Annex 58 of the International Energy Agency: Energy in Buildings and Communities Programme is a 4 year collaborative endeavour, bringing together leading academics in the field of building performance to explore the topic of reliable building energy performance characterisation based on full scale dynamic measurements. This work is broken down into 5 Subtasks:

**Subtask 1**  
State of the art on full scale testing and dynamic data analysis

**Subtask 2**  
Optimising full scale dynamic testing

**Subtask 3**  
Dynamic data analysis and performance characterisation

**Subtask 4**  
Application of the developed framework

**Subtask 5**  
Setting up a Network of excellence

As part of this project, the Centre for the Built Environment at Leeds Metropolitan University and the University of the Basque Country are leading on Subtask 2.

The overall intention of Subtask 2 is to conceptualise the optimisation of full scale dynamic testing, based on the State of the art information gained from Subtask 1. When addressing the subject of building performance testing there are two key elements which must be appreciated in order to ensure reliable, accurate results are obtained:

1. Ensuring the test environment and experimental set up are correct and fit for purpose. This includes correct monitoring equipment, accurate sensor placement and robust control procedures.
2. Correct methods of data handling and analysis.

In order to present these concepts in a manageable, user-friendly way, Subtask 2 involves the production of a decision tree to aid researchers in their decision making when considering a full scale dynamic test. The decision tree acts as a guide to ensure the user has considered all possible aspects of their chosen environment, and by following the line of questioning within the decision tree they will ultimately arrive at documents which offer further information specific to their needs. These include published academic papers, ISO documents and test protocols.

The researcher is questioned about a range of parameters, from broad considerations such as the test environment and conditions to the level of accuracy required from the results. This allows the most appropriate documents to be presented at the end.

The intention is to present the final decision tree online, with easy access for users.

Martin Fletcher, Leeds Metropolitan University  
Prof. Chris Gorse, Leeds Metropolitan University  
Dr. Aitor Erkoreka, University of the Basque Country

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**Screen shot of Subtask 2 decision tree section in XMind**

**Whole building thermography from Stamford Brook study (Leeds Metropolitan University, UK)**

**PASLINK test cell at LECE facility (CIEMAT, Spain)**

**VERU test building (Fraunhofer IBP, Holzkirchen, Germany)**