



Quality management for building performance

## Workshop 23, Clima 2016, Aalborg/Denmark, 24.5.16

Quality Management for Building Performance –  
Closing the Gap between design and operation

Dr. Stefan Plessner



## The Call

**EeB-07-2015 - New tools and methodologies to reduce the gap between predicted and actual energy performances at the level of buildings and blocks of buildings.**

- Activities expected to focus on **ICT at Readiness Level 5-7**.

*“Although quantitative performance criteria can be and have been defined, it is sometimes difficult to apply them, particularly in real buildings.”*

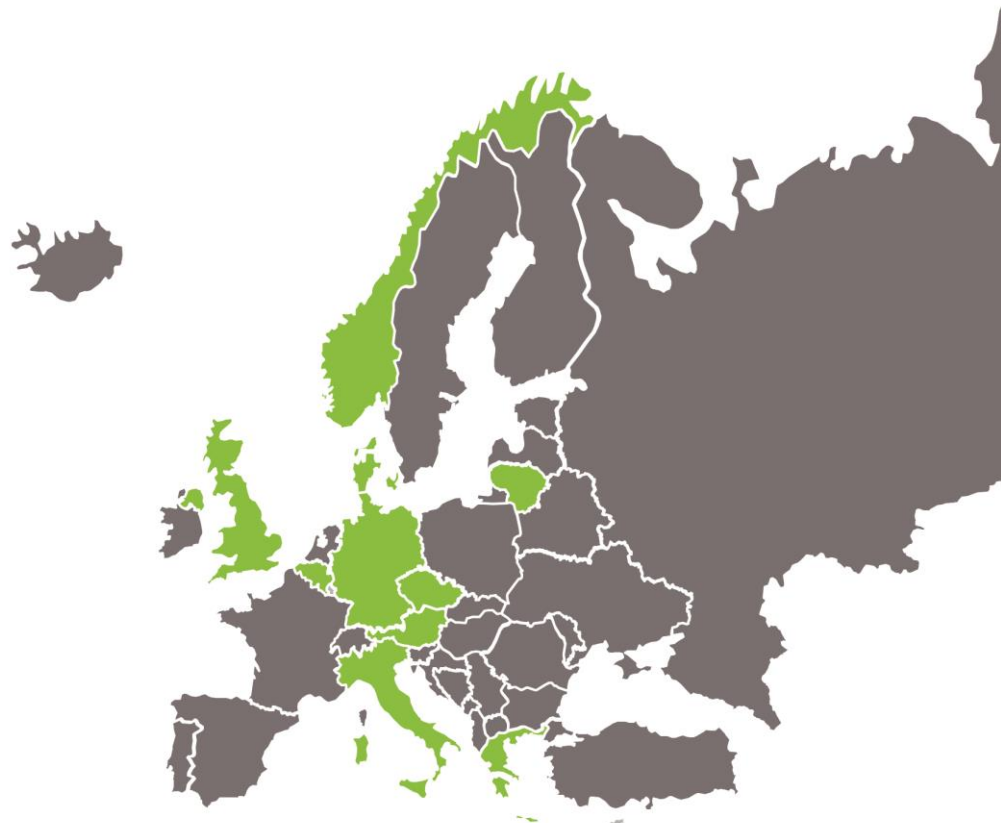
(Dexter et al, IEA Annex 34, 2001, p. 356)



# Project Partners



1. Technische Universitaet Braunschweig, Germany (Coordinator)
2. Factor 4 BVBA, Belgium
3. ENESA a.s., Czech Republic
4. E7 Energie Markt Analyse, Austria
5. COWI A/S, Denmark
6. SYNAVISION GMBH, Germany
7. Norges Teknisknaturvitenskapelige Universitet, Norway
8. Ceske Vysoke Ucení Technické v Praze, Czech Republic
9. Ethniko Kai Kapodistriako Panepistimio Athinon, Greece
10. REHVA, Netherlands
11. EKODOMA, Latvia
12. Building Research Establishment LTD, United Kingdom
13. Energy Team spa, Italy
14. eERG Group - Politecnico di Milano, Italy



### Our proposal:

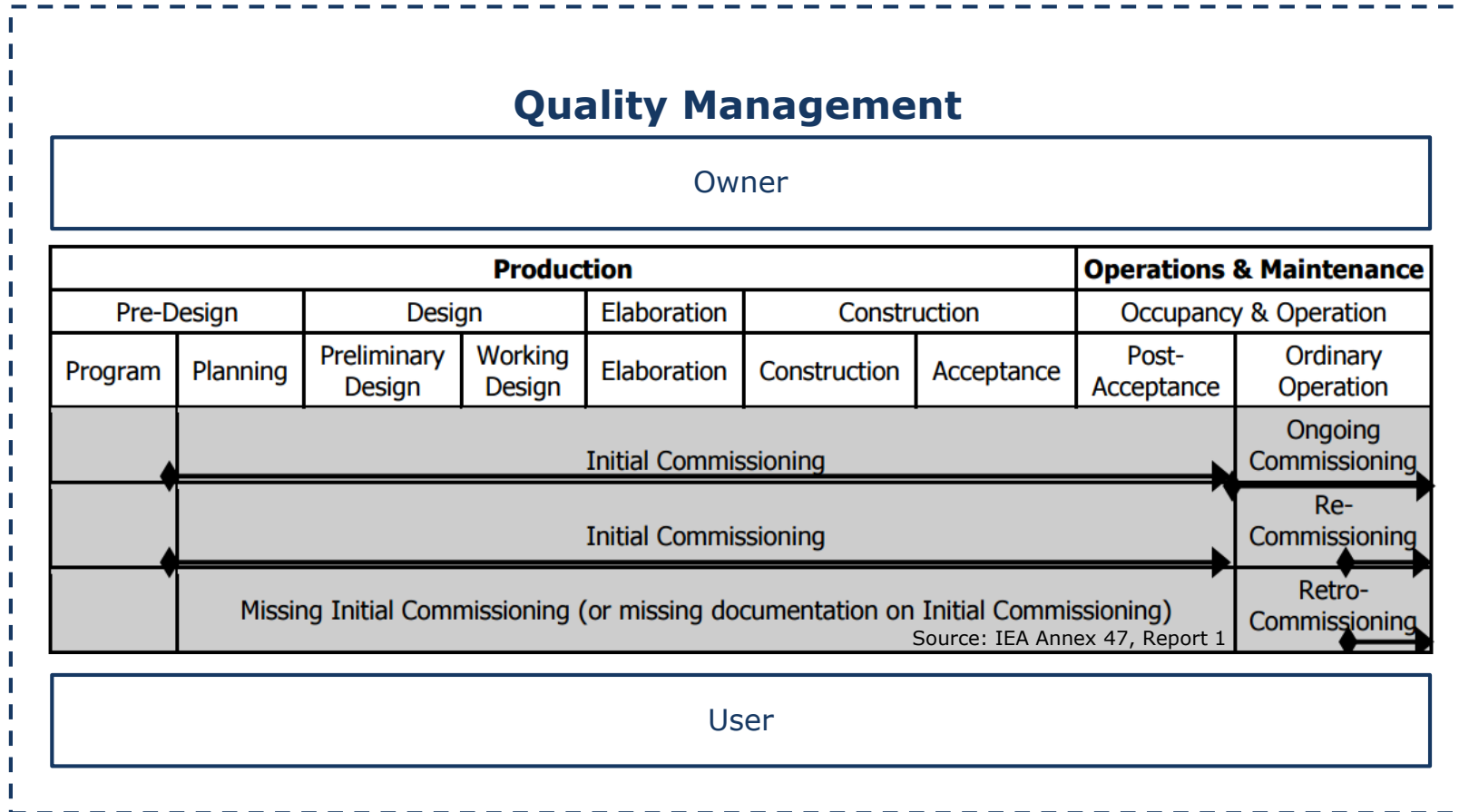
**The gap in building performance is ... caused ... by a lack of quality.**

The goal of this project is to develop and demonstrate **pragmatic services and appropriate tools** with high replication potential supporting **quality management (QM) for building performance** in the design, construction, commissioning and operation phase as a means to close the gap between predicted and actual energy performance in European buildings.

This project will apply three innovative ICT-driven tools to enable effective quality management in all relevant services within the building life cycle.

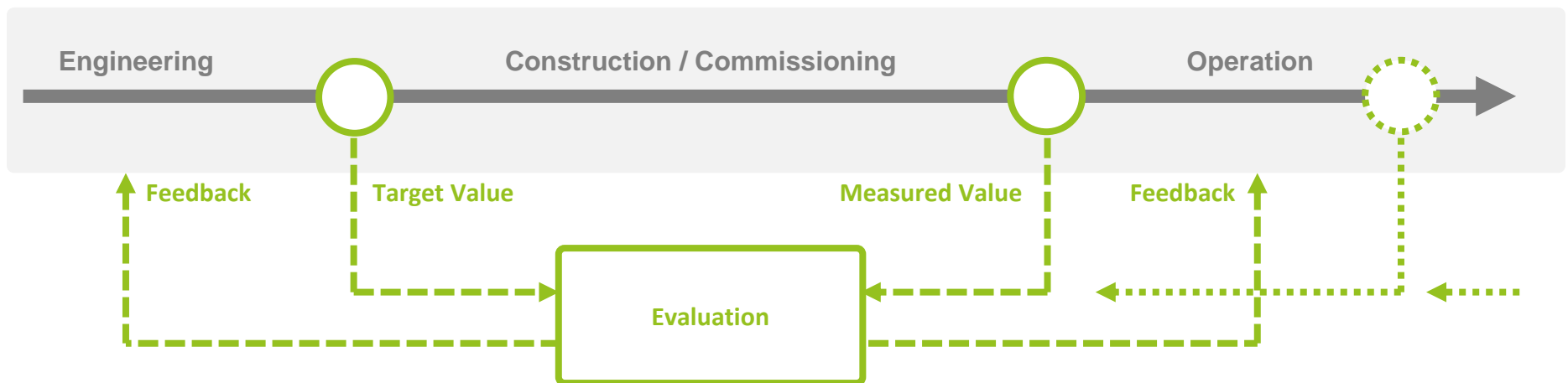
The core mechanism is to “**design for testability**” by specifying transparent performance targets with cost effective testing methodologies.





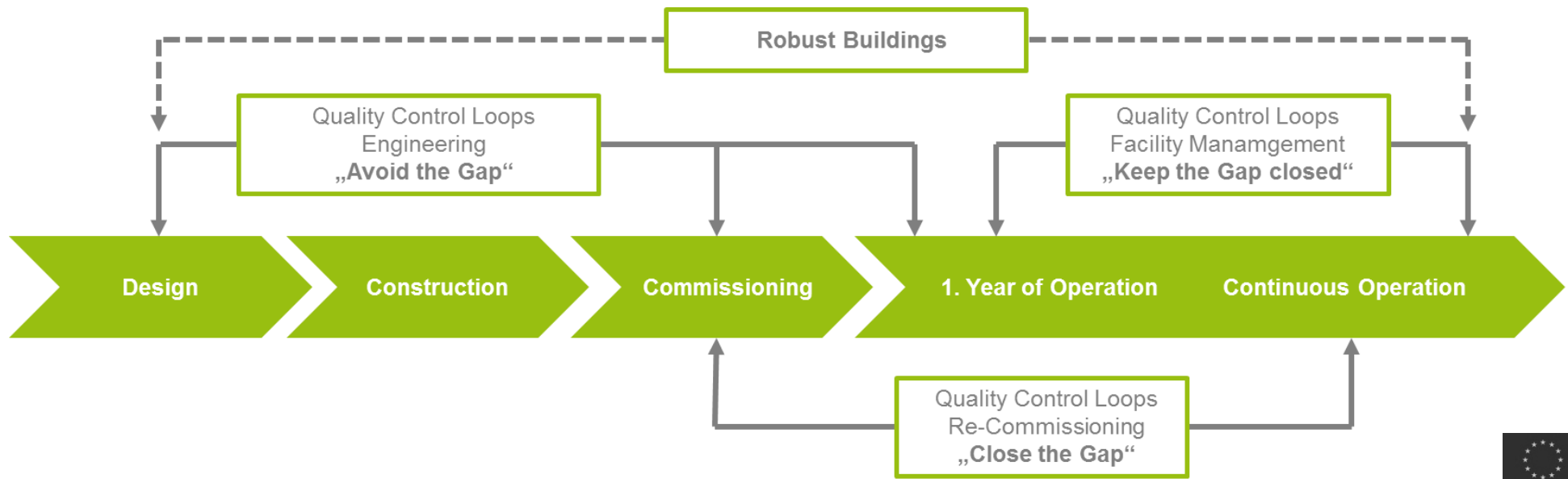
### The QUANTUM Tools: ICT for Quality Management

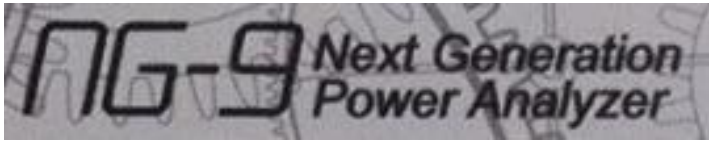
- QM applies Quality Control Loops
- QM is independent
- QM is testing, not doing it
- QM works in a constructive spirit
- QM is powerful/decisive



## The QUANTUM Tools: Objectives

- Development of tools, services and business models supporting QM in the design, construction, commissioning and operation phase
- Implementation of tools to a set of European buildings
- Proof cost effective multiplication





- **HPS/NG9 (by Energy Team, Italy):**  
Cost effective and easy to install in-situ energy metering devices with online data analysis



- **Comfortmeter (by F4, Belgium):**  
Completely web-based questionnaire for perceived user comfort



- **Performance Test Bench (by synavision, Germany):**  
First tool for the digital specification and automated validation of BMS

