DTU Management Engineering
Department of Management Engineering

Dynamic optimization of total value and environmental performance:

Use of real time property data for improved Facilities Management

Esmir Maslesa, Industrial PhD student

Project design

This industrial PhD develops and refines a total value concept to a practical, theoretical and pragmatic solution for property managers (including building owners, building consultants and facilities management organizations).

At the same time operational tools for dynamic assessment of environmental sustainability of buildings are developed, based on empirical data for the specific building and data information on the consumption of energy, water and materials, based on KMD's extensive collection of consumption data.

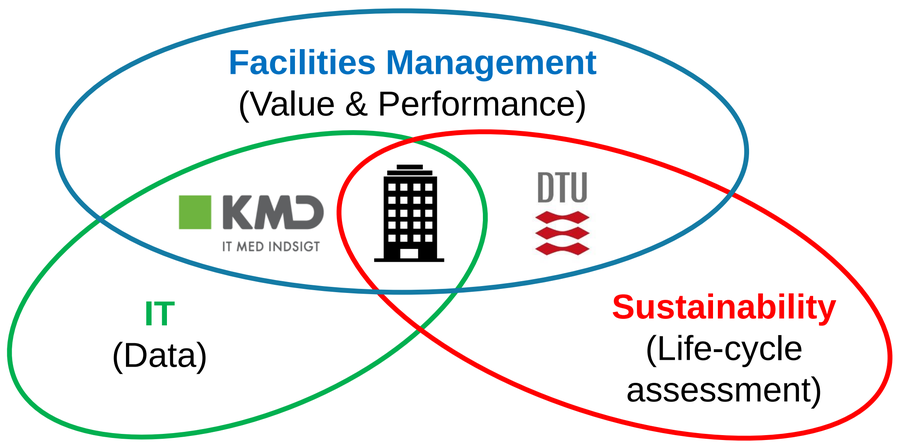
These two are later combined in the integrated facilities management system KMD Atrium, ensuring that property managers can continuously make assessments of the total value and environmental performance, and benchmark their buildings against similar buildings in Denmark, based on data from KMD and DFM Benchmark.

Research question

How can real-time property data be used to dynamically optimize total value and environmental performance in Facilities Management?

Conceptual model

This project combines three research fields (Facilities Management, IT, and Sustainability) to provide an adequate answer on the research question. The project is using a pragmatic approach in answering the research question. Life-cycle assessment is used for addressing sustainability in buildings, that is considered as an integrated part of value & performance in Facilities Management.



Research methods

- Literature review
- Case studies (public buildings & corporate real-estate)
- Data analysis (KMD Atrium data)
- Quantitative life-cycle assessment
- Expert interviews, stakeholder interviews
- Surveys (FM best-practice, FM organization, Sustainable FM, total value etc.)

Expected results

- Development and refinement of concepts regarding total value and environmental performance of buildings.
- Development of a methodological basis and purpose-based software for simultaneous calculation of the total value and environmental sustainability of construction, renovation and management of buildings.

Contact:

Esmir Maslesa, Industrial PhD student
Produktionstorvet, building 426
DK-2800 Kgs. Lyngby
+ 45 28 44 77 28
esmas@dtu.dk
www.cfm.dtu.dk

Supervisor/co-supervisor:

Susanne Balslev Nielsen, DTU
Morten Birkved, DTU
Michael Zwicky Hauschild, DTU
Jannik Hultén, KMD

Collaborating partners:

KMD
IT MED INDSIGT

Funded by:

KMD A/S

Innovation Fund Denmark
The Industrial PhD Programme,
Ministry of Higher Education and Science,
Denmark

Start and completion date:

1 February 2016 to 31 January 2019