

Performance measurement of workplace change

A comparative analysis of data from Thailand, The Netherlands and Finland

Riratanaphong, C; van der Voordt, DJM

Publication date

2012

Document Version

Final published version

Published in

The added value of facilities management

Citation (APA)

Riratanaphong, C., & van der Voordt, DJM. (2012). Performance measurement of workplace change: A comparative analysis of data from Thailand, The Netherlands and Finland. In DJM. van der Voordt, PA. Jensen, & C. Coenen (Eds.), *The added value of facilities management: Concepts, findings and perspectives* (pp. 248-265). Polyteknisk Forlag.

Important note

To cite this publication, please use the final published version (if applicable).
Please check the document version above.

Copyright

Other than for strictly personal use, it is not permitted to download, forward or distribute the text or part of it, without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license such as Creative Commons.

Takedown policy

Please contact us and provide details if you believe this document breaches copyrights.
We will remove access to the work immediately and investigate your claim.

THE ADDED VALUE OF FACILITIES MANAGEMENT CONCEPTS, FINDINGS AND PERSPECTIVES

PER ANKER JENSEN, THEO VAN DER VOORDT AND CHRISTIAN COENEN
(EDITORS)



THE ADDED VALUE OF FACILITIES MANAGEMENT
CONCEPTS, FINDINGS AND PERSPECTIVES

© Centre for Facilities Management – Realdania Research

Centre for Facilities Management – Realdania Research
DTU Management Engineering
Technical University of Denmark
Produktionstorvet
Building 424
DK-2800 Lyngby
Denmark
www.cfm.dtu.dk

Published 2012

ISBN-10 8750210408
ISBN-13 9788750210405

Layout: Hedda Bank Grafisk Design

Edited by
Per Anker Jensen, Theo van der Voordt and Christian Coenen

Photos on front cover and between chapters by
Theo van der Voordt

Print: InPrint, Latvia

Published by
Polyteknisk Forlag
Anker Engelundsvej Vej
2800 Lyngby
Tel. +45 7742 4328
e-post: forlag@polyteknisk.dk
www.polyteknisk.dk

16. PERFORMANCE MEASUREMENT OF WORKPLACE CHANGE: A COMPARATIVE ANALYSIS OF DATA FROM THAILAND, THE NETHERLANDS AND FINLAND

Chaiwat Riratanaphong and Theo van der Voordt

ABSTRACT

Purpose: A) to record Key Performance Indicators (KPIs) that are used in performance measurement in practice; B) to investigate the influence of the work environment on employee satisfaction and perceived productivity, and to explore the impact of culture on employees' appraisal of their work environment and prioritized aspects.

Methodology: A case study has been conducted in Thailand to compare performance measurement in practice with KPIs that were found in literature. Secondly data on employee satisfaction, perceived support of productivity by the physical environment, prioritized aspects, and national and organisational culture were collected by the use of questionnaires and additional interviews. Finally, prioritized aspects in the Thailand case were compared with similar data from Dutch and Finnish cases, in search for the impact of the cultural context.

Finding: The research showed a huge variety of KPIs in connection to different added values of real estate and other facilities. Regarding workplace appraisal, the Thai employees showed to be less satisfied than the Dutch employees. They put more emphasis on adjacency and locality of spaces, subdivision of the whole building, and sharing own ideas about the work environment than the Dutch and Finnish respondents. The Dutch and Finnish employees prioritized functionality and comfort of workspaces and opportunities for concentration and communication more frequently than the Thai people. The organisational culture of the Thailand case is perceived as a hierarchical culture, whereas high masculinity and individualism are reflected in the national culture. Whereas the cultural context might have its impact on the appraisal and prioritizing of aspects of the work environment, the former and current work environment, work processes, external context, and implementation process seem to be more influential.

Practical implications: Knowledge about the impact of new working environments on employee satisfaction, perceived productivity support and prioritized aspects in different cultures may be used to support real estate and FM decisions of organisations working with employees with different cultural backgrounds.

Research limitations: Additional data collection and in-depth analyses are needed to further explore and explain different responses in connection to different people, places, processes, and culture.

Originality/value: This research helps to improve our understanding of cultural impact on employee satisfaction with new working environments, perceived productivity support and prioritized aspects.

Keywords: Performance Measurement, Employee Satisfaction, Perceived Productivity, Priorities, Culture.

INTRODUCTION

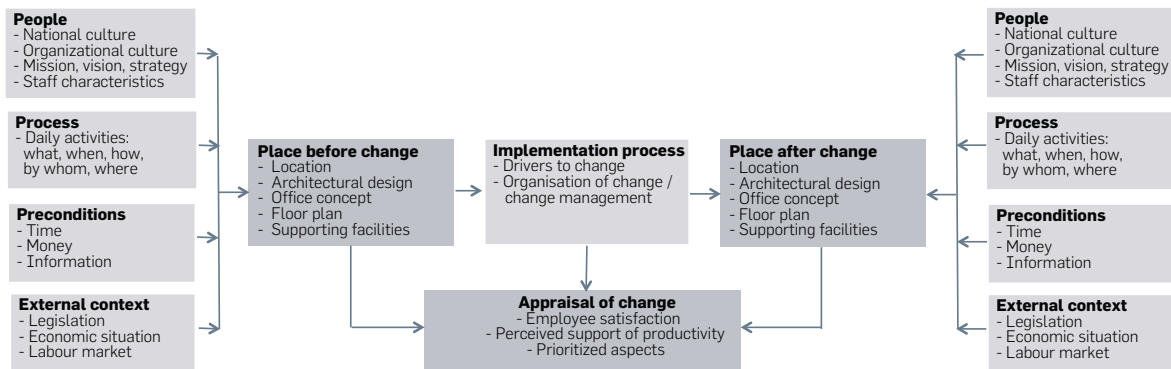
Although a relationship has been recognized between corporate real estate performance and organisational performance (Lindholm, 2008; De Vries et al., 2008), performance measurement of workplace change in different cultural contexts requires further attention. Based on an on-going PhD research project of the first author (Riratanaphong, 2010), this chapter presents findings from a literature review of Key Performance Indicators (KPIs). Furthermore a case study in Thailand will be described on performance measurement systems and a particular aspect of the performance of corporate resources i.e. the use and experience of a new working environment (Riratanaphong and Van der Voordt, 2011). The research aims to provide insight into theory and practice of performance measurement of workplace change and to compare KPIs that are mentioned in literature with KPIs used in practice. A second purpose is to investigate the influence of a workplace change on employee satisfaction and perceived productivity, to find out which aspects employees find most important in their work environment, and to explore the impact of national and organisational culture on employees' responses to their work environment.

By linking theory to practice it is aimed to improve our understanding of organisation's decision making regarding workplace change and employee satisfaction and prioritized aspects in different cultural contexts. However, due to many variables that might influence the appraisal and prioritizing of different aspects of the work environment, see Figure 16.1, it will hardly be possible to trace cause-effect relationships. The impact of culture cannot be isolated from the impact of other variables such as characteristics of the accommodated organisation, the former and present work environment, work processes, and the internal and external context. Besides, real estate interventions are usually implemented together with changes in one or more other corporate assets such as capital, technology, human resources and ICT, in a dynamic context with regard to demography, economy, social issues, time spirit, governmental policy and legislation (De Vries et al., 2008). So there are a number of intermediary variables that have their impact, too. As such, this study is explorative by its nature.

CASE DESCRIPTION

The case study in Thailand has been conducted at Dhanarak Asset Development Company Limited (DAD). DAD formerly shared its workplace with the Treasury Department, Ministry of Finance in a building on the Rama 6th road, which is located in the city centre of Bangkok. The former workplaces were located on the 7th floor of a 20-year-old multitenant building, nearby amenities such as shops, restaurants, newsstands, drug stores and swimming pools. Although the office was occupied by a lower number of employees (50) than in the new location (139), the former space was perceived as rather crowded because of limited floor space. When the Bangkok Government Complex was completed in 2009, DAD moved to one of the buildings of this complex. The main reason to move was to cope with the increasing demand

Figure 16.1: Variables that might affect decision making and appraisal of workplace change



for office space according to a growing number of employees. Another, more psychological reason was the wish to be accommodated in a single tenant building without the need to share the workplace with another organisation, as was the case in the former location. The office was arranged in different types depending on job titles and functions. Generally, employees occupy workplaces with partitions while high ranking personnel occupy cellular type offices. Large and small meeting rooms are located in several spots throughout the office. In addition, support facilities such as computers and IT system and amenities such as banks, post office, hospitals, shops, restaurants, food outlets and open meeting spaces are provided in the new location. Figure 16.2, 16.3 and 16.4 show the exteriors and workplaces of the company and one of the floor plans.

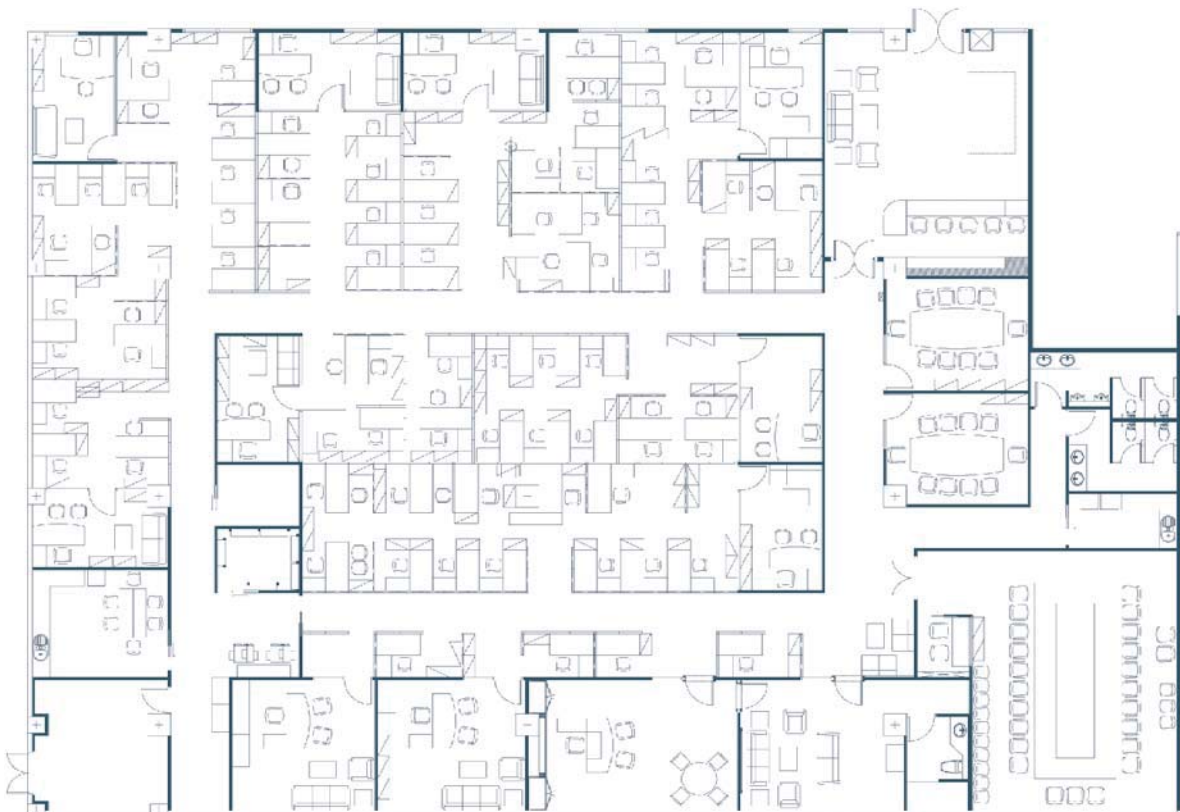
Figure 16.2: Exterior of the buildings



Figure 16.3: Interior of the working environment



Figure 16.4: Floor plan of the administration and business development & marketing department



METHODOLOGY

The research included two parts: The first part compared performance measurement according to the literature with performance measurement in practice. The second part further explored employee satisfaction, perceived productivity, prioritized aspects, and the impact of the cultural context.

PERFORMANCE MEASUREMENT IN PRACTICE

A literature review was conducted on added value of real estate, workplace management, and performance measurement. KPIs from the literature have been linked to the Balanced Scorecard (BSC) concept (Kaplan and Norton, 1996) and were classified in six categories (according to Bradley, 2002). This classification has been used as a reference to the performance indicators that were applied by the DAD-company. These performance indicators were traced by an analysis of documents, including annual reports, the roles and responsibilities handbook, the code of conduct handbook, and a report on an employee satisfaction and attitude survey that was conducted by the DAD-company after the move to the new building. Furthermore, ten semi-structured interviews were conducted, with the chief marketing officer, senior specialist, public relation manager, human resource manager, procurement and property manager, four senior officers and one general officer. Interview questions included real estate operating decisions, strategic driving forces and corporate culture.

EMPLOYEE SATISFACTION, PERCEIVED PRODUCTIVITY, PRIORITIZED ASPECTS, AND IMPACT OF CULTURE

From September 2010 to October 2010, data were collected by the first author on employee satisfaction, perceived support of productivity, prioritized aspects of the working environment, and organisational and national culture. The research methods included the use of three questionnaires. The impact of workplace change has been examined through the WODI Light questionnaire, a tool to assess employee satisfaction and perceived support of productivity through the working environment (Maarleveld et al., 2009). Employees were asked to mark their satisfaction with different aspects of the work environment on a 5-point scale, ranging from very dissatisfied to very satisfied. Furthermore employees were asked to mention three aspects of the work environment they find most important.

The cultural dimensions were identified through the Values Survey Module (VSM 94) (Hofstede, 1997) and the Organisational Culture Assessment Instrument (OCAI) (Cameron and Quinn, 2006). Additional observations were conducted by a walk-through, with a focus on where and when certain behaviour occurs.

Based on the 20 questions of the VSM 94, index scores have been calculated on five dimensions of national value systems: Power Distance, Individualism, Masculinity, Uncertainty Avoidance, and Long-term Orientation. The OCAI questionnaire raises questions on six items: 1) dominant characteristics; 2) organisational leadership; 3) management of employees; 4) organisational

glue; 5) strategic emphases; and 6) criteria of success. Responses to these items correspond with four culture types: clan, adhocracy, market and hierarchy.

The questionnaires were filled out by 87 participants out of 139 employees, 32 male and 55 female (1:1.7 ratio). The majority of participants are below 31 years old (48%) and between 31-40 years old (44%). Most of the participants are well educated with 57% holding a bachelor degree and 36% holding a degree above bachelor degree.

The data of the Thailand case on employee satisfaction and perceived support of productivity through the physical environment were compared with similar data from case studies that have been conducted by the Center for People and Buildings (CfPB) in Delft, Netherlands. The data from the Dutch respondents were collected from 2007 to 2009 in 41 cases, including different types of organisations and different offices, both traditional cellular offices and combined offices with fixed or flexible use of workstations (Brunia et al., 2010).

The data on prioritized aspects in the Thailand case were compared with similar data from previous studies in both the Netherlands and Finland (Rothe et al., 2011). The Dutch employees' answers about the most important attributes of Dutch office buildings were obtained from 9 organisations in 29 buildings, in the period of January 2009 until September 2010. The Finnish employees' answers were obtained from 21 Finnish organisations in the Helsinki Metropolitan Area during spring 2009. The respondents represent users with different demographic background and working in different workplace concepts including a cellular office, a fixed workspace in a multi-space office and a non-dedicated desk.

PERFORMANCE MEASUREMENT IN THEORY AND PRACTICE

Based on BSC, a huge variety of KPIs from the literature have been classified in six categories: stakeholder perception, financial health, organisational development, productivity, environmental responsibility and cost efficiency. We compared the real estate performance indicators that were used by the organisation in practice with this KPI-list, see Table 16.1.

PERFORMANCE AREAS AND KPIS

The research showed that various perspectives of performance measurement and different performance indicators were used in the case study. Performance criteria of the case study cover three main areas: adherence to policy, operating performance and organisational management. Each area contains different performance indicators. Income from commercial rent area is linked to the financial health perspective. Working on the development of a building management standard and ICT, delivery of rentable area to the clients and percentage of allocated commercial area correspond to the organisational development perspective. Indicators with regard to HRM, IT management, and health and safety are considered as indicators of productivity. Environmental responsibility is reflected in the introduction of green building,

Table 16.1: Performance criteria adopted from literature as being applied in the case study*

KPIs from literature		Performance criteria of the DAD-case	
Perspectives	Sub-category	Main area	Subcategory
Stakeholder perception	Customer satisfaction index	Operating performance of the state enterprise (Non-financial)	<i>Satisfaction of the Government Complex building users</i>
	Employee satisfaction survey	Organisational management - Human resource management	<i>Employee satisfaction</i>
Financial health	Total income from consulting and planning, construction project management and property management	Operating performance of the state enterprise (Financial)	<i>Income from commercial rent area</i>
	Result before finance cost as percentage of invested capital per year		Earnings before interest, taxes, depreciation and amortization (EBITDA)
	Return on investment Return on equity		Return On Asset (ROA)
	Budgetary discipline Budget Management	Adherence to policy	Ability to manage the investment plan
Organisational development	Staff attitudes index Cultural factors	Organisational management - Human resource management	Staff attitude survey
	Project group work done according to approved project strategies/plans	Adherence to policy	Work done according to as-signed plan from government - Percent of work done: DAD-housing plan in 2009 - Percent of handed over unit of DAD-housing in Phuket, Chiang mai and Suphanburi - Success level of Zone C building construction project
		Operating performance of the state enterprise (Non-Financial)	<i>Delivering rentable area to other government agencies Percentage of allocated commercial area Work done according to the development of building management standard Work done according to the development of ICT</i>

KPIs from literature		Performance criteria of the DAD-case	
Perspectives	Sub-category	Main area	Subcategory
Productivity	IT solution expectation fulfilment	Organisational management - IT Management	<i>Master plan of the IT system</i> <i>Management of the information system</i>
	Implement new strategic system	Organisational management - Human resource management	Strategic plan and policy of human resource management and human resource development Competence of HRM – the ability to develop strategic management in HR department.
	Staff turnover Human Resource Plan Objectives (inflows and outflows)		Recruitment system
	Employee motivation		Salary and benefits management
	High level of competence		Competence measurement
	Human resource centre's ability to deliver competent employees according to other divisions' needs		Human resource development - Career path planning
	IT solution expectation fulfilment		<i>IT Solution in HRM</i>
	Sickness levels Absence		<i>Employee health, safety and well being</i>
Environmental responsibility	Environmental responsibility Sustainability Energy use/square meters Transport-related sustainability effects	Organisation management - Management roles of board of directors	<i>Introduction of green building</i> <i>Construction materials and equipment meet local content</i> <i>Percentage of complaints from public regarding to environmental impact</i>
Cost efficiency	Cost / Income ratio Administration cost/total income Ratio of area managed per operations and maintenance employee Maintenance costs Overhead costs	Operating performance of the state enterprise (Financial)	Operating costs - Overhead costs (employees and committee) - Facility costs (buildings and equipment) - Fees and services - Taxes (property and land) - Facility management costs

*) The KPIs from literature mainly originate from Bradley (2002), Carder (1995), General Services Administration (2006), Kaczmarczyk and Murtough (2002), Kaczmarczyk and Morris (2002), and Wilson et al. (2003).

Italics = real estate and other facilities related performance criteria

the use of local construction materials and equipment, and recording of complaints from public regarding environmental impact. The cost efficiency perspective showed to be applied by measuring facility costs (building and equipment) and taxes (property and land).

The performance criteria are differently weighted. The criterion weights are set by the government and as such indicate different focuses. The total criterion weights of all performance criteria equal to 100%. The weights per criterion reflect how managers perceive its importance in connection to overall performance of the organisation. Particular attention is being paid to income from commercial rent area (6%), work done on delivering rentable area to clients (6%) and IT management (6%). Associated with other aspects in human resource management, areas related to performance measurement of workplace change including safety, health and environment compound to 6%.

For each criterion, the performance targets are classified into levels 1 - 5. Level 5 is the level that exceeds the set target in the annual enterprise plan (= level 3). Level 1 is the target that is considerably much lower than the set target in the annual enterprise plan. The weighted scores for each performance area and the total sum of weighted scores are used to benchmark the performance of the present building with other governmental buildings. When determining performance targets each year, the government representatives use the past performance as the basis for comparison with the private sector's standards. This is to induce state enterprises to improve their operational performance and to be on a par with the private sector. Even though the improvement of the state enterprises' standards may not be achieved within one year, setting the targets higher every year can encourage them to operate more efficiently.

EMPLOYEE SATISFACTION

With regard to stakeholder perception, the case organisation measured both satisfaction of the building users and employees on various aspects of real estate, facilities, and FM.

A first assessment that was conducted by the organisation aimed to evaluate satisfaction of the government complex building users including: 1) government agencies that rent office space (e.g. department of lands, ministry of justice, etc.), 2) clients that rent commercial space and 3) general visitors. This satisfaction survey focused on:

- Environmental management such as indoor air quality and waste management
- Management of IT including security and services
- Facility Management
- Security and traffic management
- Cleaning service
- Client relations (Call centre)

A second survey that was conducted by the organisation aimed to collect data on employee satisfaction regarding:

- Organisation and work content
- Relationship to co-workers
- Salary
- Career prospect
- Autonomy
- Relationship to supervisor
- Securement of work
- Working environment
- Fringe benefits

ADDED VALUE OF ACCOMMODATION CHANGE

The link to the added value of real estate and other facilities i.e. the contributions of accommodation change to the overall performance of the organisation (Nourse and Roulac, 1993; De Jonge, 1996; Lindholm, 2006) can be found in several drivers to change and various performance indicators that are used in this case:

- The new DAD building has been designed with an innovative energy conservation concept in order to achieve cost reduction.
- Building amenities such as shops, restaurants, post office, banks and hospital were included in order to contribute to satisfaction of the building users.
- Income from commercial rent area captured real estate value creation by entering the real estate business to develop surrounding property.
- Employee satisfaction, health and safety were supposed to be achieved by improving the working environment and HVAC system.
- Work done on delivering rentable area to clients, development of a building standard, development of ICT, and percentage of allocated commercial area may all be considered as performance indicators of achieving greater efficiency or control of operations, in alignment with the corporate strategy (Nourse and Roulac, 1993).
- IT management helps to facilitate managerial processes and knowledge work and as such adds value to the organisation.
- Introduction of green building issues, the use of local construction materials and recording of complaints from public regarding environmental impact are considered as indicators of sustainable development and corporate social responsibility that contribute to organisational performance.
- Cost minimisation has been attained by improving mechanical systems such as HVAC, elevators and escalators.

EMPLOYEES' RESPONSES TO THE NEW WORK ENVIRONMENT

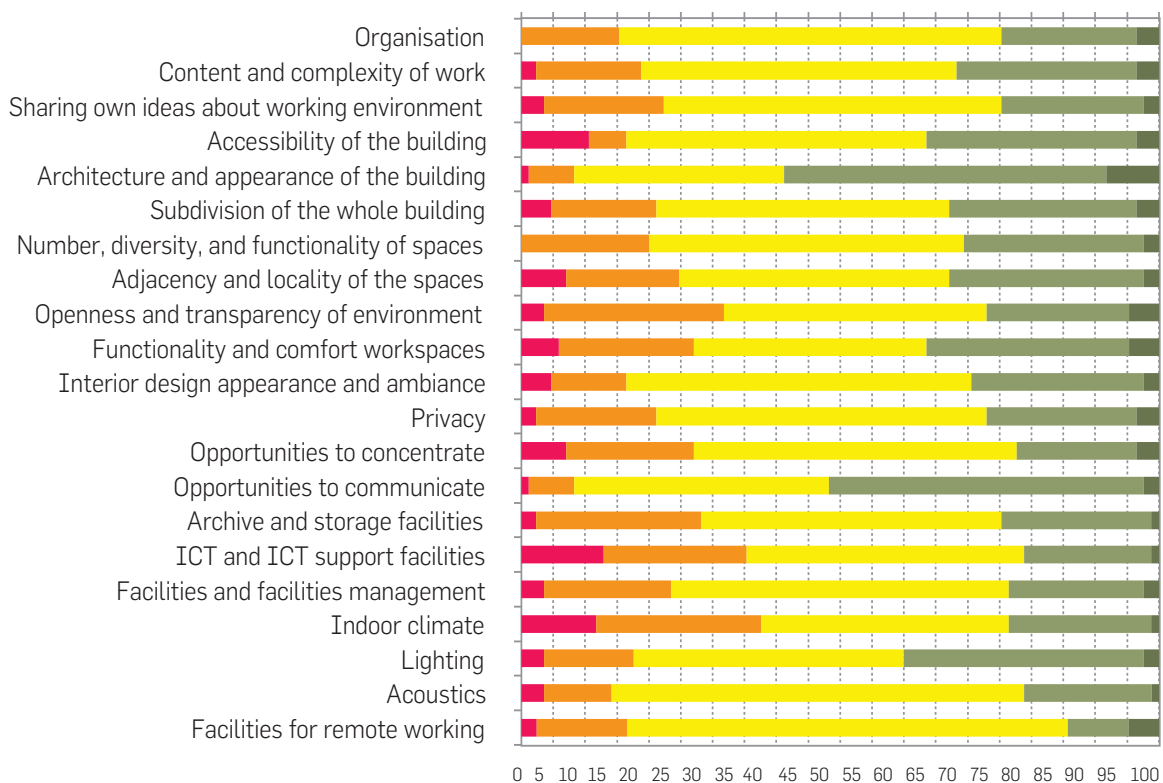
EMPLOYEE SATISFACTION IN THE THAILAND CASE

According to the responses to the WODI-questionnaire, the most preferred places in the DAD case showed to be team space (21%), 1-person workspace (20%) and brainstorm space (17%).

The least preferred places are 2-person workspace and large open meeting space (only preferred by 2%).

Items that employees appreciate most are architecture and appearance of the building (59.2% satisfied participants), see Figure 16.5, opportunities to communicate (51.4%), lighting (40.4%), functionality and comfort of workplaces (36.7%) and accessibility of the building (36.5%). Many employees are dissatisfied about indoor climate (38%), ICT and ICT support facilities (35%), openness and transparency (31.5%), archive and storage facilities (28.4%) and opportunities to concentrate (27.1%).

Figure 16.5: Percentage of satisfied and dissatisfied participants with regard to different aspects (N=85) Red = (very) dissatisfied; yellow = neutral; green = (very) satisfied

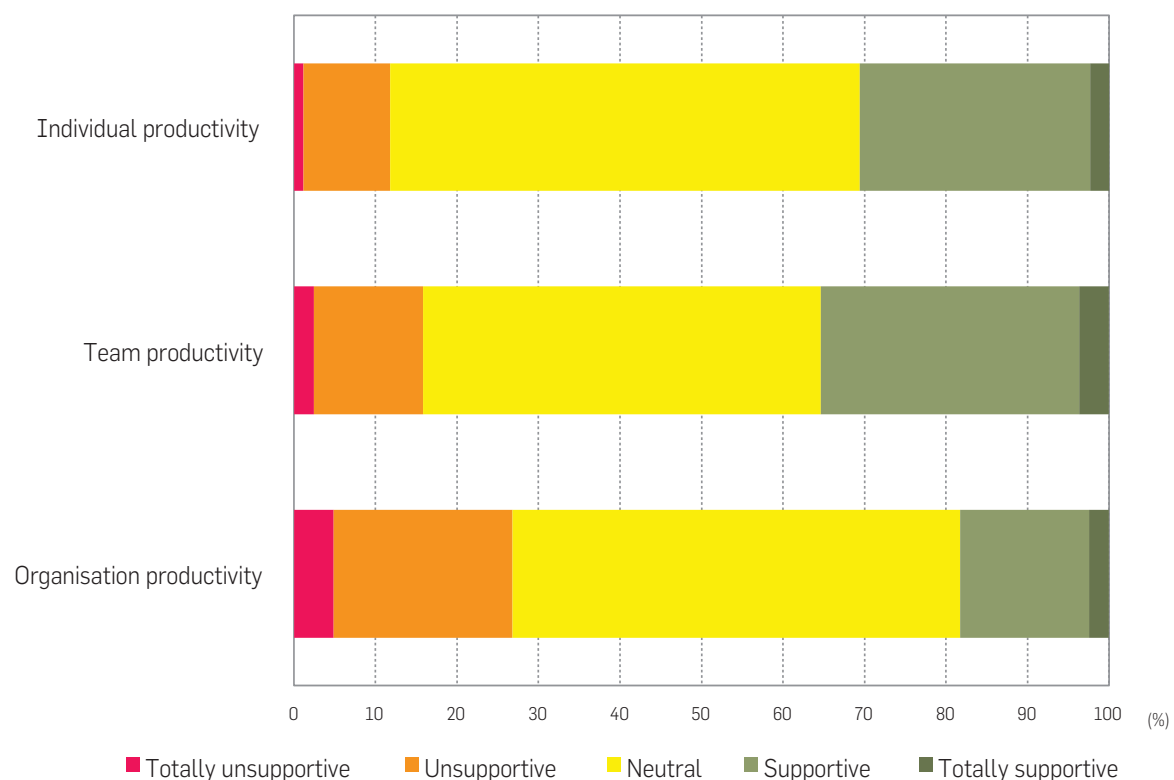


COMPARISON OF EMPLOYEE SATISFACTION WITH SIMILAR DATA FROM THE NETHERLANDS

On most items a much lower percentage of the DAD employees are satisfied in comparison to the Dutch cases. This is true for both their appraisal of the organisation and the content and complexity of the work and for most aspects of the work environment. An exception is satisfaction with architecture and building appearance. The DAD-case (59.2%) shows a slight positive difference with the average percentage of satisfied respondents in the Dutch cases (53%), prob-

ably due to the fact that the organisation has moved to a new building with a modern design concept. Although the percentage of DAD employees that are satisfied with opportunities to communicate is rather high (51.5%), it is lower than the average percentage of 70% in the Dutch cases. Facilities for remote working are also much less appreciated in the Thai case in comparison to the Dutch cases. Although the employees have just moved to the new buildings with new workstation furnishings and sufficient building amenities, the extent to which the environment supports individual productivity and team productivity is also perceived lower in the DAD-case: 30.4% and 34.5% versus 41% and 39% on average in the Dutch cases, see Figure 16.6. From the interviews, the employees explained that due to the separated building locations it is difficult to communicate between departments, which might be a reason of low perceived productivity.

Figure 16.6: Percentage of participants that perceive the working environment as being supportive to different types of perceived productivity (N=85)



PRIORITIZED ASPECTS IN THE THAILAND CASE

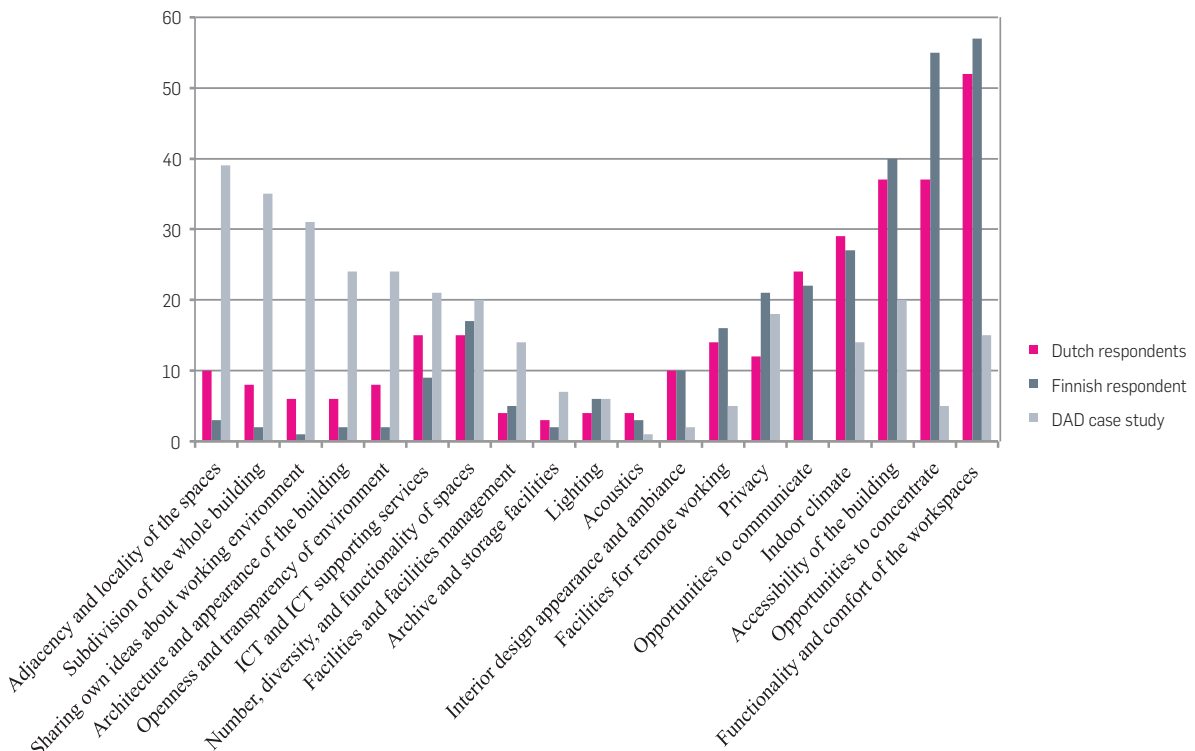
Number one of most important aspects of the workplace environment showed to be adjacency and locality of the spaces (mentioned by 39% of the Thai respondents in their top 3 of most important aspects), followed by subdivision of the whole building (mentioned by 35%), sharing own ideas about the work environment (31%), openness and transparency of environment (24%), and architecture and appearance of the building (24%). The least prioritized aspects

include opportunities to communicate (mentioned by no one as one of the three most important aspects), acoustics (1%), interior design appearance and ambiance (2%), opportunities to concentrate (5%), facilities for remote working (5%) and lighting (6%).

COMPARISON OF PRIORITIZED ASPECTS WITH SIMILAR DATA FROM THE NETHERLANDS AND FINLAND

Compared to similar data from Dutch and Finnish cases functionality and comfort of workspaces and opportunities for concentration and communication were mentioned much less by the Thai people as being (most) important than by the Dutch and Finnish people, see Figure 16.7.

Figure 16.7: Prioritized aspects of the work environment in the Thai case study in comparison to similar data from Dutch and Finnish cases



DISCUSSION

MISSING KPIS

A number of KPIS that are mentioned in literature but were not applied in the case study should be taken into consideration. With regard to stakeholder perception, percentage of customers with SLAs in place, rate of customer retention, customer commitment, rating of extent to which workplace provisioning solutions meet customer needs and percentage of customers indicating IT solutions fulfilling their expectations are KPIS that could support organisations in

improving their service provision. The contribution to public policy and societal priorities, registration of all properties according to the plan for protection of historical/cultural values and media monitoring are recommended to develop a stronger relationship with the community. In addition to what has been recorded in the case study, measuring performance from the financial perspective could be improved by including net income, economic/market value added, partnerships, accuracy of financial forecasting compared to year-end results, capital planning implemented and the transfer of budgeted funds to next year's budget.

With regard to the organisational development perspective, performance measurement could be improved by including KPIs such as focus on team formation, new quality plan implemented, all work on properties done in accordance with the approved maintenance plan, improved horizontal communication, and the divisions' satisfaction with each other, and by research, evaluate and replicate feasible emerging trends. Furthermore, KPIs related to real estate such as accommodation usage (sq.m./employee, cost/rentable sq.m. and cost/employee) and space supply and demand ratios are also important for facilities managers.

From a productivity perspective, HR related KPIs such as investment in training, percentage of employees understanding how their jobs fit to corporate objectives, clarification of employees' individual competence requirements and HR centre's ability to deliver competent employees according to other divisions' needs can help organisations to improve their performance. Other ways to improve productivity are for instance the implementation of a new software system for budget and account, introduction of a leadership program, and recording of all routines and strategies and pre-project plan issues in a database as input for new knowledge and best practices.

Introduction of an FM policy directed to a growing concern for contaminated sites management, energy intensity and progress against sustainable development objectives is a milestone towards sustainable development.

Efficiency of real estate and other facilities could be improved by regular checks on KPIs such as cost/square meters and cost/person, overall and per FM issue e.g. IT-cost/employee, vacancy rate, total annual building occupancy charges, total occupancy cost related to revenue generation, etc.

Further exploration and implementation of adding value management could benefit from a clear distinguishing between HRM-related KPIs and FM-related KPIs. Examples of the former are employee satisfaction with regard to the organisation and its work processes, the staff attitude survey, design and implementation of a strategic plan of human resource management including a recruitment system, salary and benefits management, career path planning, employee relations and communication, and employee health, safety and wellbeing.

Areas related to FM cover satisfaction of building visitors with the physical environment, income from commercial rent area, work done according to the building management standard, the development and management of IT systems, application of green building issues, and

cost efficiency regarding facility costs and taxes. Both KPI categories are linked to different disciplines and both can contribute to the added value of FM and real estate.

APPRAISAL AND PRIORITIZED ASPECTS OF THE WORK ENVIRONMENT

The differences in percentages of (dis)satisfied employees and rankings of prioritized aspects may be caused by several factors such as different work environments in the past and present, different work processes, different organisational characteristics and different culture.

a. Impact of work processes and workplaces

Whereas most work of the Thai respondents can be described as routine office work, most Dutch respondents are knowledge workers. Most Thai employees work at simple, fixed workstations (apart from some fieldwork of the operation department). A little more than half of the Dutch respondents work in traditional cellular offices, whereas the other half works in multi-space offices with a variety of task-related workspaces and other spaces. Workplaces in open settings are combined here with additional areas for individual, concentrated work and spaces for formal and informal meetings (De Been & Beijer, 2011). Part of the respondents working in multi-space offices have their own, personal assigned desk, and part of them work in non-territorial offices. Over half of the Finnish respondents indicated to working in a cellular office, either in their own private room or sharing it with others. Approximately a third has a fixed workspace in a multi-space office, while 10% uses non-dedicated desks (Rothe et al., 2011). These differences will probably have an impact on appraisal and prioritized aspects of the work environment.

The lower percentage of satisfied employees on accessibility of the DAD building (36.5% versus an average of 77% in the Dutch cases) might be due to the fact that more than half of the Dutch cases are located near a train station (Rothe et al., 2011). On the contrary, the Thailand case is located in a high traffic route that causes traffic problems during working hours. ICT and ICT support facilities, overall facilities and FM, and facilities for remote working were shown to be less appreciated in Thailand than in the Netherlands. This might be due to different work process policies, but apparently Thai managers have to pay more attention to these issues. The differences in percentages of satisfied employees with perceived support of productivity through the work environment are modest, again in favour of the Dutch cases. Probably the variety of task related workplaces in many Dutch cases support labour productivity in a better way than either continuously working in an open plan office or in a private office.

Remarkably the Thai employees allocate a higher priority to openness and transparency than their Dutch colleagues, whereas opportunities to concentrate and opportunities to communicate are much less prioritized in the Thailand case compared to the Dutch cases. Both aspects show also lower percentages of satisfied employees in the Thailand case. On the contrary to what might be expected, sharing ideas about the work environment is higher prioritized in Thailand (31%) than in the Dutch cases (6%). User participation is highly appreciated in the Netherlands (Van Meel, 2000), and it is quite common in the Netherlands. Probably for the Dutch people this item is merely a 'dissatisfier' - if not applied, people are dissatisfied - rather

than a 'satisfier' – a positive attribute that contributes to employee satisfaction (Herzberg et al., 1959; Herzberg, 1966).

Regarding the concept of environmental comfort in workplace performance (Vischer, 2008), the Thai respondents showed much concern about physical comfort (39% mentioned adjacency and locality of the spaces in the top three of most important aspects, and 35% ranked subdivision of the whole building in the top 3). Physical comfort is assured by well-considered building design and operation, as well as by setting and meeting standards of health and safety (Vischer, 2008). So the Thai employees seem to put high importance on basic human needs and necessary conditions for building habitability. This may reflect the requirement for better housing standards and environmental conditions in the Thai case study.

The perceived high importance of functionality and comfort of the workspaces (mentioned by 52 and 57% of the Dutch and Finnish respondents) and opportunities to concentrate (mentioned by 37 and 55%) indicates a preference for functional comfort to support and improve task performance. Functional comfort focuses on the generic human needs for tools to perform specific tasks; it defines workspace as a tool for getting work done (Vischer, 2008). In comparison to the Thai case study, the focus on functional comfort of the Finnish and Dutch respondents can interpret the shift from users' experience in individual and team effectiveness to organisational effectiveness.

Whereas the surveys in Thailand focus on basic needs such as health and safety issues, a selection of these questions could be used as input for further development of the WODI questionnaire.

b. Impact of culture

Currently, the organisational culture in the Thailand case is being perceived as a hierarchy culture, whereas the clan culture type is preferred most. The Thai respondents showed much lower scores on uncertainty avoidance, power distance and long-term orientation than Thailand as a whole, and much higher scores on individualism and masculinity. According to Hofstede, his cultural indexes are not supposed to be used as cultural generalisations to stereotype and to suggest that cultural groups are all the same or will not be altered at all by experience. This might explain why the cultural values of the case study employees are quite different from the national Thailand cultural indexes.

The hierarchical culture has contributed to the move to a single tenant building in order to control the expanding responsibilities. The quite typical workplace layout in Thailand - providing less variety of spaces for socializing – and limited opportunities to sharing own ideas about working environment may reflect the hierarchical culture as well.

The operation department is accommodated in a building with some vacancy at the start, in order to be able to cope with the expected increasing demand for space due to new business

activities. According to Hofstede (1997), this quality corresponds with a weak score in uncertainty avoidance, with top executives being concerned with strategy. The near location of the operation department to the other departments supports efficient communication that corresponds to the emphasis on efficiency in a hierarchy culture type. The focus on efficiency is also visible in the high ranking of adjacency and locality of workplaces and subdivision of the building as one of three most important aspects of the work environment. Smooth scheduling and low-cost production correspond with the criteria for success as described in a hierarchy culture (Cameron and Quinn, 2006).

CONCLUSION

The research findings confirmed that real estate and other facilities can add value to the organisation, both with regard to people (social dimension), planet (environmental dimension) and profit (economic dimension). Based on the BSC concept, the six KPI categories found in literature can be used as a reference to compare with performance indicators used in current practice. In the case study, the differences in criterion weights reflect different priorities of performance aspects. To be able to benchmark with similar organisations, standardized performance measurement methods and prioritised performance indicators would be helpful.

The case study also demonstrates various connections between workplace change and culture with regard to employee satisfaction, perceived productivity support and prioritized aspects of the work environment. However, additional data collection on organisational culture of the Dutch cases and more in-depth analyses are needed to further explanations of similarities and dissimilarities between employees' assessment of the work environment and cause-effect relationships.

REFERENCES

- Bradley, J. S. (2002), "What's working? Briefing and evaluating workplace performance improvement", *Journal of Corporate Real Estate*, Vol. 4, No. 2, pp. 150-159.
- Brunia, S., de Been, I., Beijer, M. and Maarleveld, M. (2010), "Imagineering van de werkomgeving". *FM Executive*, pp. 23-26.
- Cameron, K.S. and Quinn, R.E. (2006), *Diagnosing and changing organizational culture*, Jossey-Bass, San Francisco, CA.
- Carder, P. (1995). "Knowledge-based FM: managing performance at the workplace interface", *Facilities*, Vol. 13 No. 12, pp. 7-11
- De Been, I. and Beijer, M. (2012), "The effect of office type on employee satisfaction and perceived productivity". Forthcoming.
- De Jonge, H. (1996) *Toegevoegde Waarde Van Concernhuisvesting*, Paper presented at NSC Conference.
- De Vries, J.C., De Jonge, H. de, and Van der Voordt, T.J.M. (2008), "Impact of real estate interventions on organisational performance". *Journal of Corporate Real Estate*, Vol. 10, No. 3, pp. 208-223.

- General Services Administration, Office of Real Property Management (2006), *Real Property Performance Result*, Washington DC, GSA.
- Herzberg, F. (1966), *Work and the nature of man*. Cleveland: World.
- Herzberg, F., Mausner, B., Snyderman, B. (1959), *The Motivation to Work*. Wiley, New York.
- Hofstede, G. (1997), *Cultures and organizations: software of the mind*, McGraw-Hill, New York, NY.
- Kaczmarczyk, S. and Murtough, J. (2002), "Measuring performance of innovative workplaces", *Journal of Facilities Management*, Vol. 1, No. 2, pp. 163 – 176.
- Kaczmarczyk, S. and Morris, S. (2002), *Balanced scorecard for Government: the Workplace Dimension*. W4 working paper, GSA, Washington
- Kaplan, R. S. and Norton, D. P. (1996), *The balanced scorecard: translating strategy into action*. Harvard Business School Press.
- Lindholm, A-L., Gibler, K.M. and Leväinen, K.I. (2006), "Modeling the value-adding attributes of real estate to the wealth maximization of the firm", *Journal of Real Estate Research*, Vol. 28, No. 4, pp. 445-475.
- Lindholm, A-L. (2008), *Identifying and measuring the success of corporate real estate management*, Doctoral Dissertation, Helsinki University of Technology
- Maarleveld, M., Volker, L. and van der Voordt, T.J.M. (2009), "Measuring employee satisfaction in new offices – the WODI toolkit", *Journal of Facilities Management* Vol. 7, No. 3, pp. 181-197.
- Nourse, H. and Roulac, S. (1993) "Linking Real Estate Decisions to Corporate Strategy", *Journal of Real Estate Research*, Vol. 8, No. 4, pp. 475-494
- Riratanaphong, C. (2010), *Identifying performance measurement of workplace change. A cross-cultural comparison between the Netherlands and Thailand*. PhD thesis in progress. Delft University of Technology, Delft.
- Riratanaphong, C. and van der Voordt, Th. (2011), "Impact of Workplace Change on Satisfaction and Productivity: a comparative analysis of case studies in Thailand and the Netherlands". Conference paper, 10th European Facility Management Conference, 23-25 May 2011, Vienna.
- Rothe, P., Beijer, M. and van der Voordt, Th. (2011), "Most important aspects of the work environment: a comparison between two countries". Conference paper, 10th European Facility Management Conference, 23-25 May 2011, Vienna.
- Wilson, C., Hagarty, D. and Gauthier, J. (2003), "Results using the balanced scorecard in the public sector", *Journal of Corporate Real Estate*, Vol. 6, No. 1, 53–63
- Van Meel, J. (2000), *The European Office*, 010 Publishers, Rotterdam.
- Vischer, J.C. (2008), "Towards a user-centred theory of the built environment", *Building Research and Information*, Vol. 36, No. 3, pp. 231-240.