies’ buildings”

- EU Member States must ensure that 3% of the total floor area of central government buildings (above 500 sq.m, then above 250 sq.m since July 2015) is renovated each year.
- Central governments shall **encourage regional and local government bodies**, and social housing bodies governed by public law, to adopt energy efficiency plans, put in place energy management systems, including energy audits, as part of their plans implementations, and use where appropriate, energy service companies and energy performance contracting to finance renovations, **maintain and improve energy efficiency in the long term.**

CONTEXT (4/5)

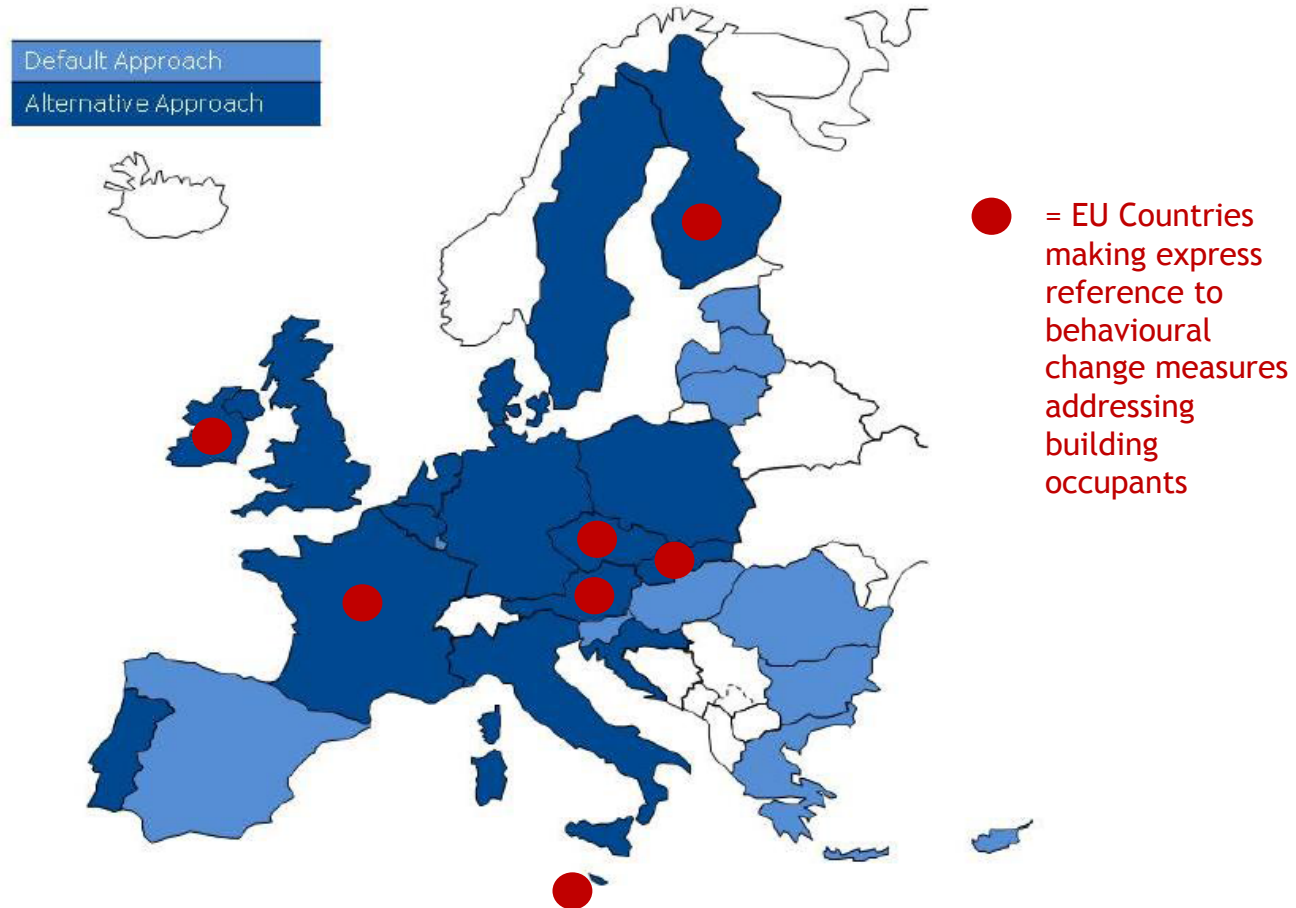
As an alternative option to renovation, EU Member States can take **other cost effective measures that achieve at least equivalent savings** to those that the default approach would have delivered.

These alternative measures could (and did) include:

- 1) Selling off the most inefficient buildings and/or buying new ones
- 2) Energy service contracting
- 3) A combination of 'deep' and 'shallow' renovations of buildings and technology systems
- 4) The promotion of **energy efficiency through behavioural changes of public building occupants**
- 5) Other....

Member States using the alternative approach were required to notify the Commission by 31 December 2013.

CONTEXT (5/5)



Source: The Coalition for Energy Savings, May 2015

**Intelligent Energy Europe Euronet 50/50
& Euronet 50/50 Max Interreg CE
TOGETHER
(Patrycja Plonka, PNEC, PL)**



**Green Schools
Interreg CE TOGETHER
(Antonio Zonta, Provincia di
Treviso, IT)**

**Bellevue & H2020 Entropy
(Joelle Mastelic,
HES-SO Valais-Wallis, CH)**



**Małopolska Laboratory of
Energy Efficient Building
(Marcin Furtak, MLBE, PL)**





HOW
DOES IT
WORK



How do I...?



Repeat vs. replicate vs. reproduce vs. reuse

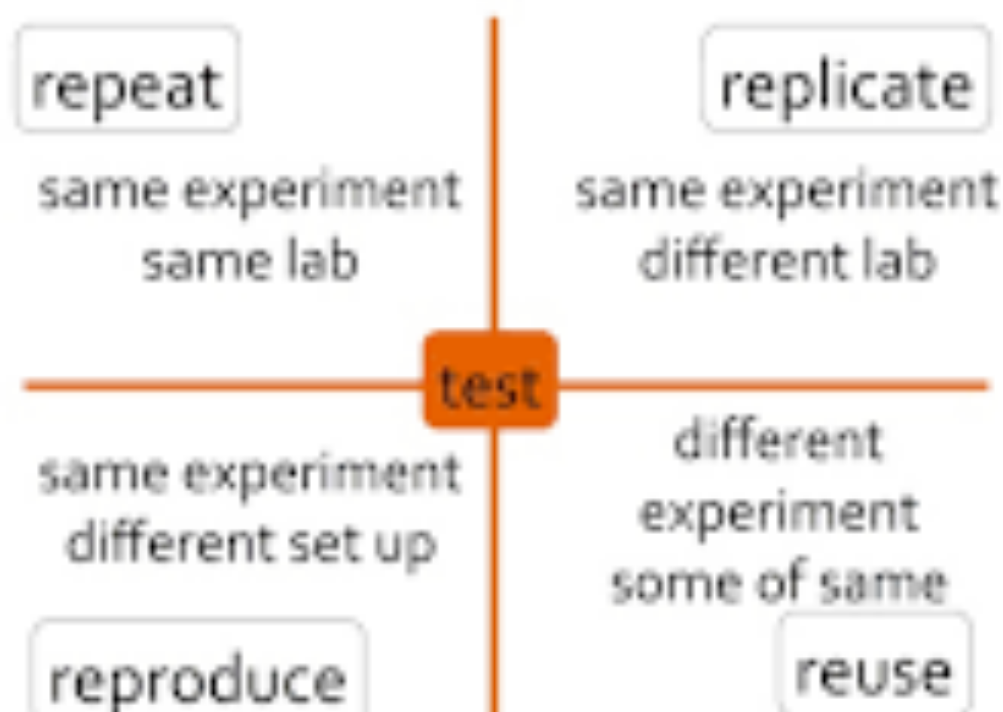


Figure by Carole Goble adapted from Drummond C. Reproducibility is not Reproducibility: How is it Good Science, online and Peng RD, Reproducible Research in Computational Science Science 313 (2015) 1229-1232.

Repeat vs. replicate vs. reproduce vs. reuse

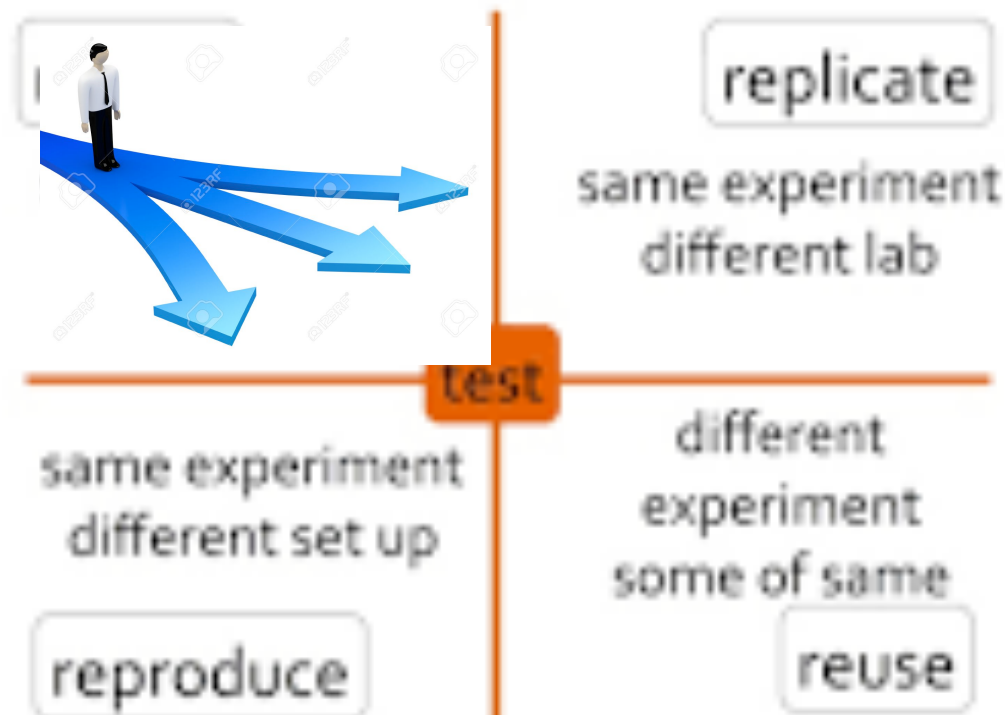
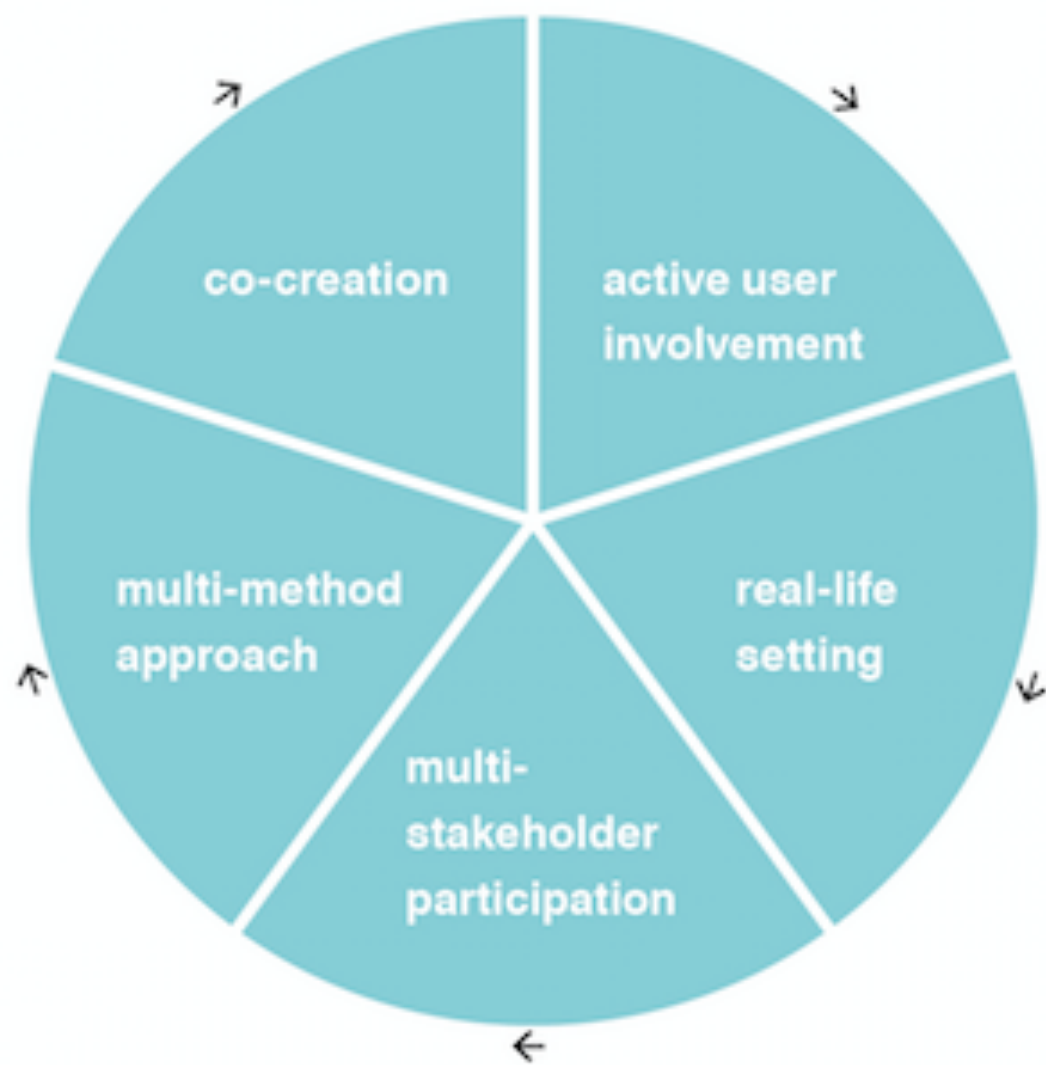


Figure by Carole Goble adapted from Drummond C. Reproducibility is not Reproducibility: How is it Good Science, online and Peng RD, Reproducible Research in Computational Science Science (2013) 342(6157).



Possible issues to debate:

1. What kinds of users to engage and how?
2. What setting, what is the context?
3. Which stakeholders are to be involved?
4. What methods for co-creation?
5. How to monitor and evaluate the co-creation process?
6. What value does the LL approach produce?

Today's schedule

- Before the coffee break
 - This introduction
 - The three methodology presentations (Patrycia, Antonio, Joelle)
- After the coffee break
 - Two parallel working groups
 - One guided by Patrycia & Antonio with the TOGETHER project team
 - One guided by Joelle with the kind participation of the iScapes and Tips & Trick projects
- After the interactive sessions
 - Conclusions drawn by Marcin



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Thanks for your attention

This initiative has been made possible in part by
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