

Strategic Analysis of Building Portfolios - MultiMap

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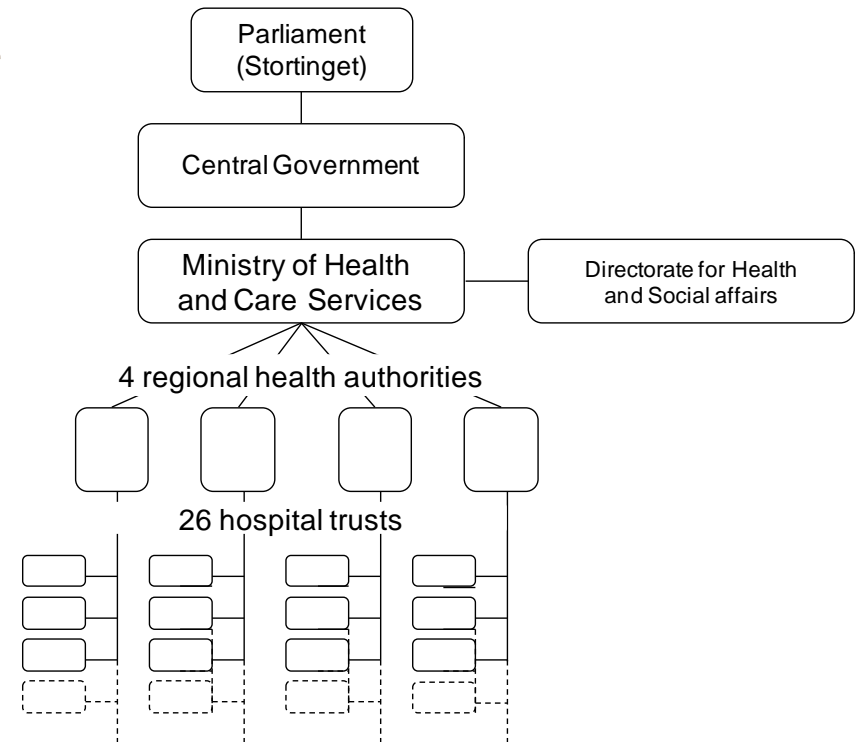
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Outline

- Background
- The Research Project – Purpose and Approach
- Results:
 - MultiMap – method and tools
 - Examples
- Discussion and conclusion

The Specialist Health Care Service in Norway



- Basic funding (60%) + activity based funding (40%)
- Totalt budget: approx. 103 bn (13,5 bn €, approx 2700 € per inhabitant)
- Approx. 95.000 per man-year
- Value of the building portfolio is approx. 80% of the accounting balance
- Close to 5 mill m2

Problem

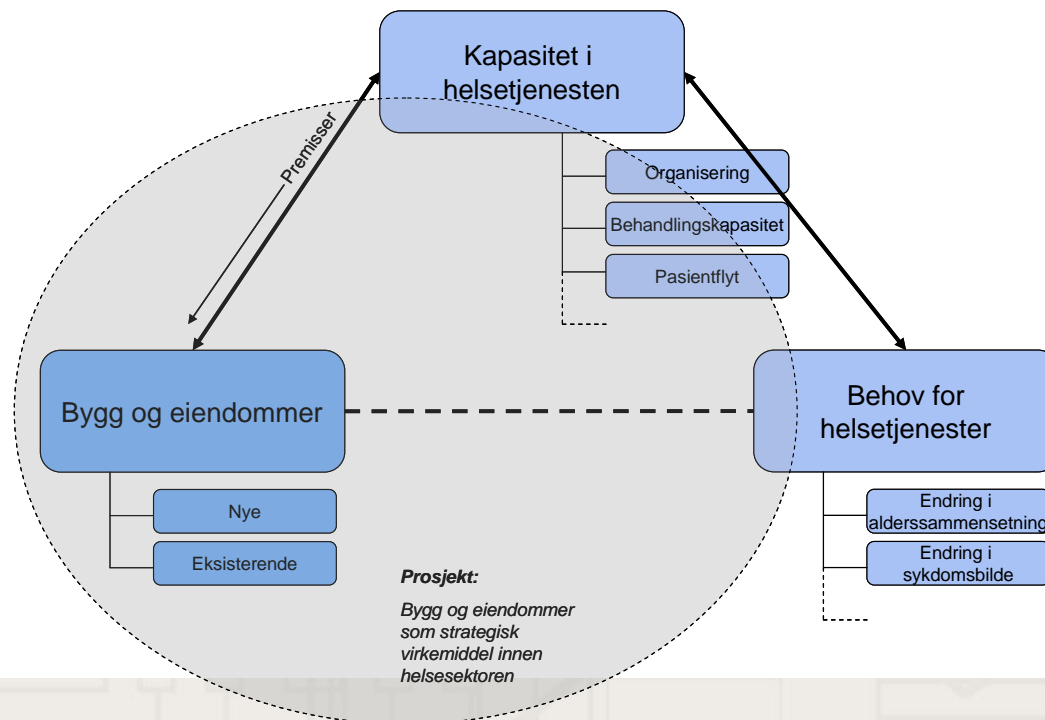
- The health sector is the most costly sector in all nations
- Strong drivers for change – major transformation needs
- Both resource effective management and transformation of the building portfolio in line with the development of the health care services is necessary.
- Reform in 2002 – ownership from Counties to the State
- Early R&D projects:
 - Benchmarking Nordic Hospitals (2002-2003)
 - *"Development of Models for effective Hospitals"* (2005-2006)

Two major issues identified:

- the facility management is perceived as currently being not optimally managed, and having high improvement potential.
- the facility management suffers from a lack in overview and management information, and requires methods and tools to provide both.

Research and development project

«FM as a strategic tool for achieving efficient health services» (2006-2010)



Main goals

Help make the Health Authorities and Health Trusts better:

- communicate with the core business - building and property as strategic means
- understand the core business – premise for the construction and property
- provide comprehensive building and property analysis
- achieve good hospital logistics
- establish Key Indicators and perform benchmarking processes
- develop care pathways - as basis for improved efficiency and planning of capacity and space



- 1. Knowledge**
- 2. Methods and tools**



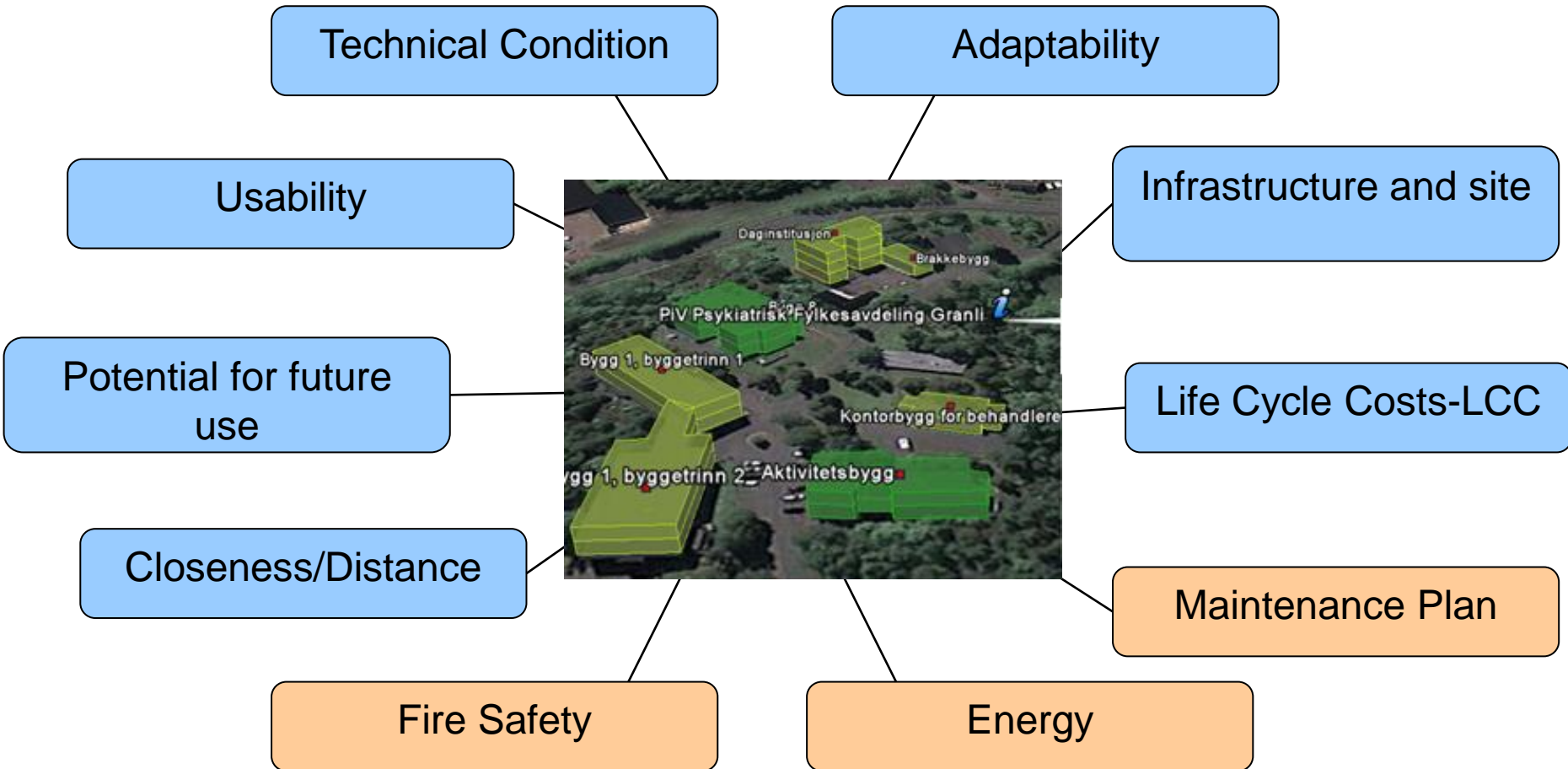
Research Approach

- Pragmatic approach – quantitative and qualitative methods
- 8 large scale case studies
- Working groups and 40 workshops
- 65 participants from several Health Trusts and Health Authorities
- Steering Group:
 - Regional Health Authorities, Sintef, Multiconsult, The Research Council of Norway
- An including R&D project
 - Many ideas, high activity
 - New arenas
 - Continuous development and implementation of knowledge and methods

Results

Results

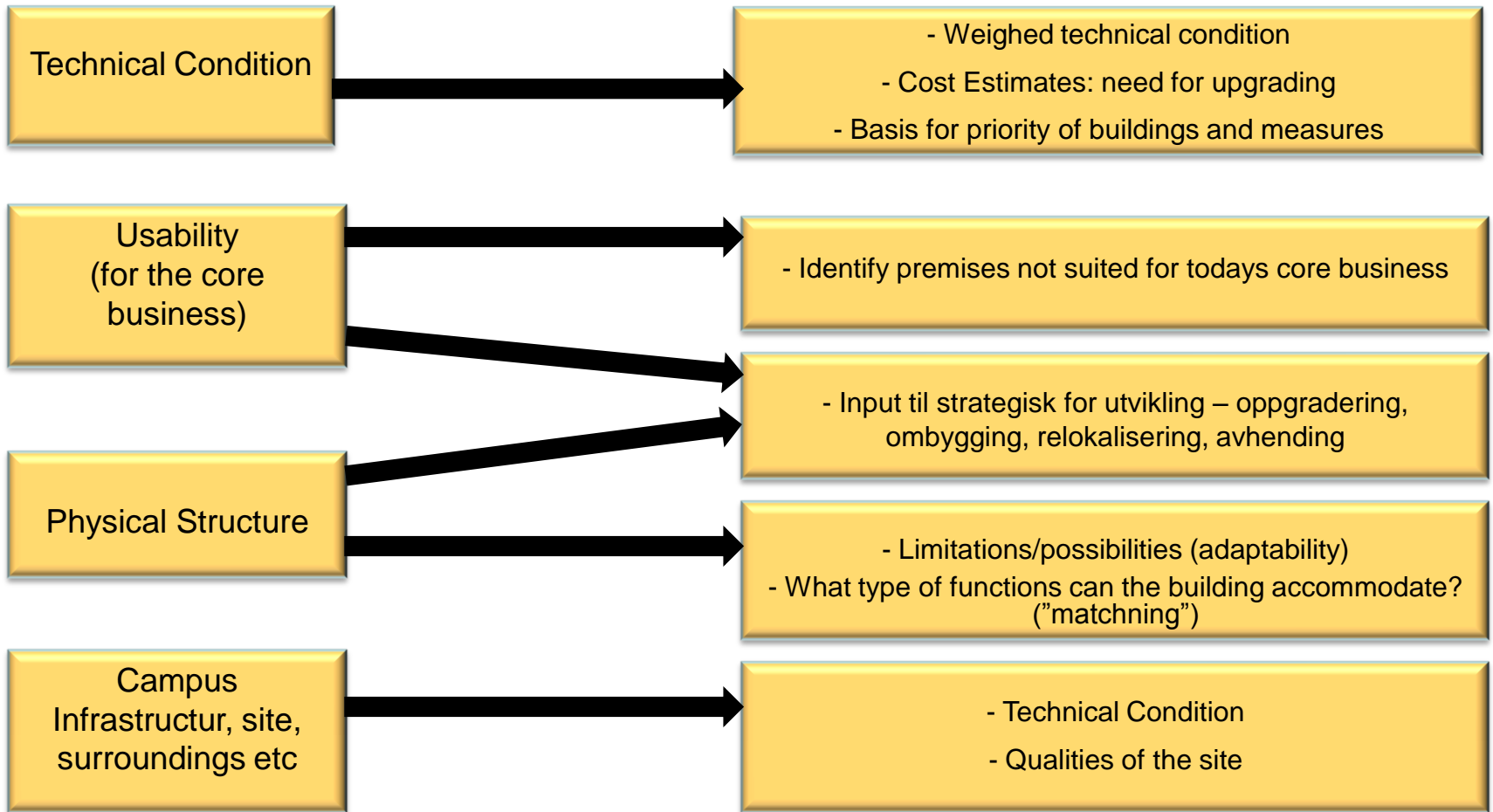
MultiMap - modules



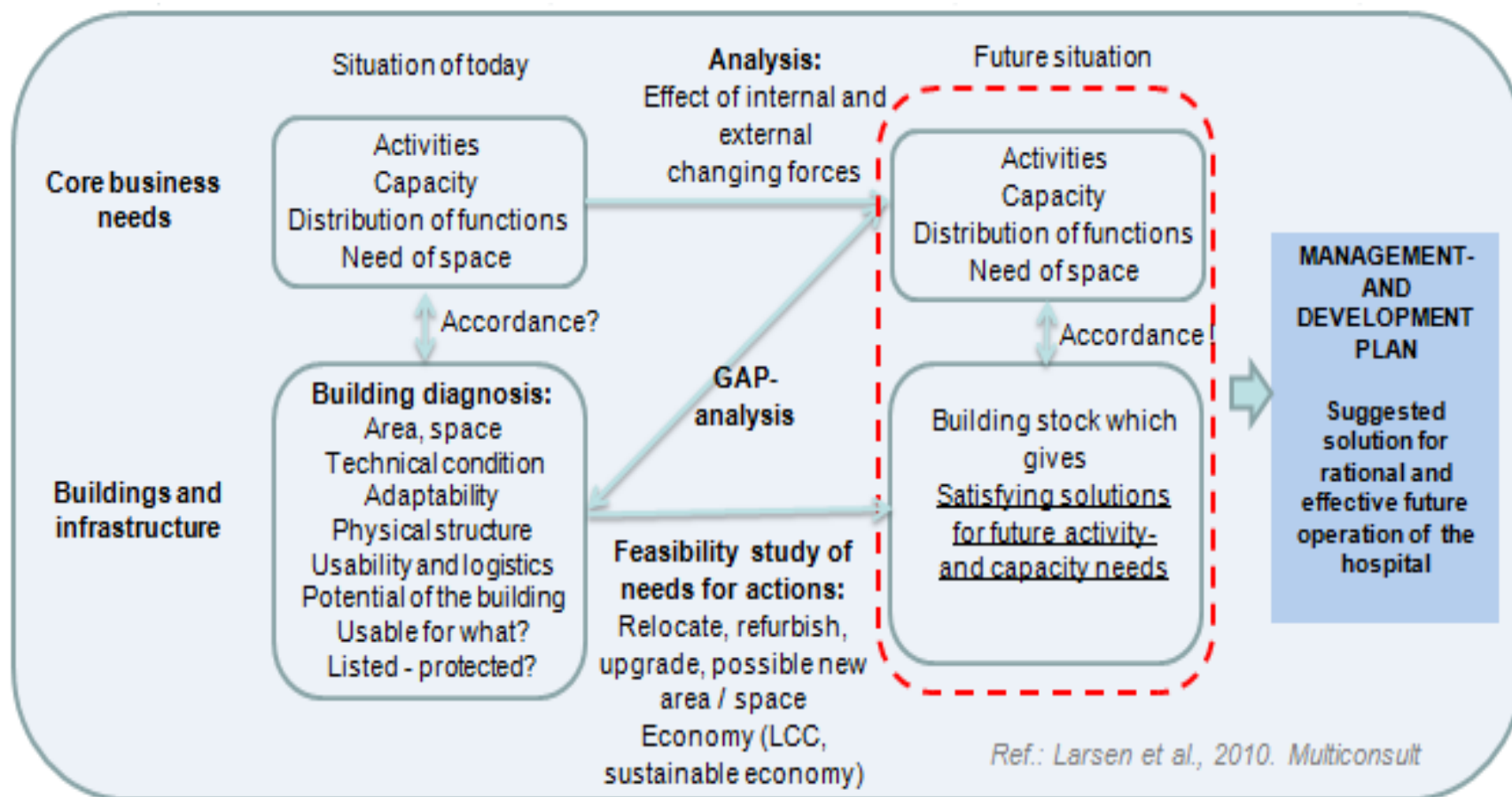
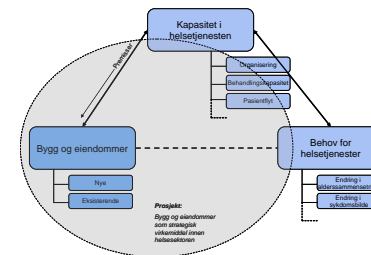
Modules

Mapping

Results from mapping

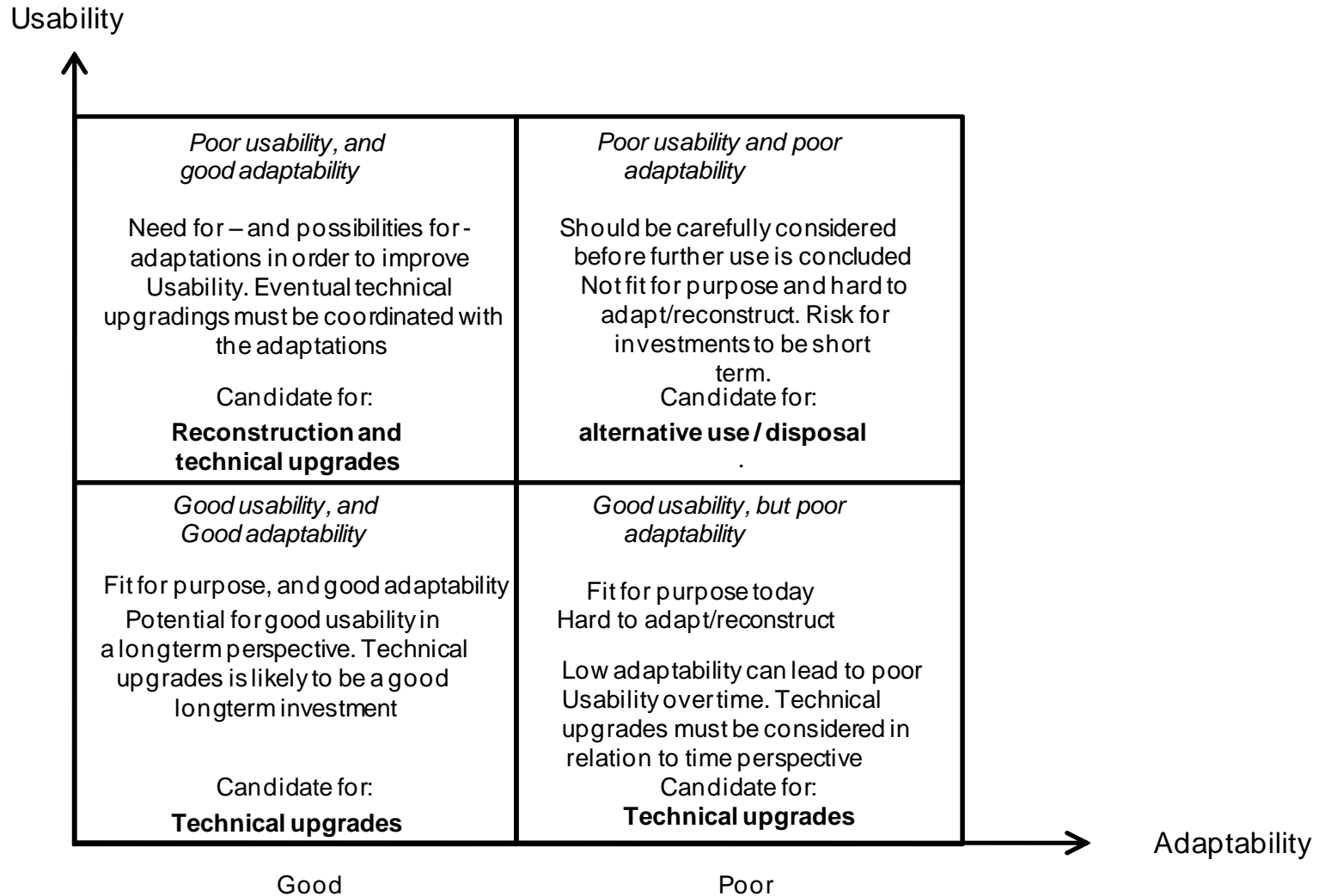


Holistic Analysis Model



Source: Larssen, 2011 p 195, adapted from Larsen et al., 2010 and Zwart et al., 2009

The Viability Model

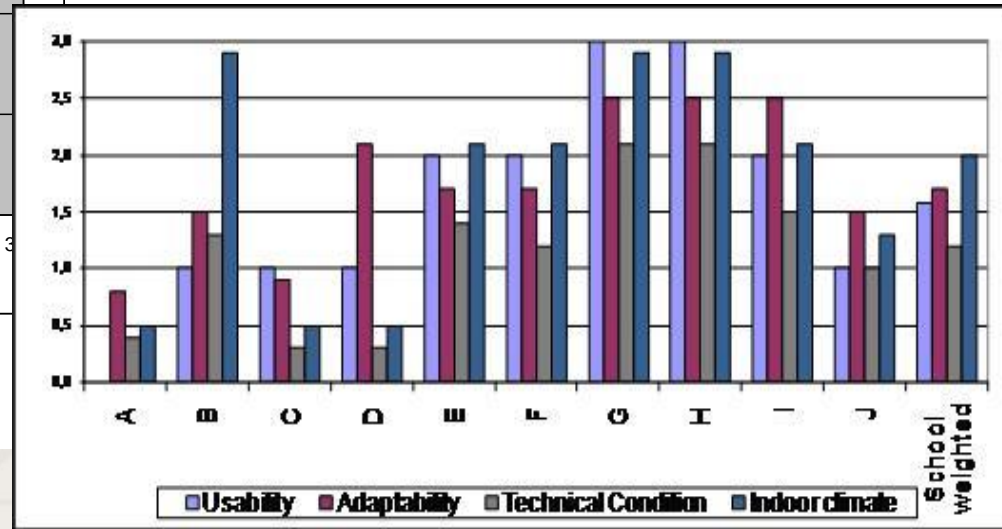
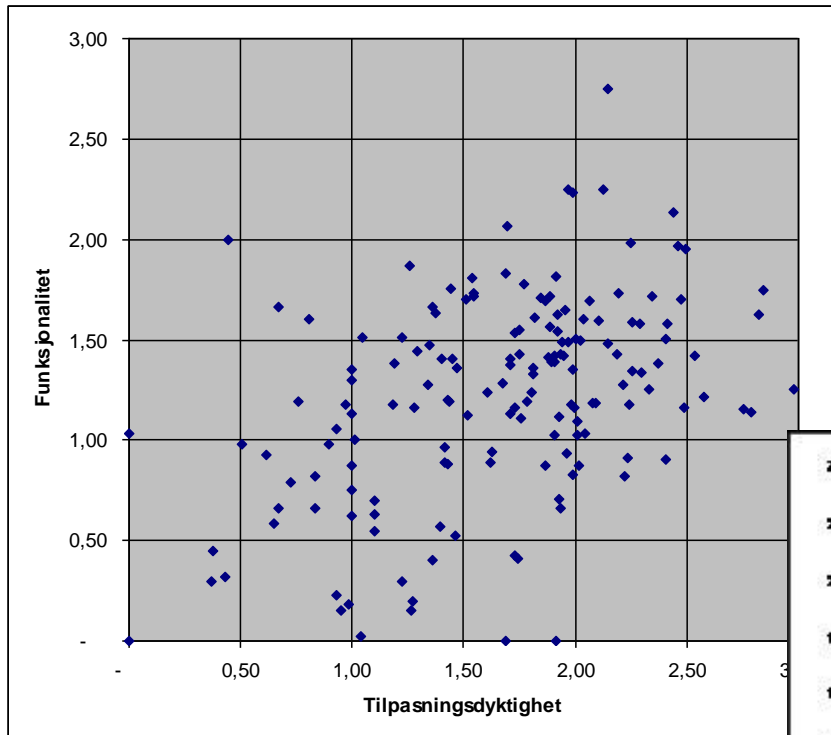


The viability model ("Levedyktighetsmodellen" – the combination of usability and adaptability (adapted from Larssen and Bjørberg, 2004)

Examples

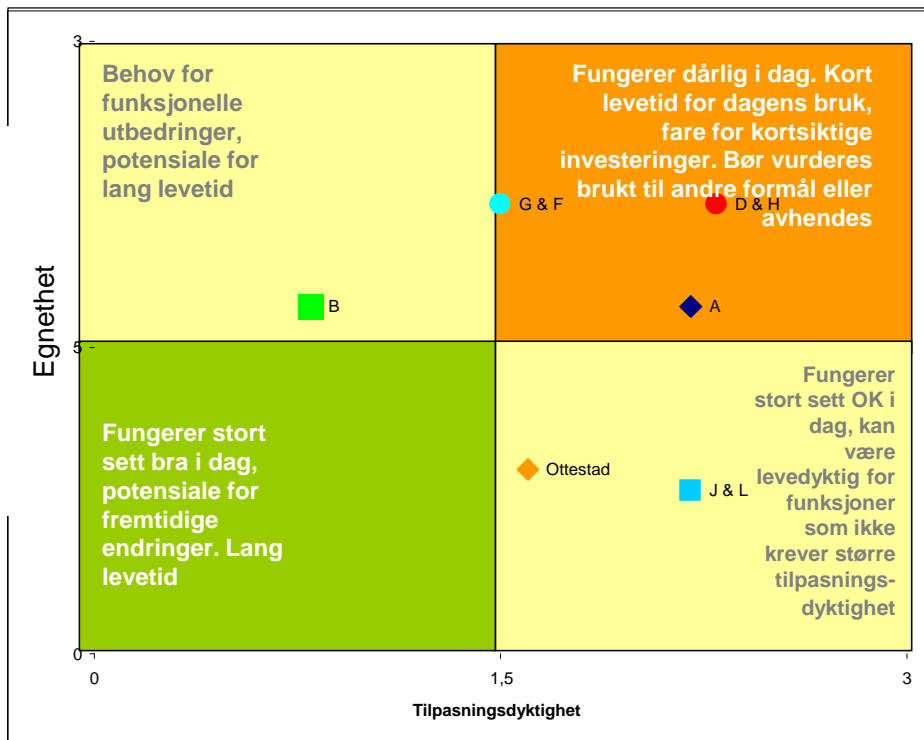
Example - School sector

Low adaptability and usability > short lifetime
> reduced economic value of the building

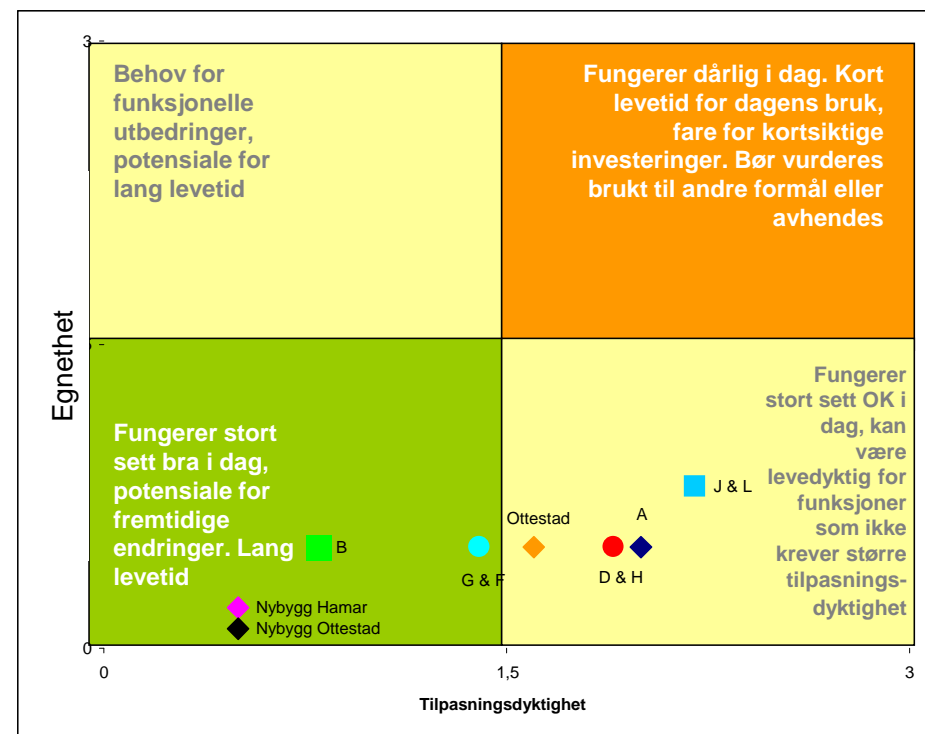


The Viability Model

- used in a feasibility study



Today



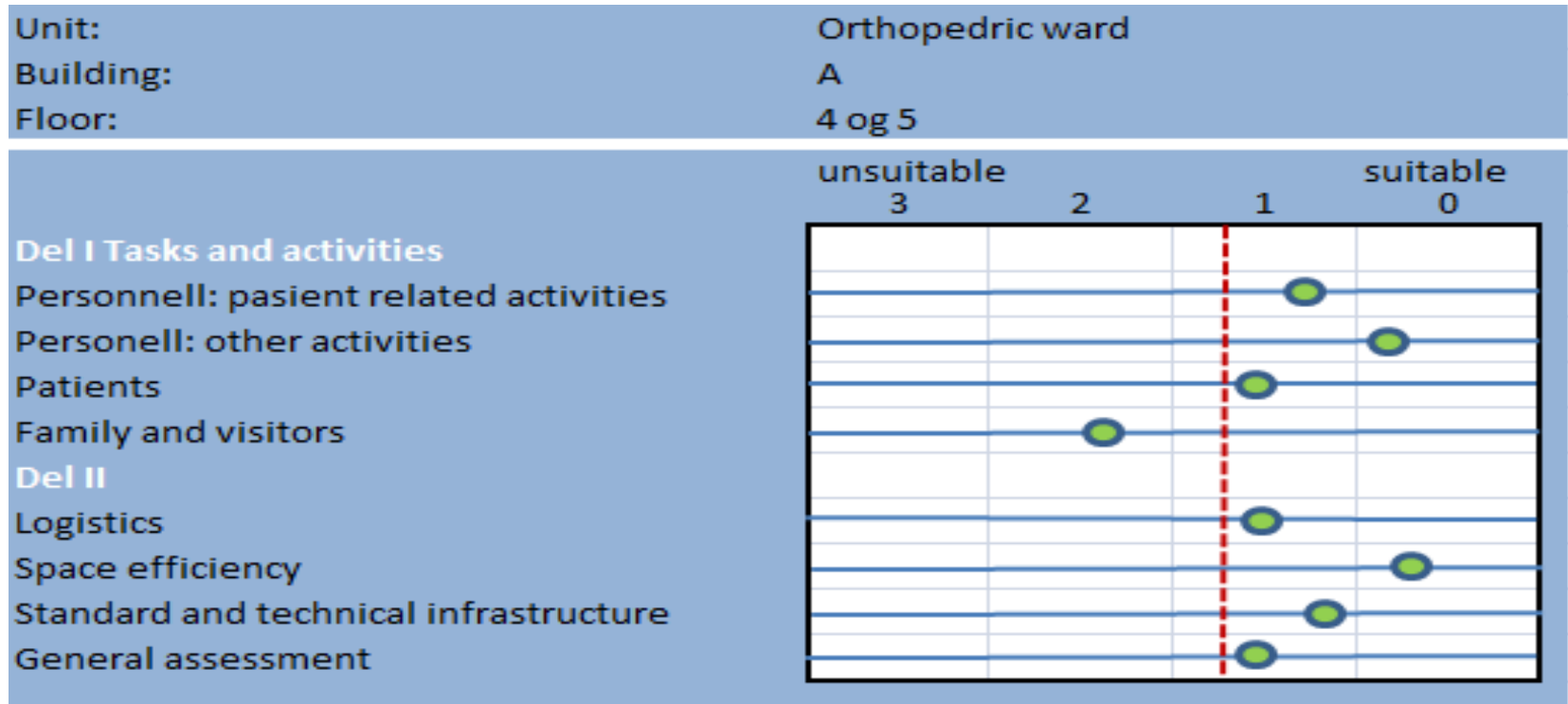
Possible future situation

Example – analysis of alternatives

Alle alternativ



Example - Usability assessment

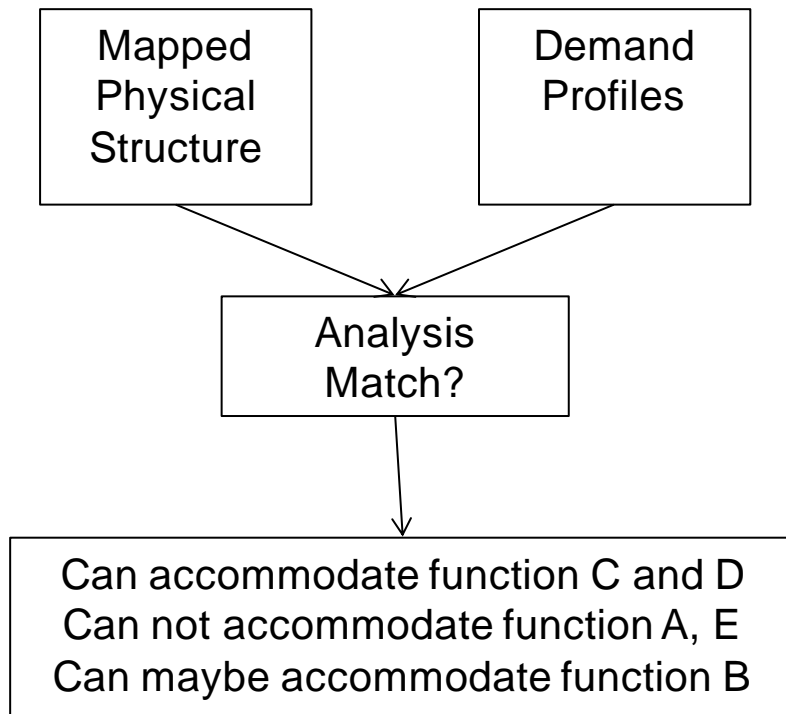


Example of a possible presentation of results from the detailed questionnaire – from a pilot Hospital case (Score from 0 to 3 where 0 is best) (Larssen, 2011, page 239).

What Hospital functions can the buildings accomodate?

Matching – basic principles

Principle - method



Principle - parameters

- The Buildings potential is limited by its physical structure (structural work)
- Properties that are static, and which normally can't be changed
- Plan, interior design and installations are therefore excluded from this first step analysis

Example – "matching"

Gruppe A		Gruppe B		Gruppe C		Gruppe D		Gruppe E	
Foretrukne krav	Minimumskrav	Foretrukne krav	Minimumskrav	Foretrukne krav	Minimumskrav	Foretrukne krav	Minimumskrav	Foretrukne krav	Minimumskrav
5	6	6	7	6	7	7	8	3	7
5	6	6	7	6	7	7	8	3	7
5	6	6	7	6	7	7	8	3	7

Gruppe A: Surgery, advanced radiology

Gruppe B: Wards

Gruppe C: Acute, ergo/physio, "light" radiology, outpatient with special lab. functions (gastro, cardiology, nuclear med.)

Gruppe D: Day treatment, clinics, "light" laboratories, offices

Gruppe E: voluminous support functions

Example – "matching"

Bygningsinformasjon					Vektet teknisk tilstand	Vektet grad tilpasningsdyktighet	Egnethet	Gruppe A		Gruppe B		Gruppe C		Gruppe D	
Etasjeid	Bruttoareal bygning [m2]	Bruttoareal pr etasje [m2]	Byggeår	Hovedfunksjon per etasje				Foretrukne krav	Minimumskrav	Foretrukne krav	Minimumskrav	Foretrukne krav	Minimumskrav	Foretrukne krav	Minimumskrav
3 etg		2 097	1971	Dagområder og poliklinikker	2,2	1,0	1,4	5	8	6	8	7	8	7	8
4 etg		1 653	1971	Dagområder og poliklinikker	2,2	1,0	1,0	5	8	6	8	7	8	7	8
5 etg		1 416	1971	Tyngre Laboratorier, analyser og blodbank	2,3	1,0	1,1	5	8	6	8	7	8	7	8
6 etg		1 416	1971	Tyngre Laboratorier, analyser og blodbank	2,3	1,0	1,1	5	8	6	8	7	8	7	8
7 etg		1 416	1971	Tyngre Laboratorier, analyser og blodbank	2,3	1,0	0,9	5	8	6	8	7	8	7	8
8 etg		1 416	1971	Lett radiologi	2,2	1,0	0,6	5	8	6	8	7	8	7	8
9 etg		728	1971	Tekniske rom	2,2										
1 Underetg.		5 682	1971	Tekniske rom	2,2										
2 Underetg.		2 388	1971	Tekniske rom	2,2										
	19 640														
1 etg		4 451	1902	Sengeområde (inkl.barnesengområde, rehab, fø	2,6	1,8	1,5	3	3	3	4	3	4	4	8
2 etg		4 422	1902	Sengeområde (inkl.barnesengområde, rehab, fø	2,6	1,8	1,9	3	3	3	4	3	4	4	8
3 etg		4 182	1902	Sengeområde (inkl.barnesengområde, rehab, fø	2,6	1,8	1,8	3	3	3	4	3	4	4	8
4 etg Forsknings		1 568	1902	Tyngre Laboratorier, analyser og blodbank	2,6	1,8	2,0	3	4	3	5	4	5	5	8
5 etg Teknisk/tak		563	1902	Undervisning og forskning, ekskl. auditorium	2,2	2,3	0,1	0	3	1	4	2	5	4	8
1 Underetg.		4 454	1902	Tekniske rom	2,7										
	36 613														
1 etg		4 636	1976	Undervisning og forskning, ekskl. auditorium	1,9	0,3	0,9	7	8	7	8	8	8	8	8
2 etg		2 354	1976	Tyngre Laboratorier, analyser og blodbank	2,0	0,3	1,7	7	8	7	8	8	8	8	8
3 etg		2 354	1976	Tyngre Laboratorier, analyser og blodbank	2,0	0,3	0,4	7	8	7	8	8	8	8	8
4 etg		2 354	1976	Tyngre Laboratorier, analyser og blodbank	2,0	0,3	0,3	7	8	7	8	8	8	8	8
5 etg		2 354	1976	Tyngre Laboratorier, analyser og blodbank	2,0	0,3	0,3	7	8	7	8	8	8	8	8
6 etg		2 354	1976	Tyngre Laboratorier, analyser og blodbank	2,0	0,3	0,7	7	8	7	8	8	8	8	8
Teknisk 1 etg		2 354	1976	Tekniske rom	1,7										
Teknisk 2 etg		2 354	1976	Tekniske rom	1,7										
Teknisk 3 etg		2 354	1976	Tekniske rom	1,7										
Teknisk 4 etg		2 354	1976	Tekniske rom	1,7										
Teknisk 5 etg		2 354	1976	Tekniske rom	1,7										
Teknisk 6 etg		2 354	1976	Tekniske rom	1,7										
U. etg		6 083	1976	Tekniske rom	1,7										

Example - Visualization of results

Vertical
coordination

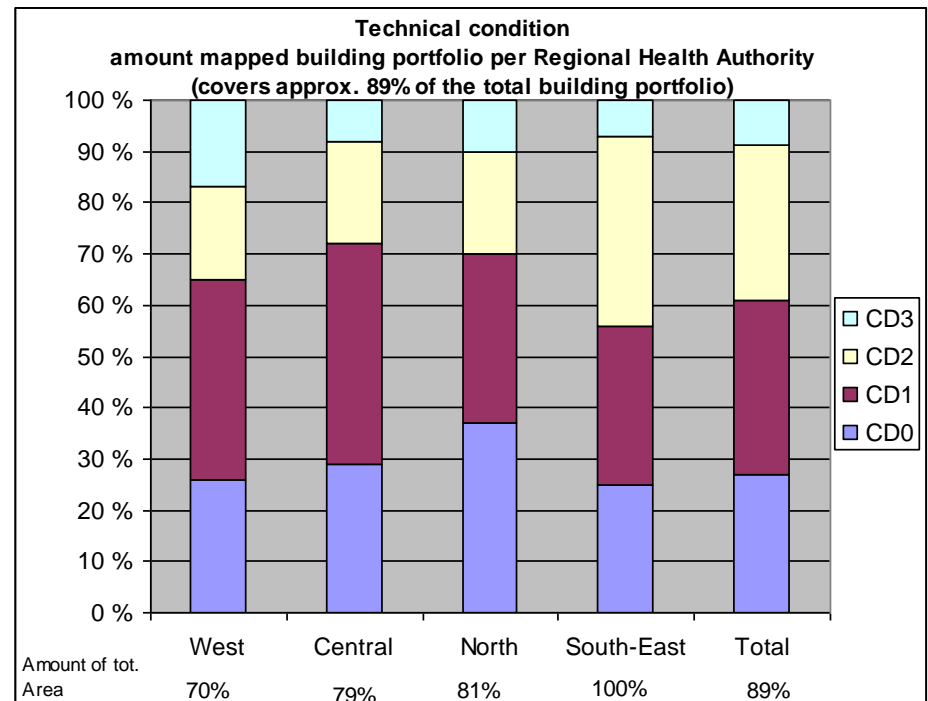
increasing
detailing



Results

Status report - National Overview

- Area and age
 - approx. 4,8 mill m², ie. approx. 1 m² per inhabitant
 - From approx. 37.000 m² to approx. 900.000 m² per Health Trust,
From 550.000 m² to 2,6 mill m² per Regional Authority
- Technical Condition
(40 % not acceptable)
- Technical upgrading
 - ~ 26 billion NOK (~ 3,4 billion euro)
 - But: transformations costs are MUCH more!
- Adaptability and physical structure
- Substantial amount of buildings with limited Usability for the Core Business



Source: Larssen and Kvinge, Multiconsult (2008)

Discussion and conclusion

■ Discussion

- Validity – objectivity
 - Technical issues
 - Usability assessment
- Uncertainty of cost estimates
 - few buildings: up till 35%
 - larger portfolios: 10-15%

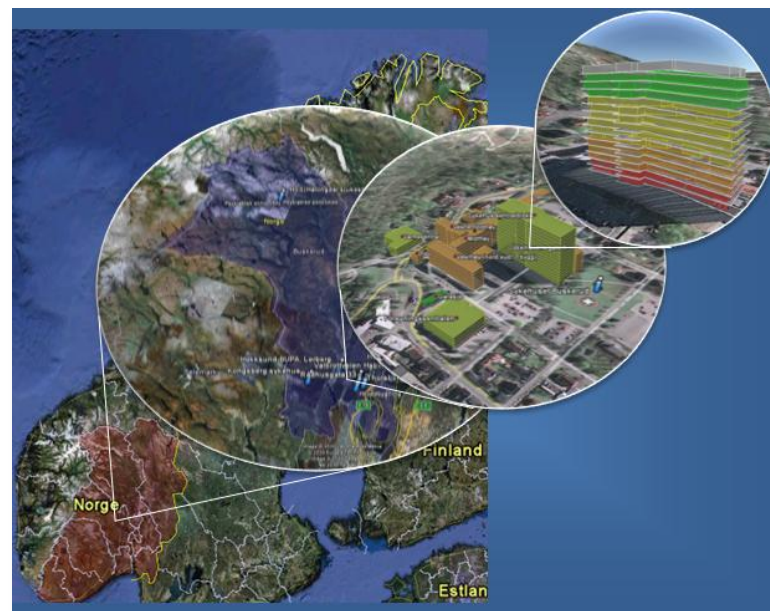
■ Conclusion

- Innovative and effective method to support the strategic portfolio planning
- or as first scan of single buildings
- Effective regarding use of resources
- Communicates complex information effectively
- Generic model (ie. roads and nautical installations)

The Norwegian Specialised Health Care sector has a unique overview of it's building portfolio

THANK YOU FOR YOUR ATTENTION !

- A first step towards a more strategic and active role for FM



The Norwegian Specialised Health Care sector has a unique overview of it's building portfolio