

KPIs FOR SPACE MANAGEMENT

BARRIERS FOR BENCHMARKING IN NORWEGIAN MUNICIPALITIES

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ABSTRACT

Benchmarking may be a powerful tool in relation to improvement processes in Facility Management. Within FM, Space Management is concerned with development, management, and optimization of space and use of space. The main objective in Space Management is to provide facilities (space) that contribute to and support the organization's core business, and at the same time make efficient use of spatial resources. Key performance indicators (KPIs) for benchmarking and improvements of space management include area efficiency and data of occupancy and churn. This paper is based on research which was carried out during summer and autumn 2009 in 14 Norwegian municipalities. The project is part of a larger RND initiative into real estate and facility management in municipalities. Data for space and occupancy were gathered through interviews, registration and site visits, as well as through a limited survey among a selection of end-users. The case study shows that there is a lack of data both on space, buildings, and occupancy. It also shows that there is a lack of systems for managing space efficiently in the municipalities. We identify some of the barriers and challenges related to the use of KPIs for benchmarking and development in Space Management in general, but also more specific for public real estate in local municipalities.

Keywords: Offices, Public real estate, Key performance indicators, benchmarking

1. INTRODUCTION, KPIs FOR SPACE MANAGEMENT

Space is a resource for businesses who are using and occupying buildings. One important issue in Facilities Management is how to plan, develop, and manage space and the use of space. The goal is to achieve usable and functional workplaces as efficiently as possible when it comes to cost and space (area efficiency). For the core businesses, the workplace should

support activities and add value to their primary processes. Thus the main focus in Space Management is how space may support the core businesses and their performance, and how the spatial resource can be used efficiently. In our education and research we highlight the strategic importance of space and place, focusing on space as a strategic measure for user organisations.

In this paper we will primarily focus on the part of Space Management that is connected to collecting feedback from use, conducting evaluations in order to enhance learning, management and improvement in operations. We will discuss how data on use, space and occupancy may be used as Key Performance Indicators in benchmarking, aiming at improvements in Space Management. Our discussion will be based on some of the results from a case study in Norwegian municipalities. The main aim of the study was to get an overview of the present state of Norwegian public office buildings and workplaces. The main research question in this paper is:

What is the present situation in Norwegian municipalities when it comes to space management and collection of data of space, use, and occupancy of buildings?

Sub-questions are:

- *How do the municipalities collect data on space, use, and occupancy?*
- *Do the municipalities use any kind of Key Performance Indicators, or perform benchmarking?*

Our hypothesis before starting the investigation was that there is a lack of records of space efficiency and systems for space management in the municipalities, and that benchmarking is seldom used. This leads to the final research question that we will try to answer in this paper:

What are the hindrances/barriers for more efficient space management and use of KPIs and benchmarking in the municipalities?

2. KPIs AND BENCHMARKING OF SPACE

Space Management in facilities management is based as much on the measurement of the ongoing effectiveness of the work environment, as it is on the provision of space based on the assessment of future business needs (McGregor and Then 1999). Measurement is vital to assess performance.

A key performance indicator (KPI) is a measure that provides essential information about the performance of facility services delivery (EN 15221-1:2007).

In their literature review, Loosemore and Hsin (2001) found that the main KPIs that have been derived for application in Facilities Management are

related to costs of operating, maintaining and running a facility, revenue generated, space management, environmental and safety issues. Since the 1980s, facility management associations (e.g. IFMA since 1984) have engaged in developing generalised sets of data and industry-wide KPIs to enable external benchmarking. According to Massheder and Finch (1998), the most frequently used measures in facilities management are related to occupancy cost and operational space. They highlight the need for specific standards of measurement, metrics, as essential for ensuring a common understanding of performance and for identifying performance gaps. There are Norwegian Standards both for categorisation of life cycle costs (NS 3454) and for measurement of space (NS 3940). The terms gross and net area, as well as usable area (net usable area), are defined in the standards. This is in line with definitions applied in benchmarking networks, e.g. the Danish FM (Jensen 2008).

In EN 15221-1:2007, benchmarking is defined as the process of measuring performance (including price) of facility services, and comparing the results internally and/or externally. Benchmarking is a tool which can be used to support a process of continual improvement (e.g. Atkin and Brooks, 2009, Sæbøe and Blakstad 2009). In order to improve Space Management by measurement of performance, there are some fundamental preconditions that have to be fulfilled:

- There must be some standardized definitions of space (net and gross area) in which the different types of space can be categorized. This is provided for in NS 3940. Some of these may in turn be used for definition of Key Performance indicators, and serve as a starting point for benchmarking.
- There is a need for an overview of amount and types of space, as well as its use. This requires a space management system, in which all space is categorized. How "advanced" the Space Management system is, varies. But at a minimum level it should contain an overview of buildings, space, functions, number of workplaces, and an overview of the different occupants and their rented space.

In most cases, benchmarking of space focuses on square meters, but in cases of more advanced benchmarking, and for the purpose of research, there are additional measurements that may be used, related to space and occupancy:

- Categories of types of space and rooms
- Data of occupancy (use of different space categories or rooms (occupation / time), churn rate, booking)
- Occupancy or space related costs (such as cost / move, cost / workplace, etc.)

2. 1. KPIs for space and occupancy

In Norway, there are mainly two networks that perform external (between the partners) benchmarking of their facilities on a regular basis. They both mainly focus on one KPI related to space:

- Space and area efficiency: (*gross area / workplace*)

In addition to this, space is often used as denominator for KPIs related to cost, e.g. cleaning costs / m² (Indrøy 2008). One of the benchmarking networks has also defined 3 other Space Management-related KPIs:

- Churn rate (*moves / workplace*)
- Cost of internal relocations (*cost / workplace* and *cost / move*)

There are also examples of organizations that have collected and analysed occupancy data (type of space, occupancy / time), but this is done primarily for internal benchmarking, and in some cases as input for briefing and planning of new offices.

Except for the participants in the benchmarking networks, we have seen that systematic benchmarking of spatial issues is not as well developed as benchmarking of costs. For many occupants and owners, both in the public and in the private sector, there is a lack of solid data both on space (gross area) and on number of workplaces.

2. 2. Benchmarking in Norwegian municipalities

There are 430 local municipalities in Norway (SSB 2008). Many of them are small, and 55% have less than 5000 inhabitants. In total, there are 2.5 million m² of administrative buildings (offices and town halls), and the municipalities have 0.5 m² of administrative facilities pr. inhabitant (SSB 2008).

Some years ago, the Norwegian government issued a governmental report on the state of Facilities Management in the municipalities (NOU 2004:22). The report documented that both the functional and technical conditions of many public buildings were sub-standard, and it also pointed out the fact that there was a need for development of the FM function in many communities, as well as a need for education and research. The report recommended that benchmarking should be used in order to promote change and systematic improvements. The report also suggested that an arena should be established for benchmarking between the different municipalities, that the existing annual financial reports should be extended to include technical conditions of buildings as well as the amount of owned / rented space in the municipalities, and that a further investigation of technical condition of the buildings was needed. The following investigation

documented (Multiconsult and PWC 2008) that the technical condition of approximately 1/3 of the local public buildings in many cases was severe, and that there were great needs of investment in maintenance. During the work with the report, it became evident that the municipalities in many cases had insufficient records, both of space and technical conditions.

The Ministry of Local Government and Regional Development has been working to develop systems to collect more data from the municipalities on an annual basis, as part of KOSTRA. So far, the work has not been able to fulfill the recommendations in the NOU, but improvements have been made. From 2008, all municipalities are requested to document the space (gross area) they own and rent in the following building categories: administration (offices and town halls), pre-school, school, institutions (health and care), sports, and culture. In the future, this should provide more data and more knowledge in the local municipalities on the amount of space used and owned. This may, in turn, provide possibilities for future benchmarking.

3. PUBLIC WORKPLACES, A CASE STUDY OF NORWEGIAN MUNICIPALITIES

3.1 Project description and objectives

Based on the identified need for more knowledge and development within FM of municipalities, the Ministry of Local Government and Regional Development launched two projects. One was related to education and distribution of knowledge (KoBE), and one was related to research and development projects in real estate and facility management in municipalities (Valen et al. 2007). The project *Public Workplaces* is one of the R&D projects within the latter program.

The aim of the study has been to identify issues for improvement in workplace management. In order to get insight into the present state of Norwegian public office buildings and workplaces, a case study on workplaces in office buildings and town halls in 14 Norwegian municipalities was conducted. The municipalities, varying in size from small to large, were located in different parts of the country. The project was carried out during summer and autumn 2009. The main focus was to get an overview of different workplace solutions (innovative and traditional), as well as insight into how office space was managed. In this paper, we will focus on the part of the study that aimed at identifying how the municipalities collect data to manage the space, and to what extent they use KPIs and benchmarking as tools to improve Space Management.

3.2 Research methodology

An open and explorative research approach was chosen. A case study methodology was adopted, where such methods as interviews, registrations, and site visits gathered quantitative and qualitative data. This allowed us to acquire multiple perspectives on space and occupancy in the council buildings. For all the 14 municipalities, structured interviews with municipal property managers were carried out. For six selected office buildings, site visits, in-depth structured interviews with the leadership of core business, and a limited survey among a selection of end-users were conducted. Results of the entire study can be found in the project report (Kjølle et al 2009).

The aim of our study has not been to produce generalized quantitative data that are valid for all Norwegian municipalities. The chosen methodology, explorative case studies in 14 of 430 municipalities, will be used to try to identify the issues in the selected municipalities when it comes to the management of workplace. We will try to identify some patterns, which in turn may be further investigated in a larger sample of municipalities.

4. RESULTS

4.1. Area efficiency

Among the 14 municipalities, we found huge variations in the amount of data available for their office buildings. Particularly, there is a lack of gross space data. Many of the municipalities were not able to produce figures when asked. Hence, some of the data in the table above are uncertain. For some of the municipalities, they were not able to produce figures for all office buildings. This means that two of the municipalities (C13 and C14) only the main office building is part of the sample. And the gross area / workplace is based on data from just one building.

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14
Inhabitants	857	1672	2053	2621	4004	4145	5033	5820	12723	22937	46395	61450	66513	168257
Gross area m ² / workplace	55	44	87	75	38	49	51	33	36	44	59	32	29 ¹	19 ²
Gross area m ² / inhabitant	2.1	1.2	1.1	1.1	0.9	0.7	0.7	1.2	0.9	-	0.5	-	0.2	0.2

Table 1. Gross space / workplace in the 14 municipalities based upon information from the municipalities in the case study. The figures for gross area / inhabitant is based on the municipalities' annual report 2008 in KOSTRA (SSB 2008)

¹ Only one building in sample

² Only one building in sample

In the 12 municipalities (C1 – C12), we collected data of gross space / workplace for all office buildings. The average is 50 m² / workplace, with a distribution between the cases as seen in table 1.

The average of 50 m² / workplace is rather high compared to the benchmark from one of the Norwegian networks, NfN 2006, which is 32 m² / workplace (with a variation between 19 and 39). Because of the difficulties of defining and measuring gross area in many of the cases, the data must be considered as tentative, and not as solid quantitative data. But if we look at the individual cases, a pattern emerges. Most of the municipalities with the lowest area efficiency have old fashioned office buildings, usually town halls in small communities built in the '60s and '70s. These buildings are often under-utilized, and consist of large cellular offices that are difficult and expensive to adapt to changing needs.

4.2. KPIs and Space Management systems

We asked the municipalities if they had developed KPIs for use in FM. We did not narrow this down to KPIs related to space, but asked for KPIs in general. 4 of the cases had no KPIs at all, 7 had some, while 3 municipalities had developed and used KPIs systematically.

In the case studies, we asked the municipalities for data on space for their office buildings. We did not ask for extensive or detailed data, but simply asked for gross area, rented and owned, for office buildings used by the municipality, specified for each individual building, and for the number of workplaces within each of the buildings. Of the municipalities we studied, only 2 of 14 had systems that enabled them to easily collect the data we asked for. The other 12 had little or no knowledge of number of buildings, gross area in the buildings, or the different functions and number of workplaces within the buildings. In one case, the representative for the FM function in the municipality had to estimate the gross area of their main office building by measuring on a map. In 10 of the cases, the respondents from the municipality needed time to provide us with the information we asked for, as they developed the overviews of these kinds of data for the first time.

4.4. Strategies and objectives for FM in the municipality

The managers of all FM functions in the municipalities were interviewed about their strategies for FM and for space. The study shows that many of them lacked clear strategies, and did not have explicit objectives for FM in their community. Still, we saw that many of the municipalities did consider *the use of space* in their buildings, and wanted to save space by applying measures like:

- to not expand the amount of workplaces
- to dispose of unoccupied space
- to use organizational changes to save space

We did, however, not find that this resulted in clear strategies and plans for space management in general, and we did not have the possibilities to investigate how this was implemented in practise. A few of the municipalities have introduced internal rent as a strategy to reduce space per workplace.

4.5. Lack of incentives

In as many as eight of the cases, we observed that there was a lack of incentives for focus on area efficiency. Many of the buildings, especially town halls in small communities, built in the 1960s and '70s, were difficult to adapt to changing needs and to make more efficient without major renovations. Investments in the municipalities' own office space are close to the bottom of the list of investments that will be financed by the city council. The municipality must make priorities, and with a rather limited budget, financing the services to the public, such as education and healthcare, is seen as more important than upgrading office space for the employees. Also, many rural municipalities experience a population decline. This means that office space is underutilized, as the demand for space is declining, while the administration is housed in the same space as before.

This means that in many of the cases we studied, there was a lack of incentives for improvement and focus on area efficiency:

- Changes require investments, which are not prioritized by the municipalities (in fact, investments in public space are not prioritized in general)
- Inadaptable buildings inhibit new solutions, renovation and alterations are expensive
- Underutilization in municipalities where the number of inhabitants is decreasing

4.6. Barriers for use of KPIs and benchmarking

We have seen that Space Management systems, KPIs, benchmarking, and a strategic focus on space is rare in the cases we have studied. This brings us to the last of our research questions. We have looked for the hindrances / barriers for benchmarking and development of KPIs for Space Management in the municipalities. In our cases these barriers have been:

- Lack of space management systems that provide overviews of buildings and space, both when it comes to rented and owned space

- Lack of data on area and occupancy, making it almost impossible to extract reliable KPIs for e.g. space / workplace
- Lack of incentives to focus on area efficiency
- Lack of strategies for real estate and facilities management in general
- Lack of focus on improvement and development of the Facility Management function within the municipality
- In some cases, a lack of knowledge and competence. Since many Norwegian municipalities are small, it can be difficult to recruit people with the right expertise to perform such tasks
- We observed an attitude of sobriety when it comes to investments in public space. This is an important cultural element in many of the municipalities we investigated, but is especially present in the municipalities where the financial situation is demanding.

5. CONCLUSIONS

The case studies have showed that there is still a long way to go to improve space management in most municipalities. Our initial hypothesis still stands. There is both a lack of data and analyses, as well as a lack of strategic focus and knowledge about efficiency and effectiveness of the facilities. Yet, the municipalities differ from each other, and we have seen that some of them have already developed space management systems and used KPIs systematically for benchmarking.

There are 2.5 million m² municipal, public office buildings in Norway (SSB 2008). These represent a large asset for the local communities. As we have seen in the case studies, the space management of this asset still faces major challenges. In order to provide more efficient, effective and sustainable buildings, which offer valuable contributions to their local communities, there is a need for improvements both in systems, practises and in the development of knowledge about space management in the municipalities.

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7. REFERENCES

- Atkin, B. and Brooks, A. (2009), *Total Facilities Management*. 3rd edition. Wiley-Blackwell. UK.
- EN 15221-1:2007 *Facility Management, Part 1 Terms and definitions*. European Standard.
- Indrøy, F. (2008) *Nøkkeltallsbruk blant studentsamskipnadene*. Master Thesis, Norwegian University of Science and Technology
- Jensen, P. A. (2008). *Facilities management for students and practitioners*. Centre for Facilities Management – Real Dania research. Denmark.
- Kjølle, K. et al. (2009). *Kommunale kontorarbeidsplasser, status kontorløsninger*. SINTEF Building and Infrastructure. Norway.
- Loosmore, M. and Hsin, Y. Y. (2001). Customer-focused benchmarking for facilities management. *Facilities* 19 (13/14), pp 464 -476
- Massheder, G. and Finch, E., (1998). Benchmarking metrics used in UK facilities Management. *Facilities*. 16 (5/6), pp 138 – 142
- McGregor, W., Then, D. S. (1999). *Facilities Management and the business of space*. Arnold. UK.
- Multiconsult and PriceWaterhouseCoopers. (2008). *Vedlikehold i kommunesektoren, fra forfall til forbilde*. Oslo.
- NOU 2004:22 (2004). *Velholdte bygninger gir mer til alle. Om eiendomsforvaltningen i kommunesektoren*. Statens forvaltningstjeneste. Oslo
- NS 3940:2007 *Area and volumes of buildings*. Standard Norge
- NS 3454:2000 *Life cycle costs for building and civil engineering work. Principles and classification*. Standard Norge
- SSB (2008). Statistics Norway. www.ssb.no
- Sæbøe, O. E., and Blakstad, S. H. (2009) *Fasilitetsstyring, Facilities Management*, Tapir Akademisk Forlag. Norway.
- Valen, M. et al (2007) *Utvikling og forvaltning av offentlige bygninger i et livsløpsperspektiv. Forsknings og utviklingsprogram Kommunal eiendomsforvaltning 2008 – 2012*. NTNU. Norway.