WORKSHOP SUMMARY

Project	**Total Concept**
Subject	**The Total Concept method for major reduction of energy use in non-residential buildings**
Date	**25-05-2016**
Location	**CLIMA 2016, Aalborg**
Taken by	**EU Horizon 2020**
No. of participants	**49**
Moderator	**Alireza Afshari, Danish Building Research Institute, Aalborg University** **Graves K. Simonsen, Danish Association of Construction Clients**
Target group	**Owners and administrators of non-residential buildings, technical and financial advisors of the client and energy consultants, large contracting companies and developers as well as public authorities**
Discussion panel	**Mari-Liis Maripuu, Åsa Wahlström, Mads Mysen, Pawel Krawczyk, Tytti Bruce, Mikk Maivel**

Agenda

1. **Introduction to Intelligent Energy Europe project the "Total Concept" (Alireza Afshari)**
2. **Main steps of the Total Concept method implementation (Mari-Liis Maripuu)**
3. **The economic principles of the Total Concept method (Åsa Wahlström)**
4. **The Total Concept method implementation in the Nordic countries- outcomes and lessons learned (Mads Mysen)**
5. **Discussion**

1. Objective of this document

The objective of this document is to summarise the discussion at the workshop about the "Total Concept" method.

2. Expected results

After the workshop, the following topics are expected to be handled:

- Clear overview of the drives and barriers for major energy retrofitting in the northern European market
- Increased knowledge about the Total Concept method and its benefits for major energy retrofitting
- Clarification of the possibilities for motivating property owners to carry out larger energy retrofitting projects in the non-residential building sector

3. Questions from paraticipants

3.1 General questions

1. Is the "Total Concept" method applicable outside the Nordic countries?

Easy-to-adopt method in every country, where there is a demand for energy retrofitting.

2. How are the indoor climate and other factors taken into account? Can building owners use the Total tool to find out if the renovation is a good solution at all?
   Upgrading of an existing building often starts for other reasons than energy retrofitting itself. Total Concept is normally a part of a bigger process.
   The indoor climate level must be the same or better (baseline takes indoor climate into consideration as one of the first elements while doing the audit and calculating the measures).
3. How to follow up on whether the action package is profitable after implementation of measures?
   Step 3 of the method includes a 1- year follow up of the results. A BMS system and a network of sub-meters support the validation of the calculation from Step 1. In general consultants have also tools for comparing measurements with energy results (e.g. by calibrating a simulation model). The facility manager is involved in the process.

3.2 Specific questions about the Total tool

1. Is the lifetime of measures s taken into consideration?
   The Total tool takes lifetime into consideration while calculating the IRR (which is why the line on the graph with internal rates is not straight)
2. Are governmental subsidies taken into profitability calculations?
   It is possible to take subsidies into account by reducing the cost of investment. The IRR will therefore be higher.
3. Are the energy savings just the sum single energy measures?
   Yes, it is a combination of measures that influence each other.
4. Is the tool an open source? Database of possible energy measures?
   It is possible to develop it further, but there is no database of energy measures - the calculations are individual for every building.

3.3 How to increase the number of major renovations? Drivers and barriers

1. The method needs to be incorporated into legislation/ standards to achieve real success. It is common experience that energy retrofitting is not the trigger for renovations.
2. It is recommended to seek subsidies as well as show potential investment opportunities – for example by including subsidy in the early process and by fulfilling the requirements of future requirements.
3. Taxation policy of the energy prices could be also a significant incentive.