

LEADING-EDGE



Leading-Edge
Asset Management

2nd IWA Leading-Edge Conference & Exhibition on
Strategic Asset Management

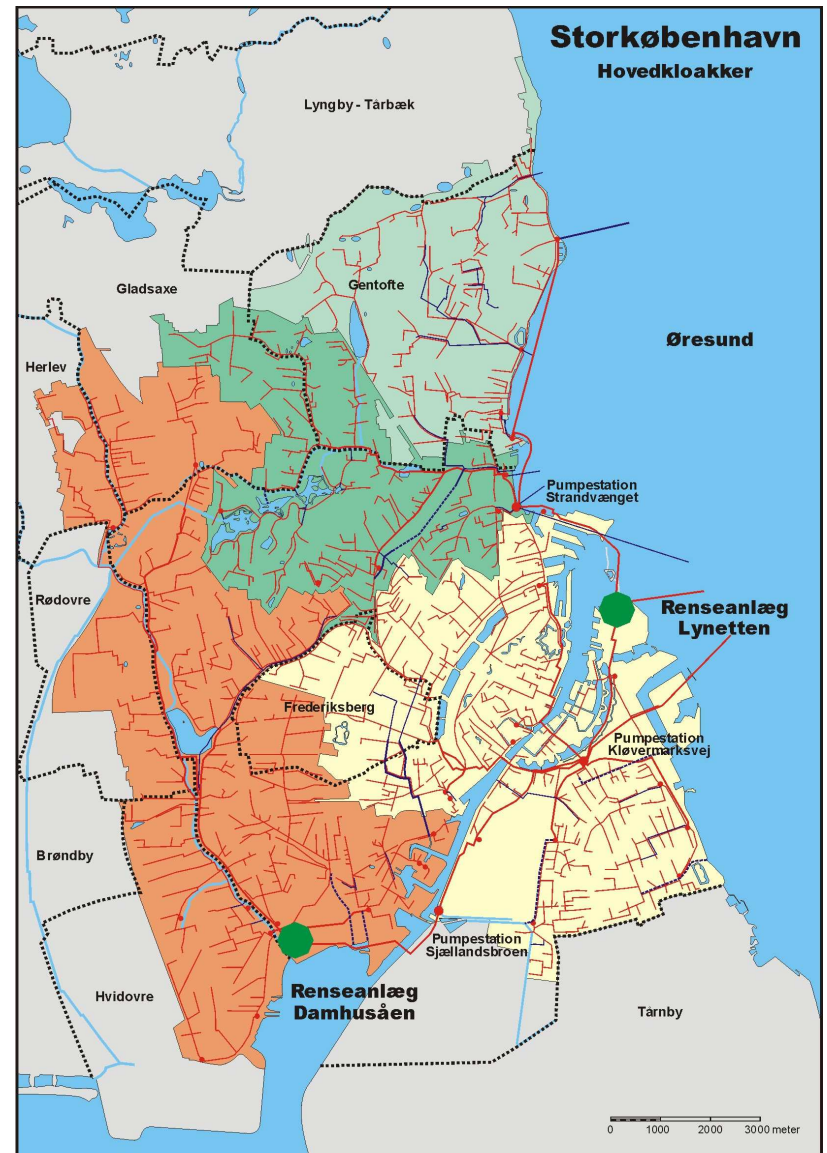
**Asset Management in
Copenhagen Energy Sewerage Department**

Jens Elkjær

LESAM 2007 – Lisbon 17-19 October 2007

Presentation of CESD

- CE Ltd.: Heat, gas, water and sewerage services, 100% owned by the municipality.
- CESD: App. 100 employees
- System covers central Cph. (500t customers)
- Contribution from other municipalities
- 1 mio. PE connected to the wastewater treatment plants.
- Asset replacement value: app. 2 bill. €
- Annual costs: app. 30 mill. €



Leading-Edge
Asset Management

Why Asset Management?

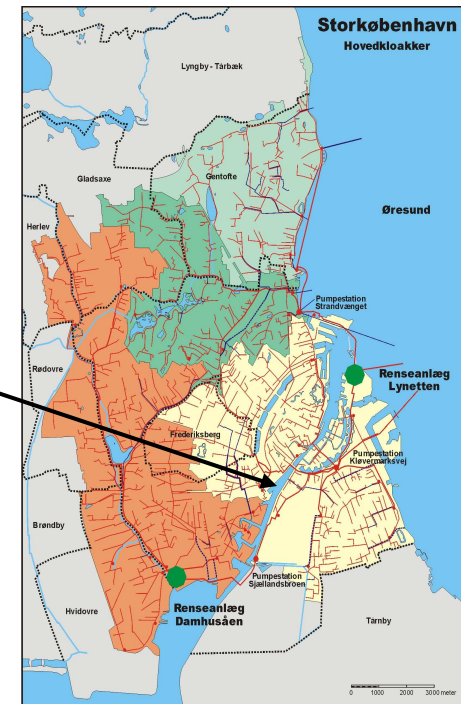
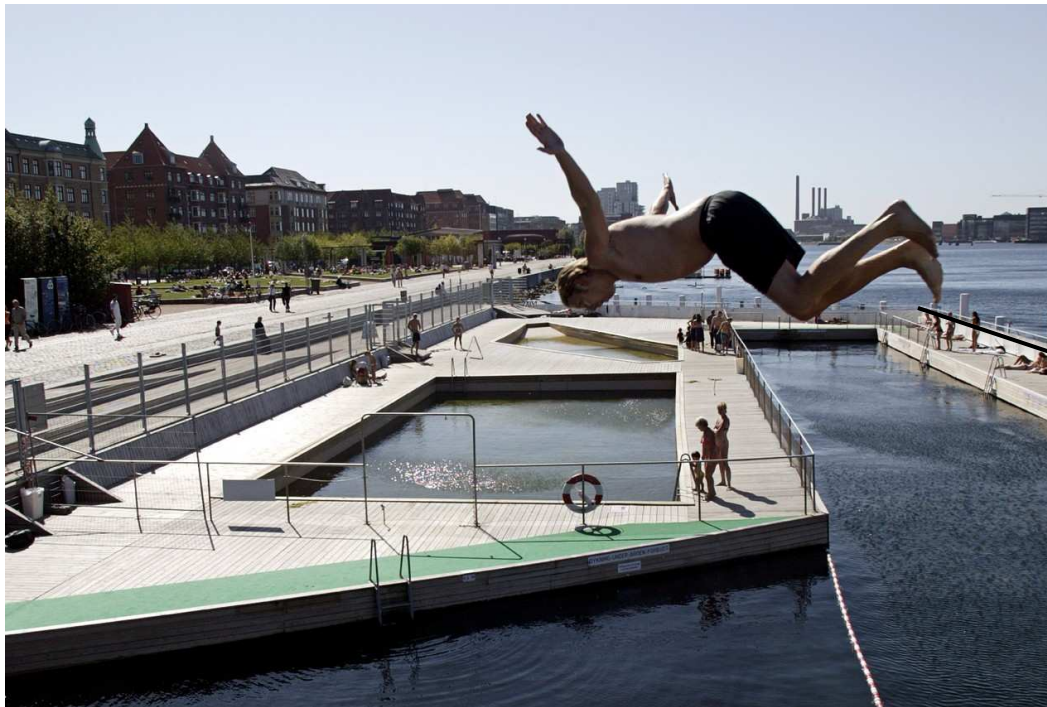
- We have always managed our assets!
- But:
 - Increased focus on efficiency and effectiveness
 - High service level requirements
 - Financial conditions
 - Climatic change
- 2004: From managing assets to Asset Management
 - Holistic, systematic and dynamic approach



Leading-Edge
Asset Management

Asset Management in CESD

Objective: To meet the defined service level at minimum costs

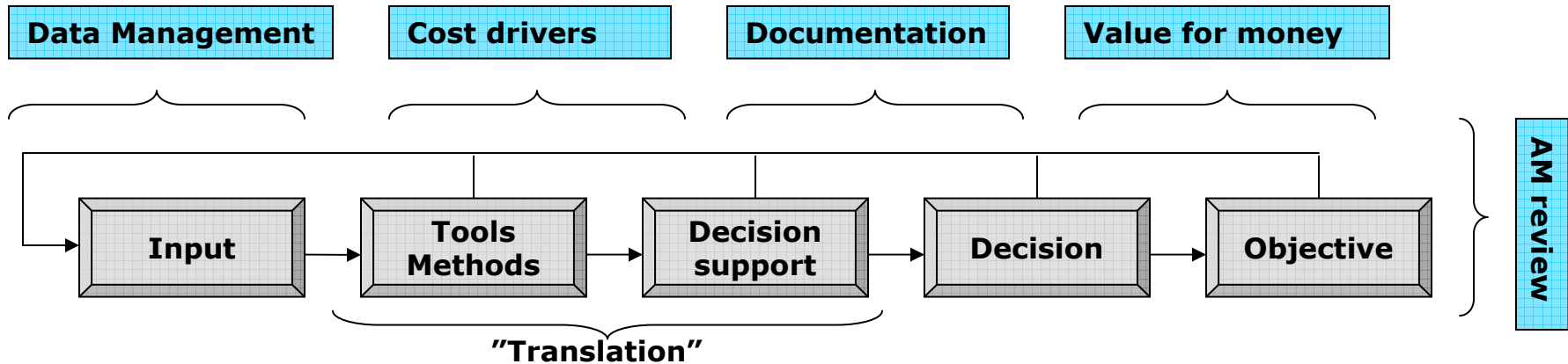


Service level: Safety, reliability, environment, customer service...



Leading-Edge
Asset Management

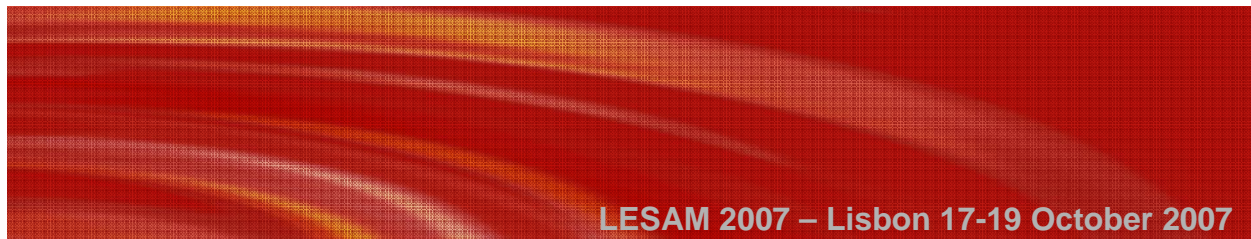
Asset Management in CESD



| | LEAN | WTP | Example of Asset Management in CESD: |
|------------------|--------------------------|-----------------------------------|--|
| •Costs | •Life-cycle costing | •Multi-criteria decision analysis | Better decisions at all levels: |
| •Social costs | •Risk analysis | •Feasibility studies | •Strategic |
| •Asset inventory | •O&M analysis | •Business cases | •Tactical |
| •Asset condition | •Environmental economics | | •Operational |
| •Performance | | | |
| •Risks | | | |
| •Customers | | | |
| •... | | | |
| | | | To meet the defined service level at minimum costs |



Leading-Edge
Asset Management



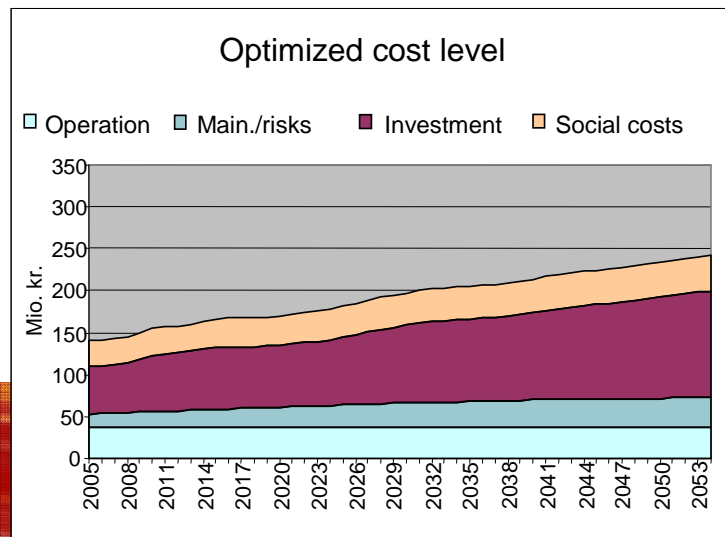
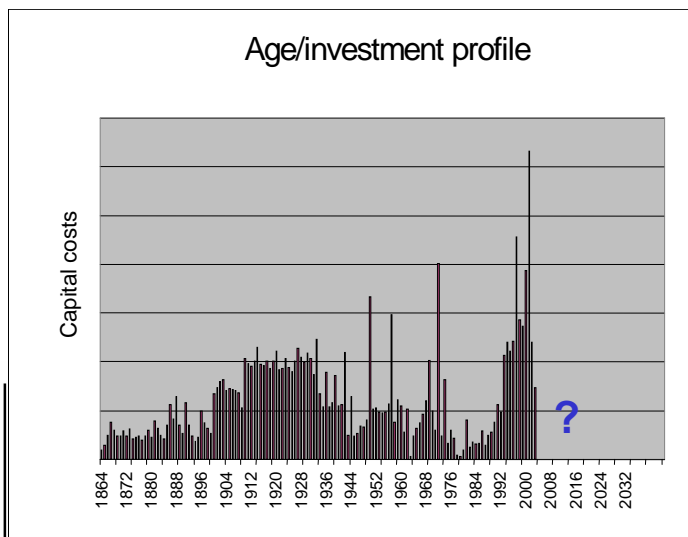
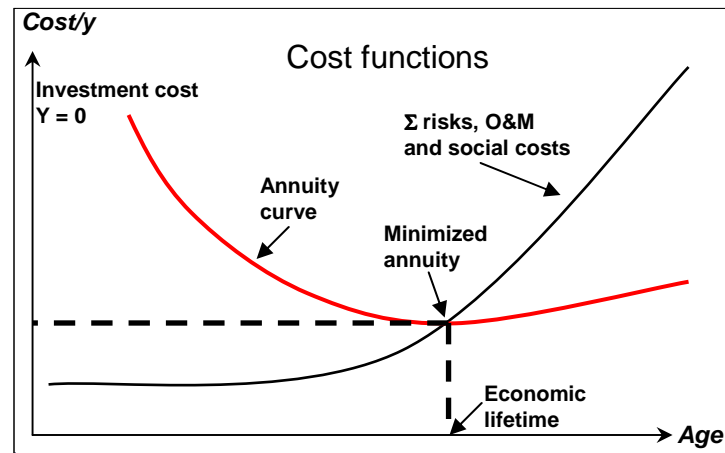
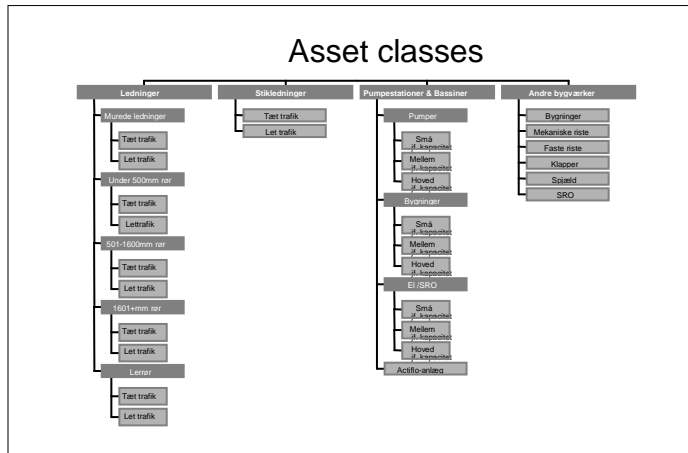
Why a top-down LCC model in CESD?

- To initiate the Asset Management
- Optimize the level of costs allocated to asset classes
- Improve strategic asset planning and budgeting

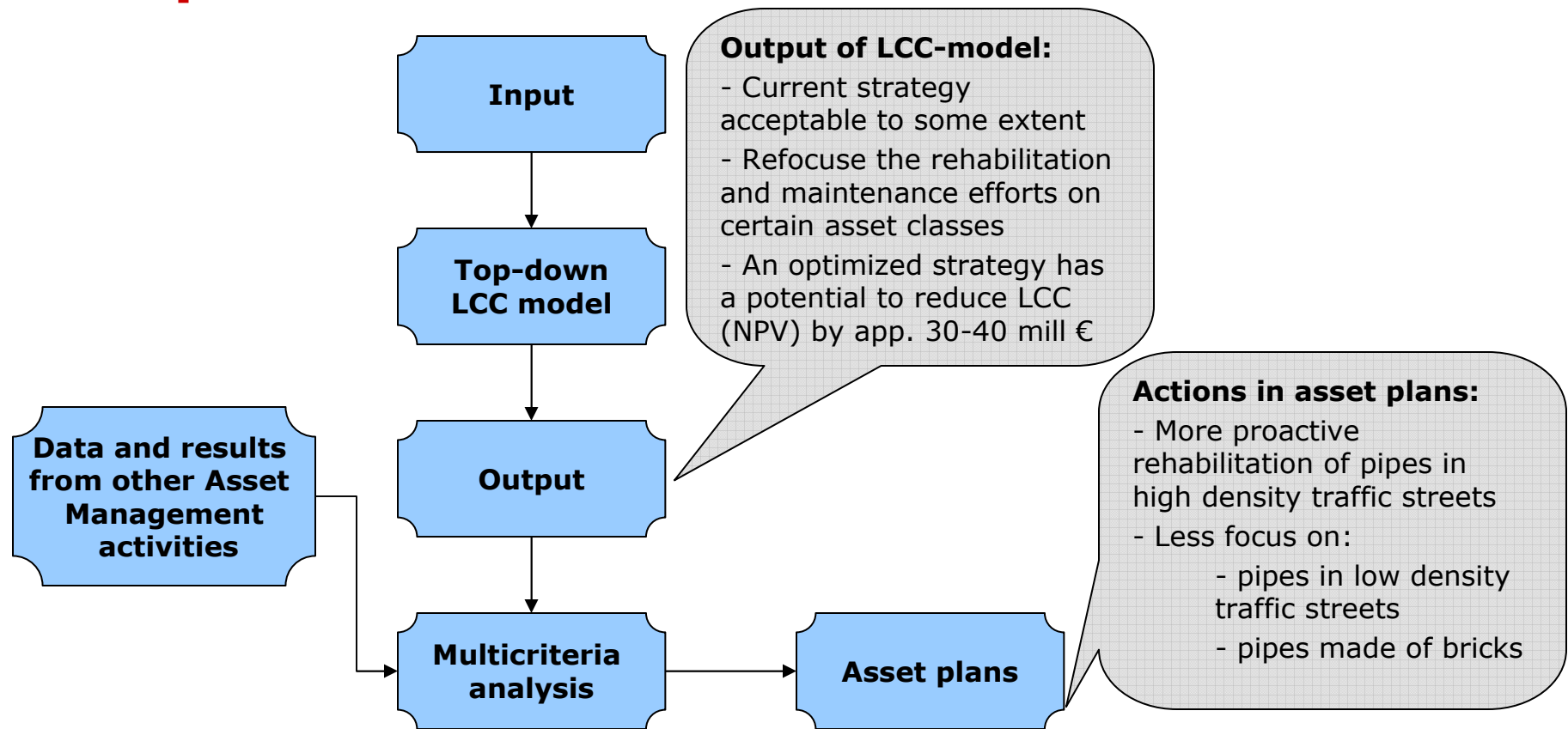


Leading-Edge
Asset Management

Top down LCC model – input/output



Top down LCC model - results



CESD focus +1year

- Asset Management review
- Data Management
- Multi-criteria approaches



Leading-Edge
Asset Management

Conclusion

- Results
- Ongoing process of continuous improvements



Leading-Edge
Asset Management

Thank you for your attention



Leading-Edge
Asset Management

LESAM 2007 – Lisbon 17-19 October 2007