

Operation of an Office Building

Benchmarking

Danish Facilities Management

CREDIT Case DK07

FACILITIES MANAGEMENT

Er KOORDINERET STYRING AF VIRKSOMHEDENS PRIMÆRE
ARBEJDSPROCESSER: EJENDOMME OG LOKALER
INFORMATIONSTEKNOLOGI INTERNE SERVICES

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Definition – CEN



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DER GIVER STØRRE EFFEKTIVITET OG MINDRE
OMKOSTNINGER i understøtningen af virksomhedens
mål, medarbejdere og bundlinie.**



CREDIT®

Construction and Real Estate -
Developing Indicators for Transparency



Operation of an Office Building Benchmarking

Danish Facilities Management

CREDIT case DK07

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Preface

This report describes the results of a case study undertaken as part of the Nordic/Baltic project *CREDIT: Construction and Real Estate – Developing Indicators for Transparency*. The case study is part of the work in work package 4-6 with respect to project assessment tools, application in firms and national benchmarking systems.

CREDIT includes the most prominent research institutes within benchmarking and performance indicators in construction and real estate, namely SBI/AAU (Denmark), VTT (Finland), Lund University (Sweden) and SINTEF (Norway). Further, three associated partners have joined CREDIT. The three associated partners are the Icelandic Center for Innovation (Iceland), Tallinn University of Technology (Estonia) and Vilnius Gediminas Technical University (Lithuania).

The project has been managed by a steering committee consisting of the following persons:

- Kim Haugbølle, SBI/AAU (project owner).
- Niels Haldor Bertelsen, SBI/AAU (project coordinator).
- Pekka Huovila, VTT.
- Päivi Hietanen, Senate Properties
- Ole Jørgen Karud, SINTEF.
- Magnus Hvam, SKANSKA.
- Bengt Hansson, Lund University.
- Kristian Widén, Lund University.

The project group wishes to thank our industrial partners and all the contributors to the case studies. In particular, the project group wishes to thank the four Nordic funding agencies that sponsored the project as part of the ERABUILD collaborative research funding scheme: The Nordic Innovation Centre (NICe), TEKES in Finland, FORMAS in Sweden and the Danish Enterprise and Construction Authority (Erhvervs- og Byggestyrelsen) in Denmark.

Danish Building Research Institute, Aalborg University
Department of Construction and Health
August 2010

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Research director

Summary

The case shows how different data about the operation of a building and the services in the building are collected and used for benchmarking purpose.

The most important data are the yearly costs for:

- maintenance,
- supplies (water, electricity, heating),
- cleaning,
- common operation,
- services and
- regular expenses.

Services comprises canteen, internal network for data, post services, reception and security.

The actual building is situated in Copenhagen at Ørnevej. It comprises offices, day care institutions and educational facilities for the municipality of Copenhagen who also owns the building. Copenhagen Properties is responsible for the operation.

Buildings (WP4) summary

The costs for the operation are taken from the yearly accounts and are calculated as DKK per square meter. Services are furthermore calculated as costs per number of people – employees or users.

The data are the platform for calculation of Key Performance Indicators (KPIs). They are calculated by an independent organization Danish Facilities Management benchmarking.

Enterprises (WP 5) Summary

The KPIs are used for monitoring the operation of the actual building and when Copenhagen Properties makes budgets for the operation of different buildings for the coming years.

Furthermore the KPIs are used in connection with discussions about new contracts concerning operation of buildings with service providers.

The system has shown to be a good tool for such a monitoring of the operation of a building and as a starting point for exchange of information at seminars and workshops.

It is also possible to compare actual costs with costs from former years and from other buildings. In this way it is possible to evaluate the consequences of initiatives to reduce costs or to increase quality of services.

And the experiences can be used in connection with the process of planning and design of new buildings for example in calculations of life time economy.

National Benchmarking (WP6) summary

The registered data concerning the operation are – together with data from other properties companies - delivered to DFM-benchmarking. This organization was established in 1996 as an independent organization by Danish Facilities Management network (DFM) which was founded in 1991.

All professional owners of properties can become members of DFM-benchmarking. They have to pay 10,000 DDK and it is obligatory to participate in the yearly gathering and delivering of data to form KPI's. For the moment there are about 50 members.

The secretariat in DFM-benchmarking rewrites the data to Key Performance Indicators (KPIs) which are published for members of the organization. They form the basis for systematically comparisons and exchange of experiences at workshops and yearly reports.

Some KPIs are published in the press and used in general statistics.

In this way the case illustrates how it is possible for a Real Estate Management responsible for the operation of a building to establish a continuously surveillance of the building. And at the same time get experiences by comparing the costs and quality of the operation of the actual building with the use of similar buildings and hereby get an impression of strong and weak aspects in the operation.

Lessons learned from many years of data collection, analysis and comments from users have led to a revision into a simplified and improved version of the web-based analysis system which now has been taken into use, see also Annex.

There are no plans for the moment to further alterations in indicators or the organization.

The case shows how it has been possible on a voluntary basis to establish a benchmarking system and get a group of property owners to participate in the organization. The numbers of buildings in square meter covers meanwhile only a minor part - about 1-2 % - of the total number of buildings in Denmark.

In an international perspective the experience up to now has shown that a condition for a further cooperation with other countries depends on whether it is possible to get into contact with similar organizations and there are international standards.

1. Introduction and objectives

This chapter describes the objectives of the CREDIT project, the background, scope and purpose of the case study of search engines for private homes, and the research design of the study.

1.1 Objectives and work packages of CREDIT

Sir Winston Churchill once said, “We shape our buildings, afterwards our buildings shape us” (28th Oct 1943). This quotation underlines how strong a building can influence an occupier or a user. Providing complex public facilities for example hospitals, schools, universities and libraries that are able to meet both the internal and external stakeholders’ needs and requirements is not without complications. The aims and demands of different stakeholders within a project can sometimes create conflict with each other’s interest. Understanding the needs and requirements of these stakeholders are essential to remain competitive in today’s market. A client that pays attention to the needs of the end-users will be rewarded with a high-performance property. Simultaneously, this shift seeks to solve many ills associated with inadequate building conditions and resulting in poor building function.

Due to the amount of both public and private money being invested in delivering public and private facilities, strong actions must be adopted. Collaboration with the relevant stakeholders will help building owners in identifying the required performance indicators to create high-performance facilities. The project aims to define a model for the implementation of performance requirements, which ensure the fulfilment of the various types of users’ and stakeholders’ needs and demands. The model shall also allow for the continuous measuring of the effectiveness of the used requirements and the model as such so that it may be improved as more knowledge and experience of it is achieved.

Following the themes of the ERABUILD call closely, the aim of CREDIT is to improve transparency on value creation in real estate and construction.

Thus, the objectives of CREDIT are:

- To capture end user needs and requirements in order to identify and quantify – where possible – value creation in real estate and construction.
- To develop compliance assessment and verification methods.
- To define and develop benchmarking methods and building performance indicators in real estate and construction.
- To set out recommendations for benchmarking internationally key building performance indicators.

Consequently, the deliverables of CREDIT are:

- 1. The establishment of a network of Nordic and Baltic researchers for benchmarking and performance indicators through frequent interactions in workshops across the Nordic and Baltic countries.
- 2. A State-of-the-Art report, that will identify and critically examine a number of existing tools, databases, mandatory reporting, approaches and benchmarking schemes to capture and measure end-user needs, client and public requirements on performance and value creation.

- 3. A strategic management and decision making tool to guide the definition and development of benchmarking methods and building performance indicators in different business cases.
- 4. A comprehensive performance assessment and management tool with associated key performance indicators to capture end-user requirements and to continuously measure and verify the compliance of performance throughout the lifecycle of an actual building project and linked to building information models.
- 5. Recommendations as to how sectoral and/or national indexes for performance indicators can be designed in order to allow for international benchmarking of construction and real estate.
- 6. Dissemination of the lessons learned and tools developed through news articles, press releases, workshops with actors in the real estate and construction cluster etc.

1.2 Background, purpose and focus of the case study

Experiences show that there are big differences between the costs and quality of operational activities in similar buildings.

The case was chosen to describe a well defined system for monitoring the operation of a building. The system is at the same time part of a voluntary benchmarking system for exchange of information concerning operation of buildings.

The case illustrates how different data about the operation of the building and the services are collected and used for benchmarking purpose.

The most important data are the yearly costs for maintenance, supplies (water, electricity, heating), cleaning, common operation, services and regular expenses. Services comprises canteen, internal network for data, post services, reception and security.

The costs for operation are taken from the yearly accounts and are calculated as DKK per square meter. Services are calculated as costs per number of people – employees or users.

The registered data are – together with data from other buildings – delivered to DFM-benchmarking. This organization was established in 1996 as an independent organization by Danish Facilities Management network (DFM) which was established in 1991. It now 50 members mainly from bigger property owners, among these public authorities as municipalities.

The secretariat of DFM-benchmarking rewrites the data to Key Performance Indicators (KPIs) which are published for members of the organization. They form the basis for systematically comparisons and exchange of experiences at workshops and yearly reports.

Some KPIs are published in the press.

DFM-benchmarking cooperates independently and through DFM with similar organizations in other countries. it now 50 members mainly from bigger property owners, among these public authorities as municipalities.

A further description of the system can be found in the Annex.

1.3 Research design and methods applied in the case study

The description here is based on the registration of operational data for a building situated in Copenhagen at Ørnevej. It comprises offices, day care institutions and educational facilities for the municipality of Copenhagen who also owns the building. Copenhagen Properties is responsible for the operation.

Parallel information about the Danish facilities Management benchmarking has been used.

The case has been written of Ib Steen Olsen in collaboration with Flemming Wulff Hansen, at that time Manager of operations in Copenhagen Properties.

The case study has been conducted as an action research by researchers and members of the organization seeking to improve their situation (Greenwood and Levin).

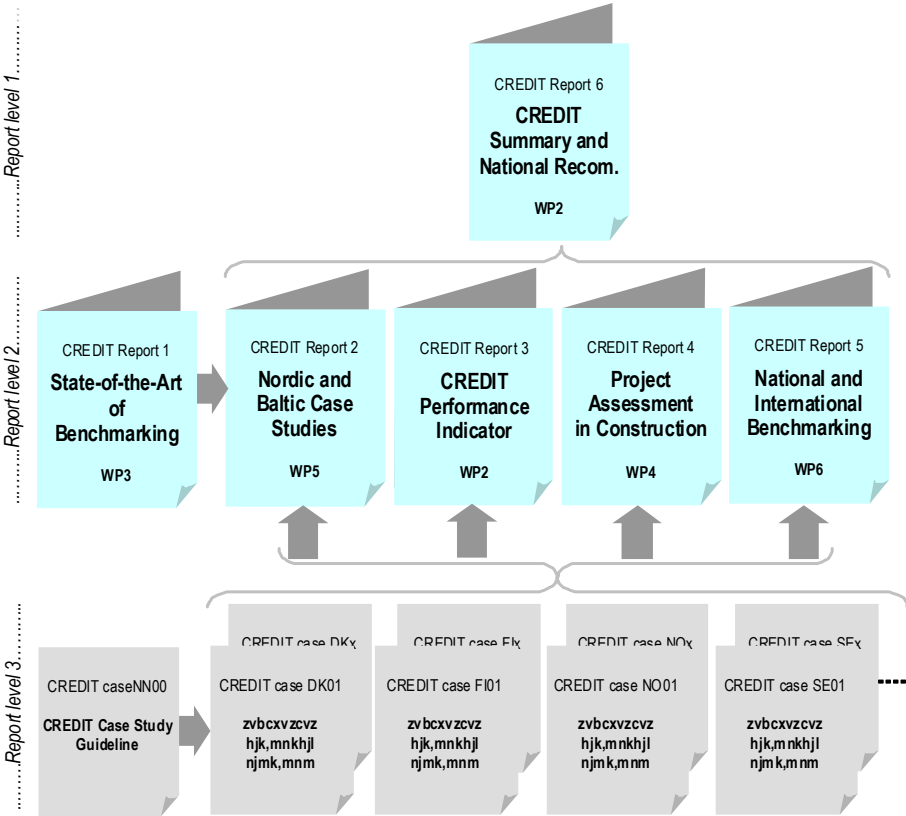
Data have been conducted from multiple sources to enhance reliability and trustworthiness of the results (Robson, 2002).

1.4 Reading instruction

Chapter 2 in this report addresses issues relevant to WP4 on assessments at project level. Chapter 3 addresses issues relevant to WP5 on the application of assessments in firms. Chapter 4 addresses issues relevant to WP6 on sectoral, national or international benchmarking systems. Chapter 5 discusses and concludes on the lessons learned with respect to the three levels of projects, firms and systems.

The work of each work package (WP) is documented in various other reports, articles etc. Below, a graphical illustration of the hierarchy and linkages between the individual reports is given.

Figure 1. Graphical illustration of the hierarchy of the CREDIT reports.



2. Buildings – assessments in construction or real estate processes

It is up to the client and the manager of operation of the mentioned building to collect data concerning different operational activities. The data are mainly taken from different yearly accounts with information about registered use and costs of heating, water, electricity and costs for maintenance.

2.1 The actual building, building parts and processes

The building is situated at Ørnevej in Copenhagen and owned by the municipality of Copenhagen and used for offices for administrative tasks, day care institutions and educational facilities. It is operated by Copenhagen Properties which is an administrative organization within Copenhagen authority and responsible for the operation of the building.

The collection of KPIs is part of a yearly registration of financial data as well as the consumption of resources as energy, water and electricity.

2.2 The applied assessments and tools in the processes

The case describes how it is possible to collect information during the operation phase in order to get an impression of the development year for year of costs for operation and compare different operational activities with similar activities in other buildings. And on the basis of the findings reduce the costs or increase the quality.

The method is based on written and standardised instructions for gathering of data and calculations of KPIs. The instructions have been worked out in collaboration between owners of properties which are members of the Danish Facilities Management network.

The costs are calculated as DKK per square meter. Services are furthermore calculated as costs per number of people – employees or users. Data are mainly taken from different yearly accounts with information about registered costs and use of heating, water, electricity and costs for maintenance.

Every activity has a requisition number which has to be used. Data are sent to an unit within Copenhagen Properties to be worked up before going to the secretariat for DFM benchmarking.

Renovation of the building is viewed on as building work – and not a part of the operational activities - and is not a part of the registration.

Reporting of data is done by use of internet.

The described data – and KPI's – belongs mainly to CREDIT indicators concerning group "5. Facility performance in operation and use" but they are also of interest for the groups 3 and 7. They are on level two and three.

2.3 Cost and performance indicators applied in the processes

The indicators are calculated and used for assessments during the operation of the concrete building.

The most important data are the yearly costs for:

- maintenance,
- supplies (water, electricity, heating),
- cleaning,
- common operation,
- services and
- regular expenses as tax.

Services comprises canteen, network for data, post services, reception and security.

In the work with exchange of experiences the KPIs are divided in accordance with different building types as for example schools, offices and hotels.

2.4 Relation to different enterprises and national benchmarking

Copenhagen Properties get the resulting KPIs from DFM benchmarking. They are used for comparing the operation of the actual period with former periods and budgeting the coming periods.

Furthermore the resulting KPI's are used as the basis for seminars and workshops where the participating members of the network exchange experiences and get information to reduce costs or increase the quality of the operation.

Some of the information go to the press or are used in connection with general statistics concerning costs of the operation of a building. An example is political discussions in connection with budgeting next year's expenses to operation of a single building or a group of buildings.

The KPIs are also used in talks with the companies who are doing the actual work and the service providers.

2.5 Visions and innovation for future improvements

There are no plans for the moment to alterations in indicators or the organization, see 4.5 Visions and innovations for future improvements.

3. Enterprises – assessments and indicators internally applied

The property owner is the pivotal point for registration of data and use of the resulting KPI's. The benchmark procedure gives the owner possibilities to evaluations of the actual operation and ideas for reduction in costs or better quality.

3.1 The actual enterprise, company and firm

The Copenhagen Properties (CP) is responsible for the operation of several buildings.

The registered data concerning the operation of the actual building are - together with data from other buildings own by Copenhagen Property and other clients - delivered to DFM-benchmarking. This organization was established in 1996 as an independent organization by Danish Facilities Management network (DFM) which was organized in 1991.

The secretariat in DFM-benchmarking rewrites the data to Key Performance Indicators (KPIs) which are published for members of the organization. They form the basis for systematically comparisons and exchange of experiences at workshops and yearly reports.

DFM is a forum for clients who wish to increase their performance through exchange of experiences and by challenging traditional methods and processes. It has 50 members' primarily bigger clients and companies. Key Performance Indicators have been collected since 1997 and per year in average from 25 administrations which operate 5 million square meters.

The KPI's are mainly used of the manager at the operational level. The information is important in the work with budgets of the costs for the mentioned operational activities. It is possible to compare actual costs in the actual building with KPI's from former years and from other buildings.

3.2 Assessments and tools in the enterprise

The most important data are the yearly costs for:

- maintenance,
- supplies (water, electricity, heating),
- cleaning,
- common operation,
- services and
- regular expenses.

Services comprises canteen, internal, network for data, post services, reception and security.

Data concerning energy has a very high priority and are a starting point for several activities to reduce the consumption of electricity and heating as motivation of the employees and extra renovation work.

The costs are calculated as DDK per square meter. Services are furthermore calculated as costs per number of people – employees or users. Data are mainly taken from different accounts with information about registered use of heating, water, electricity and costs for maintenance

The secretariat in DFM-benchmarking rewrites the data to Key Performance Indicators (KPIs) which are published for members of the organization. They form the basis for systematically comparisons and exchange of experiences at workshops and yearly reports.

3.3 Costs and performance indicators applied in the enterprise

The KPIs can also be used in connection with introducing new forms of procurements. It is for example possible by use of the calculated KPI's to compare KPIs for the actual type of building and an offer in connection with a tendering procedure for a so called functional contract where it is up to the service company to deliver services in accordance with functional requirements.

3.4 Relation to building cases and national benchmarking

Copenhagen Properties has for example used KPI's to make calculations of the future need of repair work by comparing the actual conditions of buildings with experiences from own repair work and from other buildings executed by members in the DFM-benchmarking through KPI's. Thereby it has been possible to work out documentation to the political discussions about future grants.

3.5 Visions and innovation for future improvements

The revised methods for registrations, calculations and transmitting the results are functioning well and there are for the moment no plans for alterations. Similarly the interplay between the mentioned partners in the benchmark procedure is functioning without problems

4. National benchmarking – indicators, assessment and organisation

The chapter describes the organization of DFM-benchmarking and the co-operation among the property owners in the network which is the organizational framework for the work. Furthermore the procedures and the use of the resulting KPI's are described.

The Annex gives a more detailed description of DFM-benchmarking.

4.1 The actual benchmarking organisation and its purpose

The background to DFM benchmarking was a wish and a will from a group of clients to voluntarily strengthen the operation of a building concerning costs as well as quality. Furthermore they also saw a need for a better tool for budgeting operation and for comparing the actual operation with the work in similar buildings.

Some KPIs are published in the press and for example used for considerations concerning the costs of operation of a single building or of buildings at a local area.

All professional owners of properties can become members of DFM-benchmarking. They have to pay 10,000 DDK and it is obligatory to participate in the yearly gathering and delivering of data to form KPI's

The case illustrates how it is possible for an administration responsible for the operation of a building to establish a continuously surveillance of the building. And at the same time get information for comparing the costs and quality of the operation with the use of similar buildings and hereby an impression of strong and weak aspects in the operation.

The driving force or the incentive is the wish from the responsible manager on a voluntary basis to reduce the costs of the operation of a building or strengthen the quality.

DFM-benchmarking cooperates independently and through DFM with similar organizations in other countries. The organization was established in 1996 and has now 50 members mainly from bigger property owners, among these public authorities as municipalities.

4.2 Assessment applied in the benchmarking organisation

It is up to the client and the manager of operation of the mentioned building to collect data concerning the different operational activities.

The secretariat in DFM-benchmarking rewrites the data from members of the organization to Key Performance Indicators (KPIs) which are published only for members. They form the basis for systematically comparisons and exchange of experiences at workshops and yearly reports.

4.3 Cost and performance indicators applied in benchmarking

The described data – and KPI's – belongs mainly to CREDIT indicators concerning group "5. Facility performance in operation and use" but they are also of interest for the groups 3 and 7. They are on level two and three.

Buildings are divided in groups as schools, kindergartens, and offices. The indicators are the same.

4.4 Relation to enterprises, building projects and real estate

The DFM-benchmarking secretariat works out statistics concerning operation of buildings for the members of the organization and take initiative to seminars where results are presented. The seminars give members possibility to exchange experiences and to evaluate their results.

The handling of data has been digitalized. Data collection occurs in the FM management function of each company – member of DFM benchmarking, see Annex

The resulting KPI's are mainly used of the members in their individually work and as the basis for seminars and workshops where the participating members of the network exchange experiences and get information to reduce costs or increase the quality of the operation.

Some of the information go to the press or are used in connection with general statistic.

4.5 Visions and innovations for future improvements

Lessons learned from many years of data collection, analysis and comments from users have led to a revision into a simplified and improved version of the web-based analysis system which now has been taken into use, see also Annex.

There are no plans for the moment to further alterations in indicators or organization

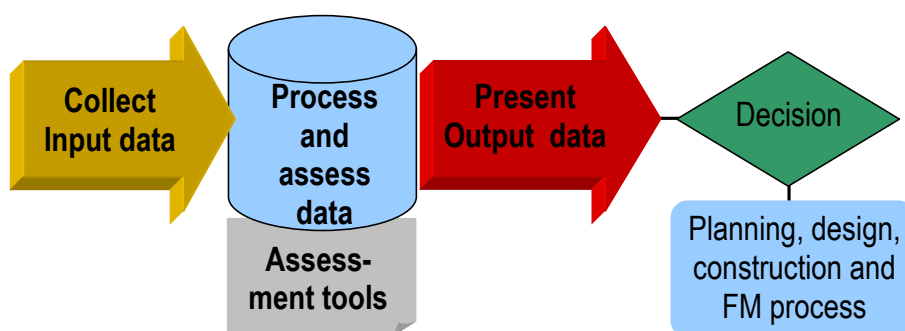
5. Discussions and conclusions

By developing a voluntary system for collecting, processing and evaluation of data from the operation of a building is it possible to strengthen the effectiveness and quality of the operation of a building.

An important step is the possibility to compare the results from the actual building with similar results from former years and from other buildings in a benchmarking procedure.

The case describes how it is possible to set up such a system and the organizational voluntary framework.

Figure 2. CREDIT information model in relation to decisions in the planning, design, construction and facility management processes.



5.1 Buildings - lessons learned and recommendations

Data are collected in connection with yearly registrations of economical as well as consumption data, see CREDIT carpenter model. The registered data are rewritten and transformed to KPIs in a secretariat.

The chosen indicators give a comprehensive picture of the operation of a building and some important "lighthouses" for the daily operational activities at client and company level.

In practice the collected data are sent to a special organization, the secretariat in DFM-benchmarking, who rewrites them to Key Performance Indicators (KPIs) which are published for members of the DFM-benchmarking. They form the basis for systematically voluntary comparisons and exchange of experiences at workshops and yearly reports.

It has been considered to extend the number of data to other services and parts of renovation works but there are no plans for the moment to alterations.

It is recommended to reduce the number of indicators at least in the first phase of introducing a benchmark system.

5.2 Enterprises - lessons learned and recommendations

The case shows how it is possible for an administration responsible for the operation of a building – here Copenhagen Property – to establish a continuous surveillance of the building during the use and operation of the building. And at the same time get information for comparing the costs and quality of the operation with the use of similar buildings and hereby an impression of strong and weak aspects in the operation of the actual building.

The KPIs are also used when Copenhagen Properties makes budgets for the operation of different buildings for the coming years.

Furthermore the KPIs are used in connection with discussions about new contracts for operational activities.

The used methods for registrations, calculations and transmitting the results are functioning well and there are no plans for alterations. Similarly the interplay between the mentioned partners in the benchmark procedure is functioning without problems.

The driving force or the incentive is the wish and the will from the responsible manager to reduce the costs of the operation of a building and/or strengthen the quality.

5.3 National benchmarking - lessons learned and recommendations

The described data – and KPI's – belongs mainly to CREDIT indicators concerning group "5. Facility performance in operation and use" but they are also of interest for the groups 3 and 7. They are on level two and three.

Data from the actual building and the KPIs from DFM-benchmarking secretariat are used as a basis for budgeting the costs and key data for the coming year. At the same time they give a platform for monitoring the actual operation.

The system has shown to be a good tool for such a monitoring of the operation of a building and as a starting point for exchange of information at seminars and workshops.

It is also possible to compare actual costs with costs from former years and from other buildings. In this way it is possible to evaluate the consequences of initiatives to reduce costs or to increase quality of services.

And the experiences can be used in connection with the process of planning and design of new buildings for example in calculations of life time economy.

Lessons learned from many years of data collection, analysis and comments from users have led to a revision into a simplified and improved version of the web-based analysis system which now has been taken into use, see also Annex.

There are no plans for the moment to further alterations in indicators or the organization.

The case shows how it has been possible on a voluntary basis to establish a benchmarking system and get a group of property owners to participate in

the organization. The numbers of buildings in square meter covers meanwhile only a minor part - about 1-2 % - of the total number of buildings in Denmark.

In an international perspective the experiences up to now have shown that a condition for a further effective cooperation with other countries depends on whether it is possible to get into contact with similar organizations and there are international standards.

It is recommended that the Danish experiences concerning motivation and driving forces of a voluntary benchmarking system – as wish and will for effectiveness and quality – are channelled into considerations for future work with benchmarking.

References

Danish Facilities Management benchmarking
Lokaliseret 20100531 på:
<http://www.dfm-benchmarking.dk/>

Danish Facilities Management network
Lokaliseret 20100531 på
<http://www.dfm-net.dk/>

Appendix

Facilities Management Benchmarking in Denmark

In Denmark the Facilities Management Benchmarking is supported by the association, **DFM-benchmarking**.

DFM-benchmarking is established in 1996 by the Danish Facilities Management Association, DFM, who in 1996 has gathered and analyzed key figures since 1992.

DFM-benchmarking provides a forum for companies, which constantly want to improve their performance through experience and challenge the methods and processes, with a key figures database on a yearly basis back from 1995, and with a web based analyzing system and matching online also web based reports of tables and graphics.

The current companies, members of **DFM-benchmarking** are listed in enclosure #1.

The aims of **DFM-benchmarking** is to create and use a common database for benchmarking within and between enterprises, in order to support management decision and increase the efficiency of enterprise and industry as a whole.

The Key figures, which the association provides, relates primarily to corporate physical environments which often are the peripheral functions in relation to its core business. For that reason this key figures are less sensitive compared with those related to the core business, and therefore much greater openness can be established between the companies in the field of benchmarking Facilities Management. This openness must be used to generate development and effectiveness.

Annually data on services and property management are collected, which are worked up into a **web-based analysing system**. The results are documented in a number of reports with both overall and detailed figures. Access to the complete system is reserved for members of the association. "Guests" can obtain access to some of the overall and basic key figures and analysis.

Is a measure of the average presentation of the industry – a result of efforts within the areas of Facilities Management in general. "An encyclopaedia" that is useful to any property management for the purpose to evaluate their own performance and with the possibility of comparison with results from – and together with – other property managers.

De facto standard

By virtue of its firm established organisation the association has obtained the position as the leading in the field of key figures in Denmark, and leading in relation to most other European countries.

The performance and results from the association of **DFM-Benchmarking** – among others definitions for space measurement and types and account template for operating activities - are in Denmark seen as the de facto standards.

Profiting by a BFM-benchmarking membership/subscription

By working with DFM-key-figures and analyzing system are achieved:

- A better basis for benchmarking, and thus the ratings among other management level.
- Increased reliability and safety in the use of ratios and hence better decision making.
- A better option for optimizing operations through effective management and control of the economy and quality based on established plans.
- A more transparent proof for daily operating, buying or rental terms.
- A better basis for sharing experience and comparing with other ratios, benchmarking, and thus the ratings among other management level.
- Increased reliability and safety in the use of key figures and hence better decision making.
- A better option for optimizing operations through effective management and control of the economy and quality based on established plans.
- A more transparent proof for daily operating, buying or rental terms.

2008 gathering of data (from the year 2007).

In 2008 DFM benchmarking received data responses (for the year 2007) from 13 property managers. The treated data on 5.6 million m² Building Operating Area of a total of 1535 properties.

Benchmarking; in Denmark in the field of Facilities Management

Need for Key Figures:

Key figures concerning the enterprises Facilities Management operation and disposal are an important information tool for management assess if the cost level of the company is satisfactory in relation to the policies set out for the service and real estate related to support the core business.

Attention is increasingly directed towards to optimize resources, savings and reduction of costs.

In this way key figures are an important tool for use in decisions related to purchasing, buying, renting, or selling real estate, leasing terms, outsourcing and in daily operation.

DFM-key-figures for Benchmarking:

Benchmarking can be described as a comparison with the best in products, processes and management, etc., and implementing the necessary improvements for themselves to be amongst the very best.

The benchmarking process is based on the fact that to compare to other key figures as the basis for changes and adjustments will be improved. It is therefore important to compare on the same basis, using the same definitions, levels, etc.

This common basis is described in detail in "Handbook of Facilities Management" by Per Anker Jensen, released by the DFM Network/Association. The handbook is released in an English edition also.



For each participant in the comparison process an important step is the assessing of ones own figures – e.g. whether there are company dependencies that makes ones own figures look like they do, if there are opportunities to change those business related dependencies, or whether one should accept the results as a basis for improvement.

DFM-key-figures

Key must be credible to win recognition for use.

Based on the firm organization of the association **DFM-benchmarking** DFM key figures are the most valid bids in the areas of services and property operations.

Validity is maintained by the annual collection and processing of operational data from a number of Facilities Managements, members of the association **DFM-benchmarking**.

The result from this is: DFM key figures are available exclusively to members of the association **DFM-benchmarking**, which has provided data or otherwise engaged in developing tasks of the association.

Key figures

DFM-key-figure; which and how?

DFM key figures is the result of a statistical processing of parent information and operating costs for services and property operating collected from a variety of companies in Denmark.

The parent information describe in broad terms the property and its use, inform about the ownership and category of user, the age and the primary use. Also information about space related to the operating area.

The Categorization of user divides in:

- Owned property primarily used by owner.
- Rented properties are primarily leased to other.
- Rented properties or portions thereof as rent (lease).

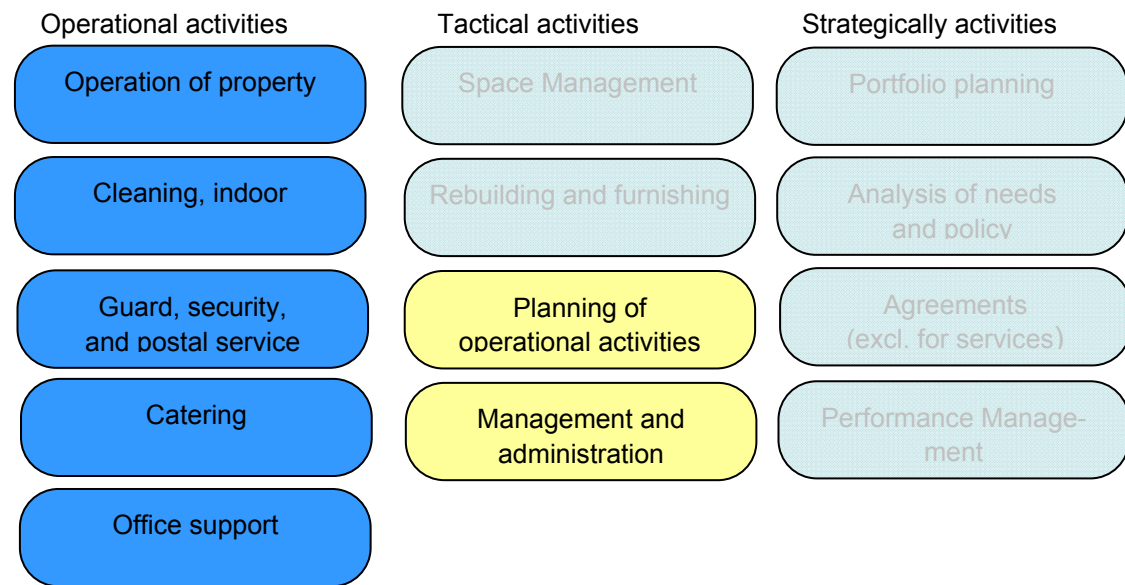
An innovation is the possibility on several items the quality or functional differences could be indicated; as well as previously and still on the property construction quality.

An example is concerning catering:

- Quality Indication is expressed by bid level Low - Medium - High.
 - Low: Location available with similar kiosk / vending machine operated supply
 - Intermediate: Buffet style
 - High: Restaurant resembled

The operating costs in focus concern the yearly cost related to the operating areas: Property Operation, indoor cleaning, security, safety and gate services, and catering, office support, operational planning, as well as management and administration.

Data are collected among members of the **DFM benchmarking** association. The Danish and European FM Standard DS/EN15221-2 "Terms and definitions" is a model for the structure, and on this stage of developing the DFM-benchmarking key figures an analyses, information are collected from this highlighted areas:



WEB-based system for collecting and analysing data.

With the web-based system for analysing, it is possible for the subscriber himself to extract reports on own data immediately after the data has been approved by administrator of the system (The **DFM-benchmarking** secretariat). Once a sufficient amount of data gives a reasonably valid results DFM-key-figures for the current year will be declared open, and the subscribers are able to draw out form the system the different analysis of data they want.

The analysis results are structured in reports containing overall as well as detailed figures. E.g. key figures divided by building quality, statistical analysis and reports with comparison between different years are available. Results are expressed in both absolute and indexed values according to the Net Price from Statistics Denmark.

Lessons learned from the many years of data collection, analysis and comments from users have led to a revision into a simplified and improved version of the web-based analysis system which in the spring 2009 is now open for collection of data on the operating year 2008.

The new structure is based on sorting key figures in services and real estate operations with focus on Facilities Management in total. Previously focus was more on property operation. **DFM-benchmarking** thus follow the trend

of developments in the field the professional Facilities Management discipline in companies and internationally; e.g. reflected in the FM Standards.

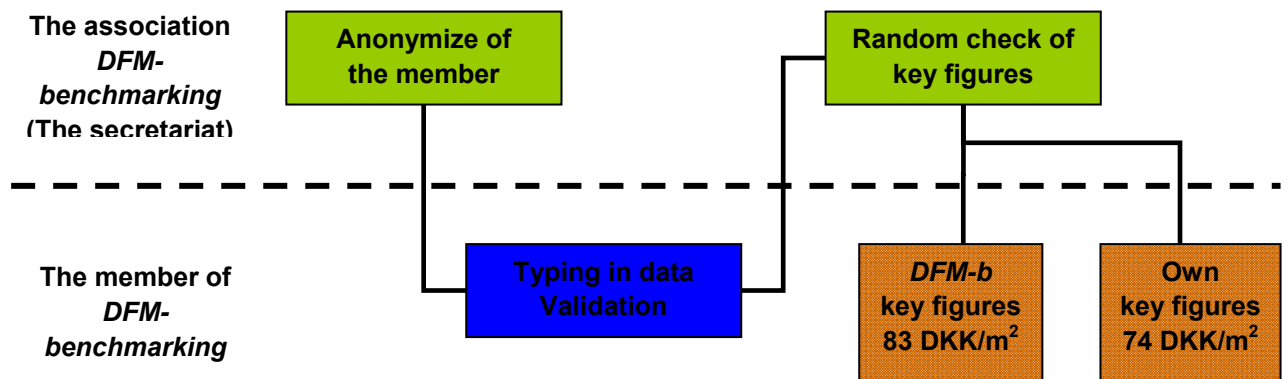
FrontPage from the new web-based analyse system.

FM-drift fordelt på ejes, udlejes og lejes - basisudgave	Driftsudgifter i o/oo-del af værdi	FM-drift fordelt på ejer/brugsforhold - årssammenligning
FM-drift fordelt på ejes, udlejes og lejes - todelt udgave	Brandforsikringssum i forhold til ejendomsvurdering	FM-drift fordelt på ejerkategorier - årssammenligning
FM-drift fordelt på ejes, udlejes og lejes - tredelt udgave		FM-drift fordelt på alder - årssammenligning
FM-drift fordelt på ejerkategorier		
FM-drift fordelt på alder	Ejendomsdrift pr. m ² fordelt på opførelseskvalitet	FM-drift fordelt på ejer/brugsforhold - sammenligning
FM-drift fordelt på hovedanvendelse	Kontorstøtte fordelt på funktionsniveau	FM-drift fordelt på ejerkategorier - sammenligning
FM-drift med statistisk fordeling	Øvrige services fordelt på kvalitet	FM-drift fordelt på alder - sammenligning
		Interactiv Benchmarking ©

The WEB-based system; how it works

Analysis and questionnaire are integrated into a web-based system.

Data collection occurs in the FM management of each company (member of **DFM-benchmarking**) by using the electronic questionnaire from which data in an anonymous form are transferred to the analysis tool.



As a minimum it is assumed that the user has access to the main figures of the before mentioned operation areas for services and property operations. In the questionnaire is a rapport facility for the users self control of the typing of data process and for documentation ones own key figures from the company for immediate use in the company.

Does the user have other proprietary systems with related information, such as those in the questionnaire; data can be to loaded into questionnaire in a simple way.

The questionnaire has a simple interface with help text, which leads one through the series of tables.

Each table "lists" a number of data which belongs together in input boxes. The interface of the analysis tools is designed with pushbuttons that activate the functions.

The analysis tool generates reports based on user-selected combinations of predetermined options concerning costs and parameters.

Reports appear in a consistent layout of tables and graphics.

Help texts offer guidance in the context of these elections.

Further details are included in the analysis system for **DFM-benchmarking** key figures.

DFM benchmarking data			[Forvaltningsnr: 223] [Driftsår: 2008] [Log af]		
Skema 1.2 - Generelle spørgsmål (1 - Ejet)			[Info] [Tilbage]		
Dette år (2008)			Seneste år (2007)		
Terrændriftsareal:	1476	m ²	Terrændriftsareal:	1476	m ²
Bygningsdriftsareal:	195	m ²	Bygningsdriftsareal:	195	m ²
Lejemål excl. kælderareal:		m ²	Lejemål excl. kælderareal:		m ²
Lejemål, kælderareal:		m ²	Lejemål, kælderareal:		m ²
Opvarmet areal:	138	m ²	Opvarmet areal:	138	m ²
Rengjort areal:	95	m ²	Rengjort areal:	95	m ²
Ejendomsværdi pr. 1. januar:	6000	Tkr.	Ejendomsværdi pr. 1. januar:	4250	Tkr.
	30769	kr./m ² BDA		21795	kr./m ² BDA
Heraf grundværdi:	3464	Tkr.	Heraf grundværdi:	2458	Tkr.
	2175	kr./m ² grund		1543	kr./m ² grund
Forskelsværdi:	2536	Tkr.	Forskelsværdi:	1792	Tkr.
	13005	kr./m ² BDA		9190	kr./m ² BDA
Brandforsikringssum:	3000	Tkr.	Brandforsikringssum:	2500	Tkr.
	15385	kr./m ² BDA		12821	kr./m ² BDA
Brandforsikringssum/forskelsværdi:		1,18	Brandforsikringssum/forskelsværdi:		1,40

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Enclosure 1

Members of DFM benchmarking, May 2009

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Bascon A/S

Coor Service Management

COWI A/S

Dan-Ejendomme as

Danmarks Tekniske Universitet

DONG Energy A/S - Oil & Gas

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Enclosure 2

Login as guest

You will get access to the Analysing System on the **DFM-benchmarking** homepage, www.dfm-key.dk, item 5: <http://www.dfm-benchmarking.dk/16055,3> – Click on “Log ind her”.

As a “guest” you get a limited access to the system with examples of the application by simply typing “gæst” (a guest, in Danish) in the field “ejendomsforvaltningsnummer” (Property management number; in Danish).

DFM-benchmarking hopes that you as a guest of this insight into the assessment system would like to join the association and benefit from the system as a whole.

Instructions for use

Instructions for using the system are for the time being in Danish only. Instructions for using the system (in Danish), you get by following the information starting with information in the upper right corner of the opening image.

Safety for valid key figures in the system

DFM-benchmarking would like to draw your attention to the fact that safety for valid key figures in the system in general hardly can stand for a statistical evaluation on the basis proposed, except that:

- Key figures based on more than 25 responses is considered relatively safe
- Key figures based on 5-25 responses are considered less secure
- Key figures based on <5 replies perceived as examples.



This report describes the results of a case study of Operation of an office building – Danish Facilities Management benchmarking. The study was undertaken as part of the Nordicc and Baltic project CREDIT: Construction and Reas Estate - Developing Inducators for Transparency.

The case shows how different data about the operation of a building and the services in the building are collected and used for benchmarking purpose. The actual building is situated in Copenhagen. It comprises offices, day care institutions and educational facilities.

The costs for the operation are taken from the yearly accounts and are calculated as DKK per square meter. Services are furthermore calculated as costs per number of people – employees or users.

The data are the platform for calculation of Key Performance Indicators. This is done by en independent organization Danish Facilities Management benchmarking.

The system has shown to be a good tool for a monitoring of the operation of a building and as starting point for exchange of information at seminars for members of the network for delivering data.

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