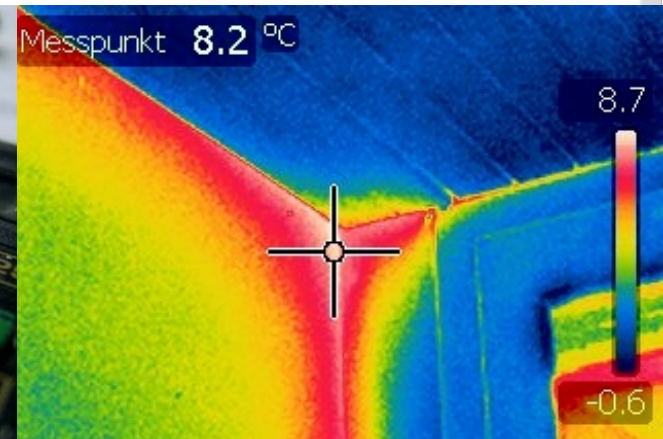
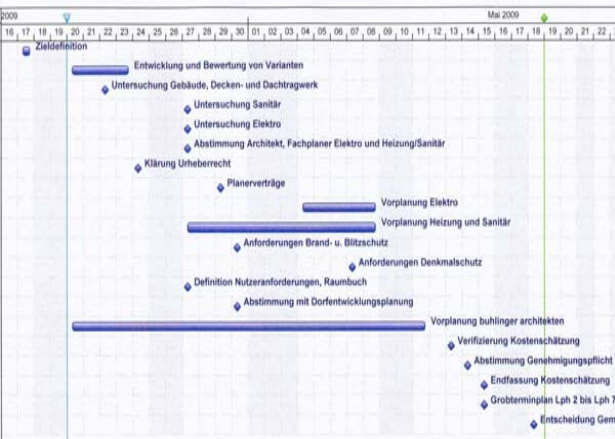


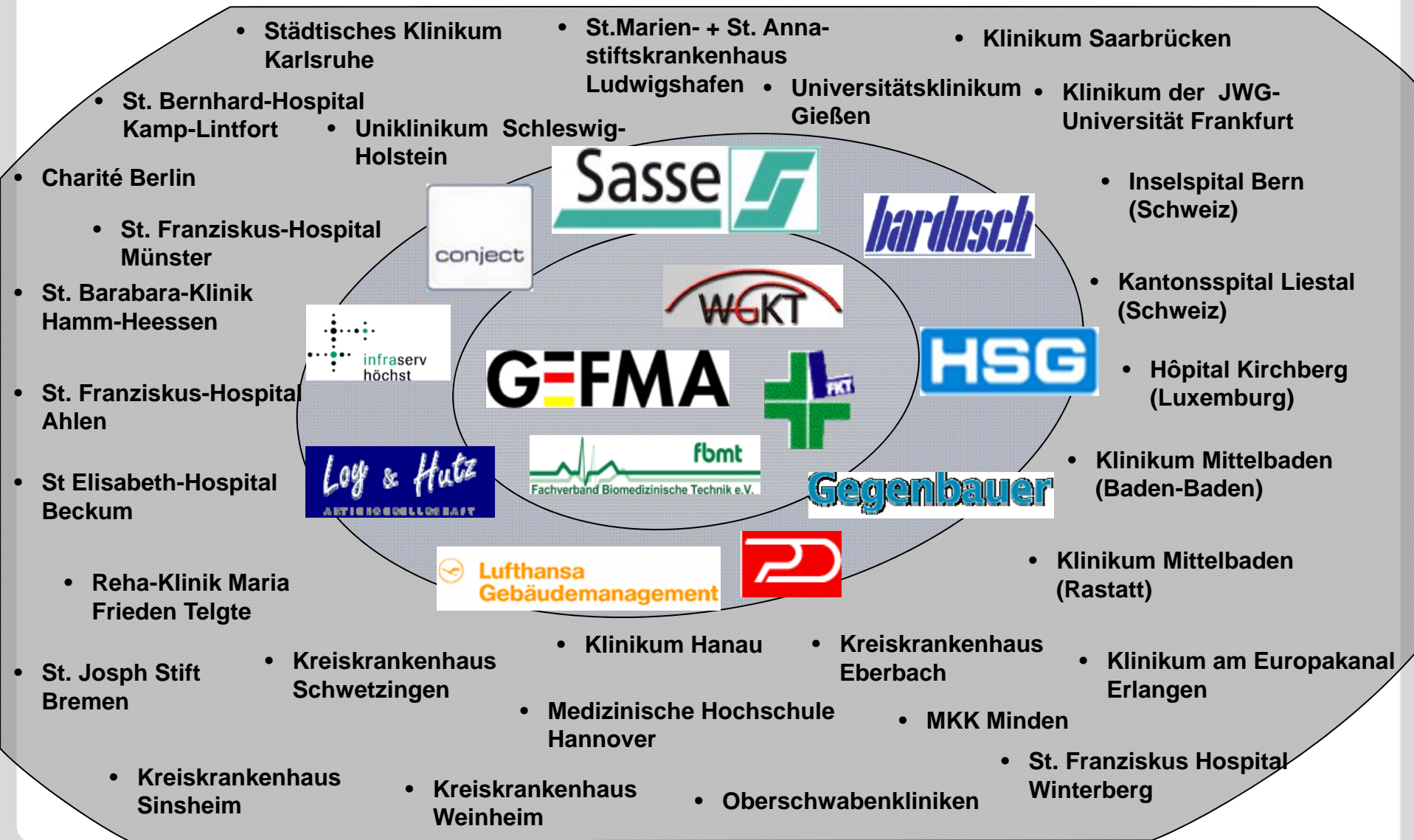
# Energy Efficiency in Hospitals

Benchmarking and Best Practice – Results of the Research Project OPIK – Optimization and Analysis of Processes in hospitals

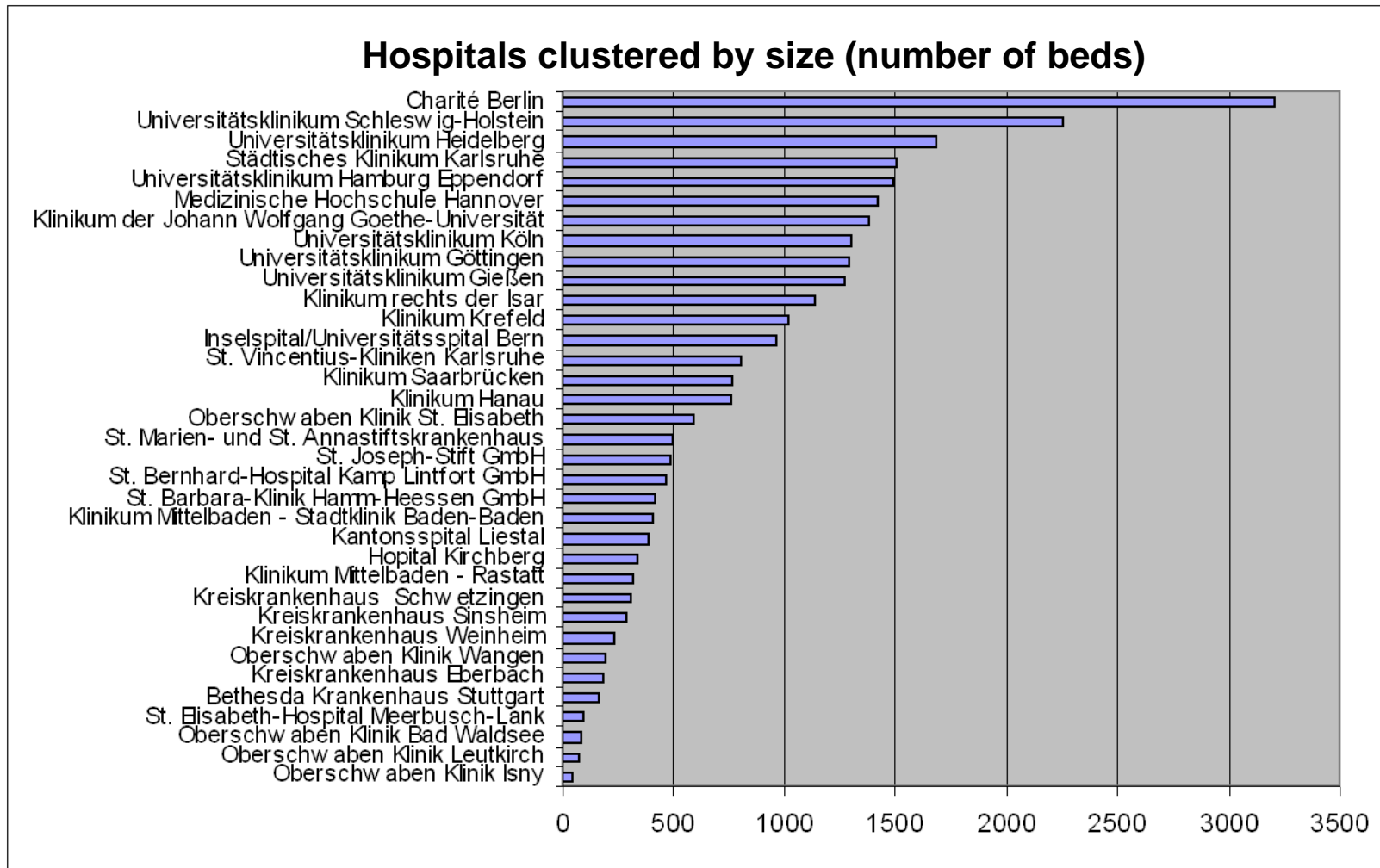
INSTITUT FÜR TECHNOLOGIE UND MANAGEMENT IM BAUBETRIEB (TMB)



# OPIK – Partners since 2001



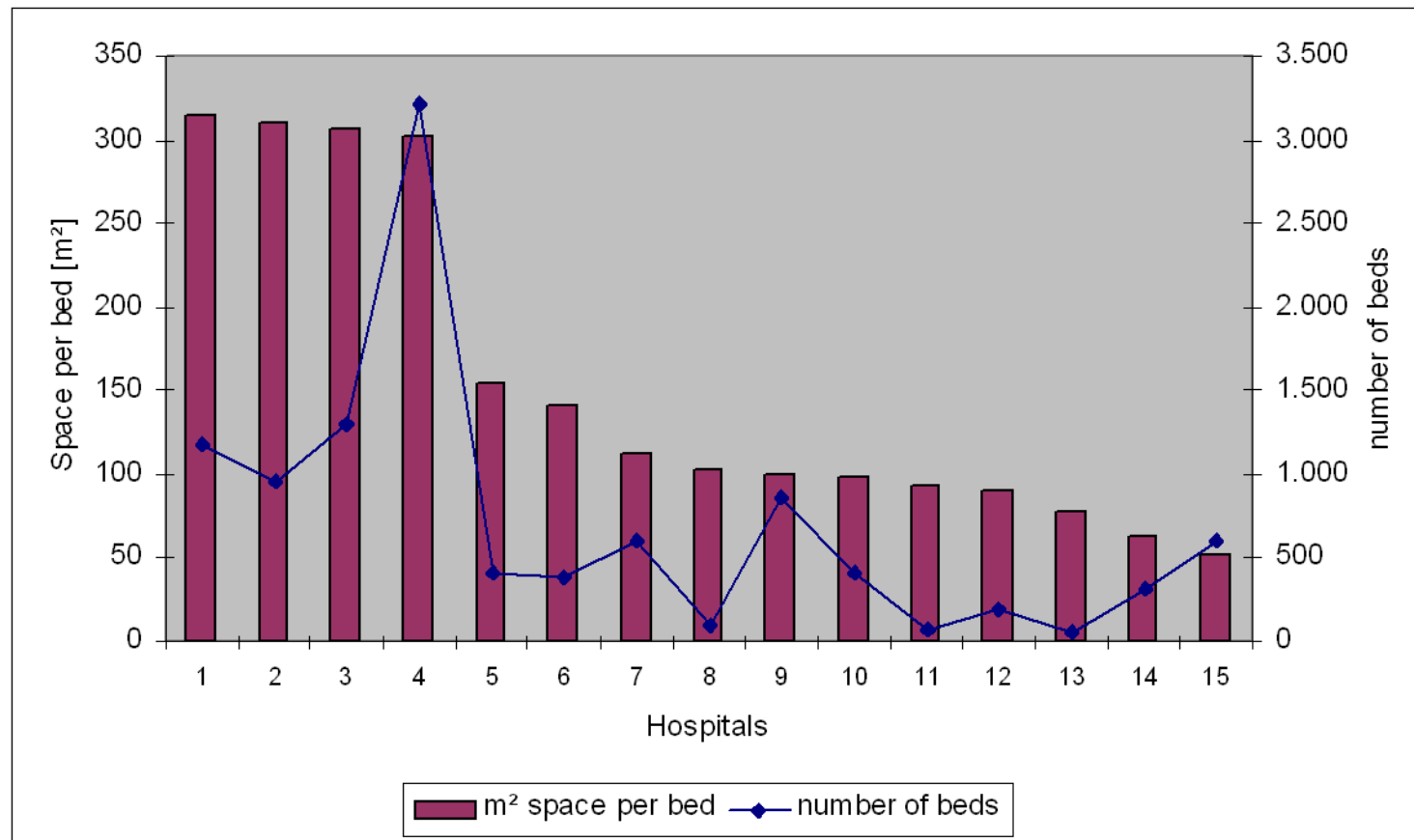
# OPIK – Hospitals by size



OPIK: sample size about 27.500 beds

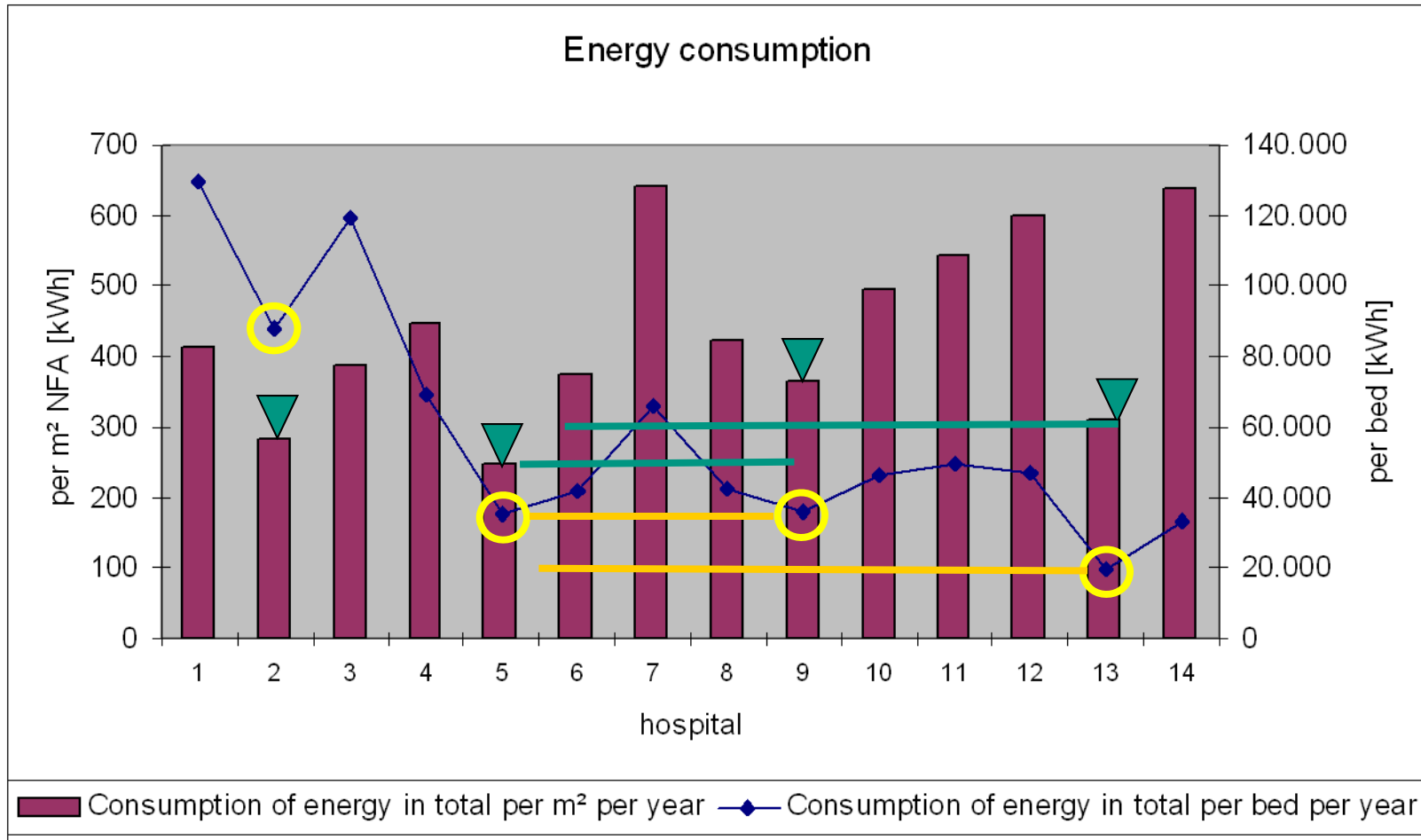
# OPIK – Focus on energy 2009

11 hospital partners; 15 hospital sites; 2 partners from Switzerland, 1 partner from Luxembourg



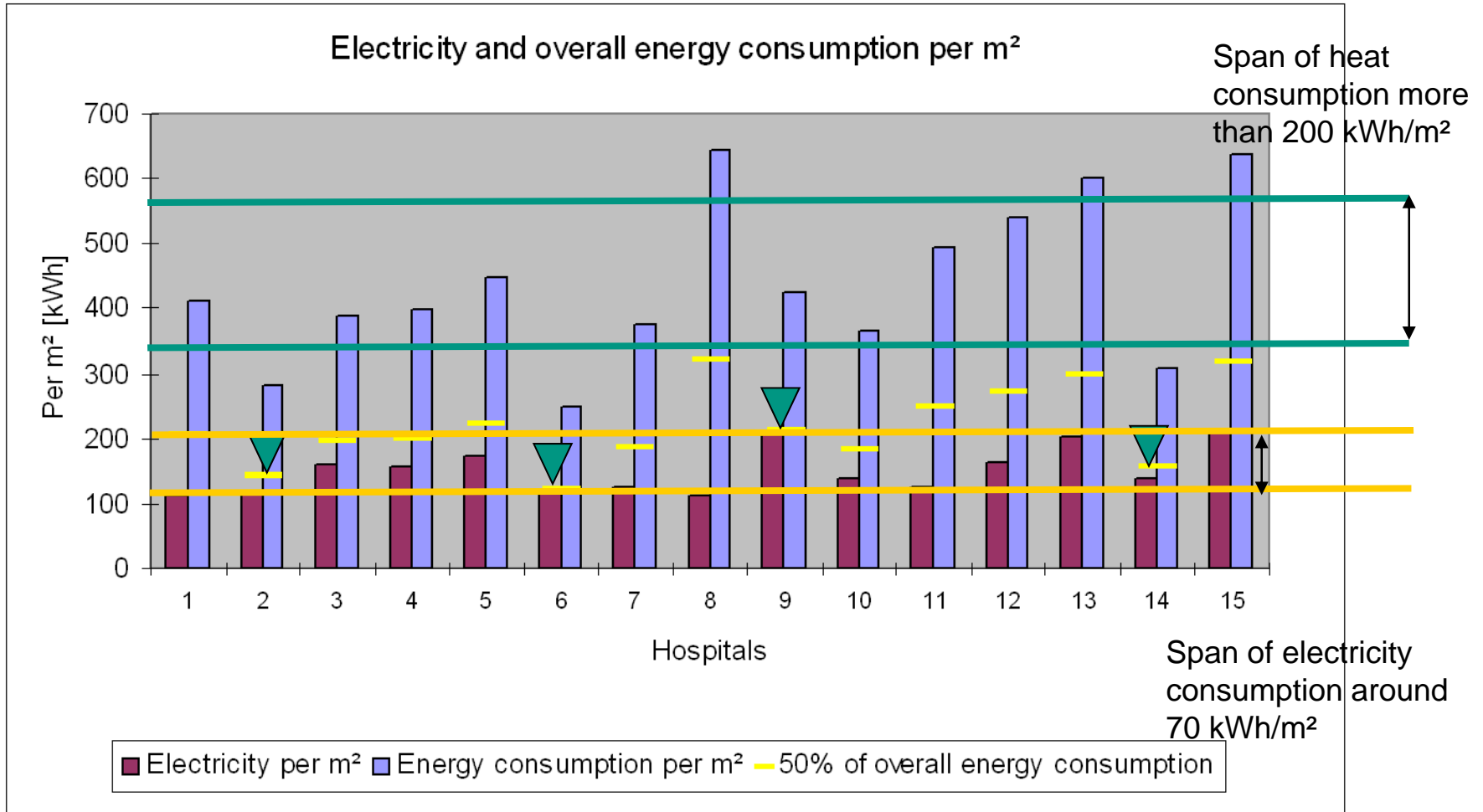
Space per bed between 315 and 52 m²! What is the best reference figure...?

# Benchmarking – results I



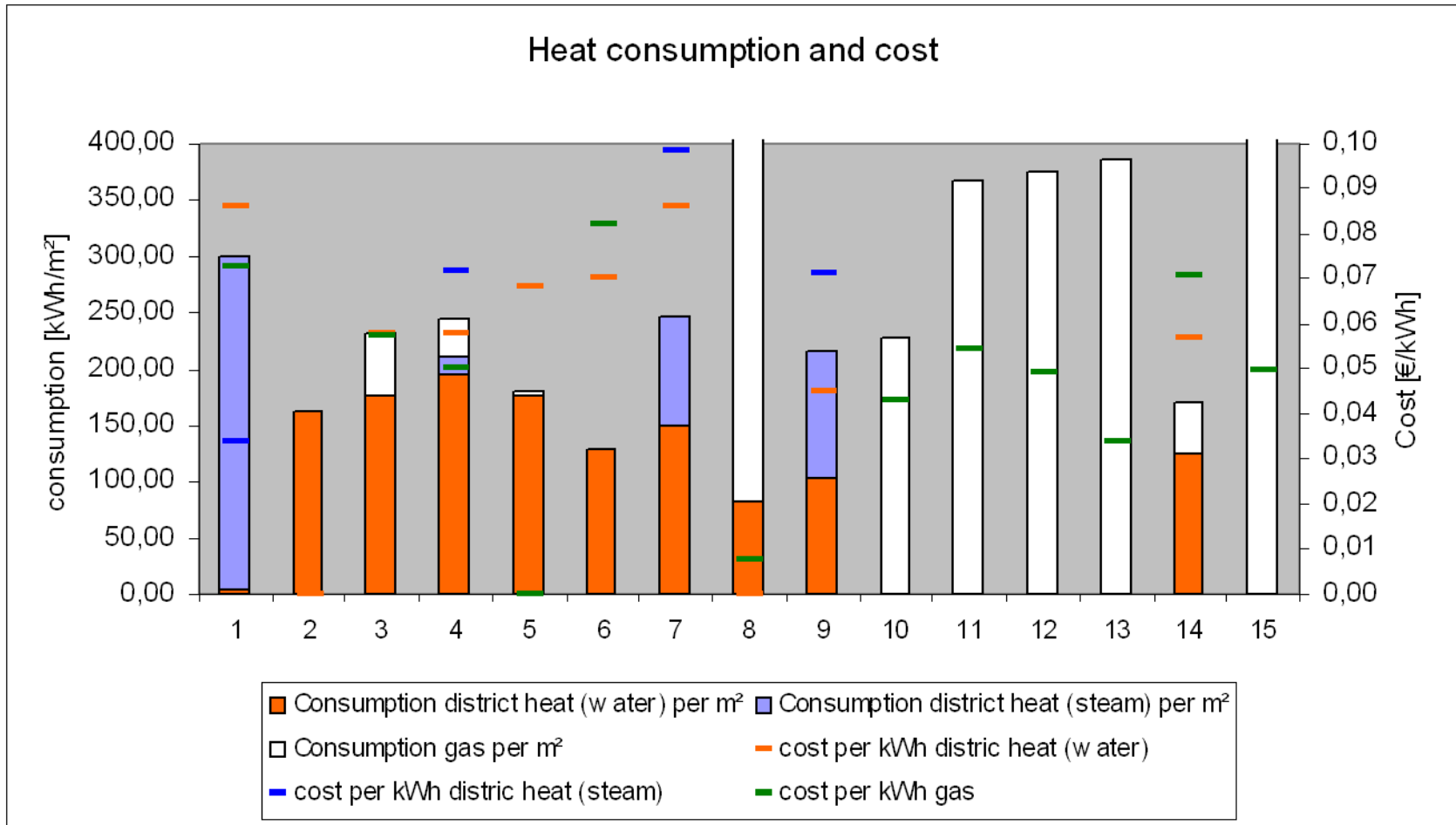
Preferred key figure: Space (NFA DIN 277)

# Benchmarking – results II



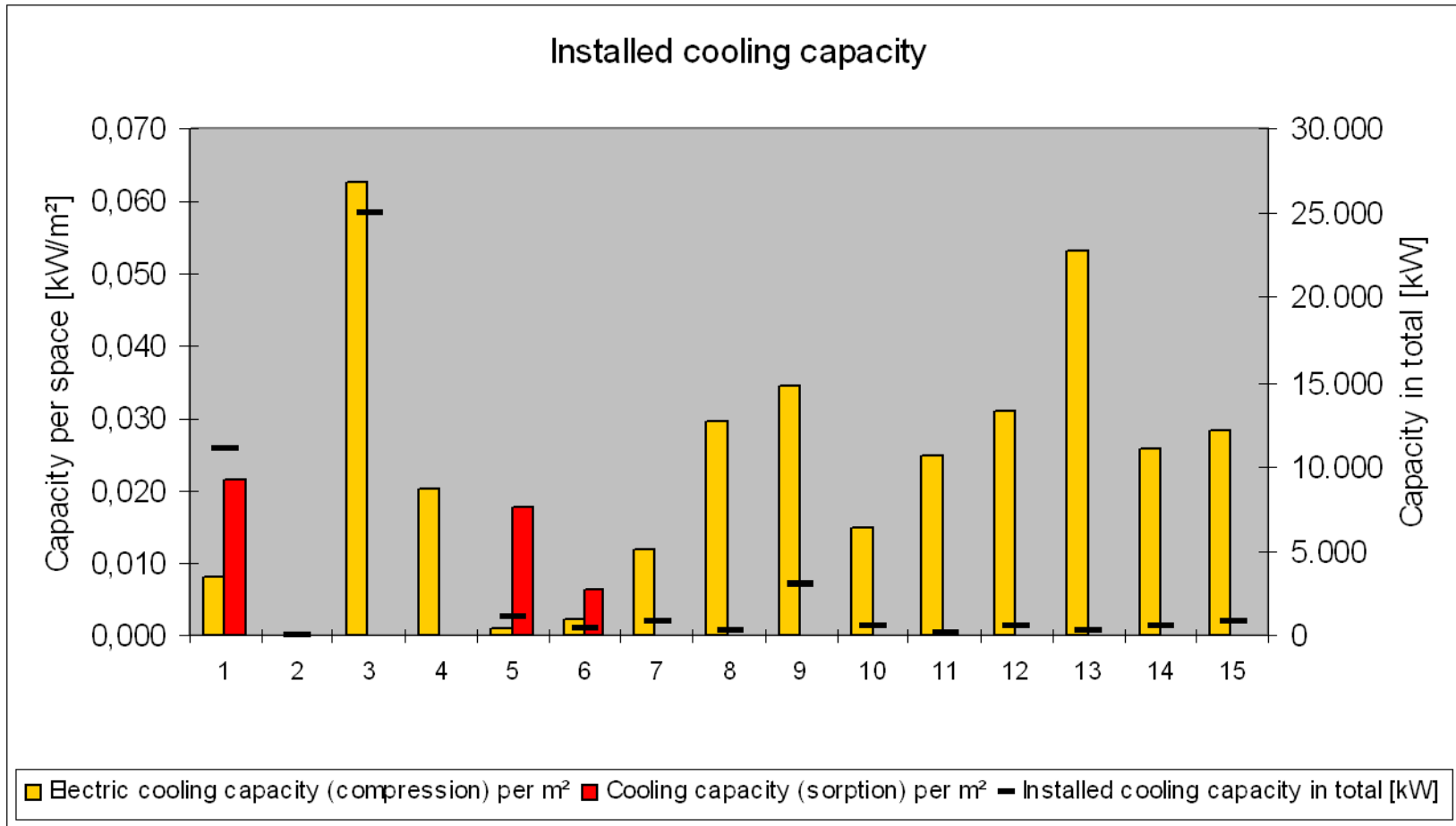
Target: Heat consumption shall be about the amount of electricity consumption...?

# Benchmarking – results III



Heat is used not only for heating but for processes: steam production (sterilization, kitchen, humidity for ventilation) and cooling.

# Benchmarking – impact of cooling



Variation per bed:

2 - 19 kW/bed;

Variation per m<sup>2</sup>:

0,01 - 0,06kW/m<sup>2</sup>

# Energy performance and sustainability

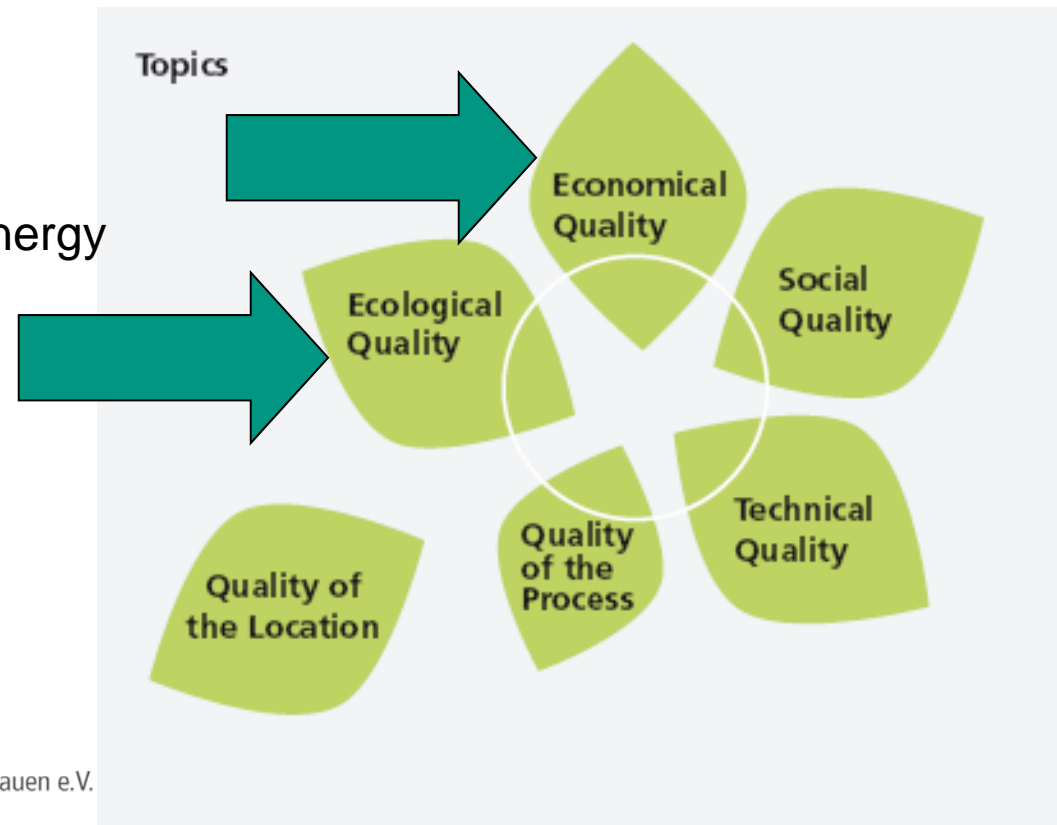
German Sustainable Building Council (DGNB)

Development of a German system to measure sustainability of buildings starting in 2008

6 Topics

49 Criteria

Impact of  
efficient energy  
use



**DGNB**

Deutsche Gesellschaft für nachhaltiges Bauen e.V.  
German Sustainable Building Council

# DGNB goals and systematik

Protection subject

Natural environment   Natural resources   Health   Economic values   Social a. cultural values

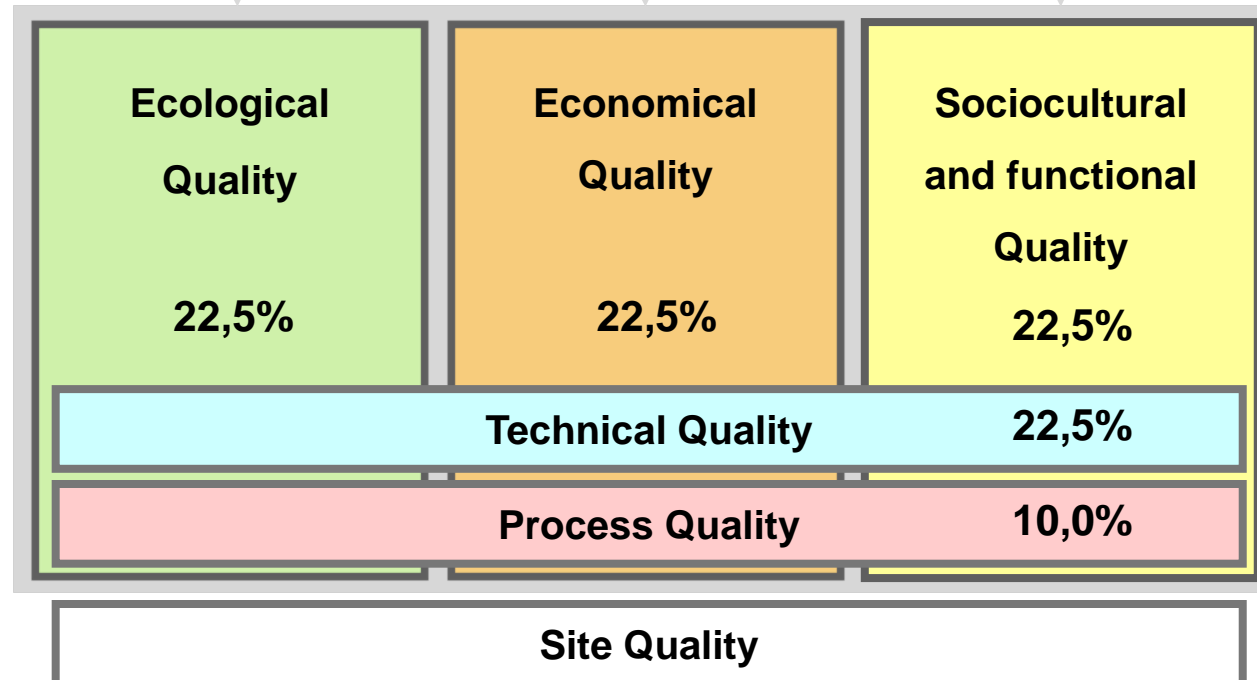
Protection goal

Protection of the environment  
Protection of the natural resources

Decrease of the life-cycle costs  
Receipt of ecological values

Assurance of health/  
Thermal comfort  
People-friendly surrounding area/  
Receipt of social and cultural values

Assessment



# Contact



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