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parameters, priorities, and interventions**

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Adding Value by Health Care Real Estate: Parameters, Priorities, and Interventions

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Abstract

Purpose Due to the transition of the Dutch health care sector from a governmentally steered domain towards regulated market forces, health care organisations have become fully responsible for their real estate. This paper explores if Dutch health care organisations adopt a value-based real estate strategy, and if/how they apply the concept of adding value by corporate and public real estate, which values are prioritized, and how these values are implemented in daily practice.

Methodology Literature study and a meta-analysis of six student theses (1 x BSc, 1 x MSc, 3 x post-MSc and 1 x PhD) on adding value by health care facilities, using document analysis and semi-structured interviews with CEOs, project leaders, real estate managers and facility managers. All respondents work in Dutch hospitals, assisted living facilities for the elderly, or mental health care facilities. The interviews were jointly prepared by the students and the author of this paper being their supervisor.

Findings End-user satisfaction, enhancing productivity and stimulating innovation are highly prioritized. Which values are prioritized depends on the organisational objectives, the target group, the available budget, the position in the life cycle of design, construction and use, and the external context, in particular governmental policy and competition with other health care suppliers. The operationalisation into concrete design choices and strategic management of buildings-in-use is still underdeveloped.

Research limitations The interviews lasted 1-1,5 hour which is rather limited to get a complete picture.

Research implications Although much work has been done to operationalise the added value of corporate real estate and building related facilities, there is still a lack of a widely agreed taxonomy of added values and how to measure and manage these values. Ongoing international collaboration between researchers and practitioners aims to contribute to a common framework and to develop standardised measurement methods.

Practical implications The insights can support decision makers in value adding real estate and facilities management value by public and corporate real estate. The listings of prioritised values and related interventions can be used as a frame of reference to improve current design and management of health care real estate.

Social implications A clear insight in value adding management of corporate real estate may result in a better fit between real estate, organisational objectives, and end user needs.

Originality/value The findings link added value theory to Corporate Real Estate Management in Dutch health care practice.

Keywords: value-based real estate strategy; added value;; health care; prioritization; interventions

1. Introduction

Due to the transition of the Dutch health care sector from a governmentally steered system towards regulated market forces, health care organisations have become fully responsible for their real estate. This results in more autonomy of health care organisations but also in higher risks. In former days once the proposal for a new hospital building or renovating an existing building had been approved by the government to fit with the planning regulations (number of beds per 10,000 inhabitants), health care building regulations (maximum number of square meters per bed; space requirements per function of activity), cost regulations (maximum investment costs per square meter), and the usual

permit requirements laid down in the National Building Code, all running costs related to the building were reimbursed by the government. Nowadays all capital costs have to be paid back by the income from diagnosis/treatment-combinations. For each diagnosis and treatment an all-in price is calculated including both medical costs and costs for fixed assets. A fixed percentage is reimbursed by the insurance company as a compensation for the accommodation costs. Any decrease in health care production or accommodation costs that are higher than the reimbursement will result in less profitability. Besides, health insurance companies are more selective in making contracts with hospitals and look more carefully to the quality and costs of supplied health care, which leads to a growing competition between health care providers. In the cure sector of old people's homes, nursing homes and assisted living facilities for the elderly, the political, financial and legislation context is changing as well. Customers with a light need for care are no longer accommodated in intramural facilities and rely on home care. The national government transferred the responsibilities for the care infrastructure to the municipalities. This changing context has a strong impact on the design and management of health care real estate. Table 1 shows a number of changes in Corporate Real Estate Management (CREM) based on Fritzsche et al. (2005) and Hoepel et al. (2009).

Table 1: Changing CREM paradigm in the Dutch health care context

From	To
Certainties	Opportunities and risks
Seeking approval	Taking responsibility
Building plans based on regulations and standards	Building plans based on business plans
Maximizing floor area and investments within the m2 and cost standards	Less but high quality m2 to maximize operating efficiency and minimize total costs
Investment assessed by Netherlands Board for Healthcare Institutions (CBZ)	Investment assessed by capital provider
Retrospective financing of approved investments	Standardized accommodation budget based on health care production
Poor cost awareness of end users	Raised awareness due to more transparency and charging medical staff
Property owned	Comparative assessment of ownership, rent, and sale and lease back
Equity capital locked up in real estate	Equity capital invested in primary process
Mono-functional premises	Flexible premises

Organizational changes due to mergers and building network organisations, new insights regarding healing environments, demographic changes, technological developments and the economic context play a role as well. The dynamic context affects the health care real estate stock and requires many interventions. An interesting question is which key values are currently incorporated in the design and management of health care real estate and if and how the concept of the added value of Corporate Real Estate Management (CREM) and Facilities Management (FM) is adopted in daily practice.

This paper first explores the meaning of adding value by corporate real estate and other facilities. Next the paper presents the findings of empirical research within the health care sector regarding which values are incorporated in practice, which values are prioritized, what interventions are applied to attain various values, and which lessons can be learned for value-based corporate real estate and facilities management.

2. Adding Value by CREM and FM

In her book on *Strategy and place*, O'Mara (1999) states that due to the many changes in organisations, technology and society, managers in every area of business are being forced to rethink the physical aspects of their company. She outlines three different approaches to real estate and facilities management decision-making: incrementalism, in which ad-hoc decisions are made 'just in time' when the need for change is urgent, standardization, where control over design and management procedures is maintained through centralized decision-making, and value-based strategies, in which organizational values and corporate culture are integral parts of all design-related decisions and procedures are sufficiently flexible to meet the needs of the individual parts of the organization. A value-based strategy is pro-active and not only focuses on a buildings' function but also highlights its meaning to the organization. It establishes a basis for prioritizing expenditures when there is uncertainty over specific future requirements and sets out the criteria for the type, location, and design of the space that is acquired (O'Mara, 1999, 141, 161). Nowadays, related concepts such as 'added value' or - formulated in a more active way – 'adding value' by corporate and public real estate and other facilities and services is a popular topic in research within the fields of Corporate Real Estate Management (CREM) and Facility Management (FM) (Krumm and De Vries, 2003; Lindholm and Levainen, 2006; Lindholm et al., 2006; Scheffer et al., 2006; De Vries et al., 2008; Appel-Meulenbroek et al., 2010; Den Heijer, 2011; Jensen, 2010; Jensen et al., 2012a, 2012b, 2013, 2014; Van der Zwart, 2014; Beckers et al., 2015; Jensen and Van der Voordt, 2016). It is also one of the leading subjects at international conferences of the International Council for Research and Innovation in Building and Construction (CIB) and the European Facility Management Conferences (EFMC) (Jensen and Van der Voordt, 2015).

In common language, 'value' means the worth of something in terms of the amount of other things for which it can be exchanged. In financial terms, the value of a product or service refers to the monetary or material worth i.e., the amount of money that a person or organisation is willing to pay for it. Value also refers to non-monetary appraisal in terms of excellence, usefulness, importance, and to esteem highly (dictionary.com). According to Nourse and Roulac (1993) an organisations' real estate decisions will only be effective if such decisions support the overall business objectives. In line with this statement, De Vries et al. (2008) defined the added value of corporate real estate as its contribution to organisational performance. This definition links added value to the revenues, with cost reduction being one of the value parameters. Jensen et al. (2012) defined the added value of FM and CREM as the trade-off between the benefits of FM and CREM interventions and the costs and risks to achieve these benefits. This corresponds with 'value for money'.

The added value of a particular design choice over other choices or managerial interventions in buildings-in-use can be very diverse. Nourse and Roulac (1993) and Roulac (2001) linked nine strategic drivers such as products offered, market needs, profit and growth to eight alternative CRE strategies that may contribute to organisational performance: occupancy cost minimisation, flexibility, promote human resources objectives such as enhancing productivity and job satisfaction, promote marketing and sales, facilitate and control production, operations and service delivery, facilitate managerial processes and knowledge work, and capture the real estate value creation of business. In keynotes at a EuroFM conference and a Dutch Study Centre (NSC) Conference, De Jonge used similar terms to present seven possible added values of CRE (De Jonge, 1996):

1. Increasing labour productivity by means of real estate, facilities and services, for example by a smart choice of the location, short walking distances between features that are used frequently, ergonomic furniture, smoothly functioning ICT and a pleasant and healthy indoor climate.
2. Reduce costs by saving on capital costs and operating costs of real estate and other facilities. For example by strict m2 standards, measures to reduce energy consumption and introduction of flexible workplaces in connection to New Ways of Working.

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3. Risk control, for example by diversifying the real estate portfolio (smart location policy; a mix of rent, lease, and ownership; in case of operating as an investor in real estate a mix of different types of real estate such as offices, retail and leisure, housing), conducting scenario analyses, and monitoring the performance of the real estate.
4. Increasing the value of assets through timely buying and selling real estate, renovation or conversion of obsolete property and appropriately responding to trends in the real estate market.
5. Increasing flexibility, technically by creating flexible space that can easily be adapted to future needs and other functions, organizational for example by applying flexible working hours, and juridical through a mix of ownership, rent and short-term lease contracts.
6. Supporting culture by an accommodation and facilities that fit with the values and habits of the organisation, or to build a new building to act as a catalyst to support the integration of different cultures after a merger.
7. Marketing and PR through the building and other facilities in order to contribute to the branding of the organization and a positive image and as such to attract and retain high talented staff and more customers.

Other researchers rephrased the names of various value parameters and introduced additional values such as stimulating innovation and increasing user satisfaction (Lindholm et al., 2006; De Vries et al., 2008; Jensen, 2010; Den Heijer, 2011; Jensen et al., 2013; Van der Zwart, 2014; Riratanaphong, 2014) or sector specific values such as creating a healing environment (Prevosth, 2011). De Vries et al. (2008) summarised all values into three key values: profitability, productivity, and competitive advantage. Den Heijer (2011) added a fourth key value: sustainability. Jensen et al. (2012b) classified many different values into use value, customer value, economic value, social value, environmental value, and relationship value. Up until now no agreement seems to exist about a taxonomy of added value parameters.

Added value for whom?

What is much worth for one person may be of little or no value to another person. Regarding value adding management of real estate it is therefore important to determine who will benefit from particular choices regarding the accommodation, facilities and services, and who pays for the costs. In the CREM literature, the added value of corporate real estate used to be linked to shareholder value, productivity growth and revenue growth (e.g. Lindholm et al., 2006; Lindholm and Levainen, 2006). Nowadays most authors connect added value to the interests and needs of clients, customers and end users (Jensen et al., 2012b) and the society as a whole (Jensen et al., 2013). Den Heijer (2011) presents four perspectives: the strategic perspective of policy makers such as CEOs, the financial perspective of the controllers, the functional perspective of the end users, and the spatial-technical perspective of property managers and technical specialists. This approach can be zoomed in to smaller scales such as business units and departments, and zoomed out to larger scales such as umbrella organisations and the society as a whole, local, national or global. For instance, external policy makers include local authorities such as the municipality and industry associations, or the national government. According to Van der Zwart and Van der Voordt (2013), choices regarding the program of requirements and the design and management of buildings-in-use should always be tested against the effects on different stakeholders

3. Prioritised values in Dutch health care practice

It may be expected that the incorporation of particular values in practice depends on the mission, vision and goals of the organization, the level of importance the stakeholders attach to positive and negative impacts of design variants, constraints such as time, money and legislation, and the external context. For instance, in a time of economic crisis, cost reduction will probably be number one on the

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list of objectives, whereas in a period of shortages in the workforce, employee satisfaction may be high on the list to attract and retain scarce talent.

Supervision of BSc and MSc students and a PhD candidate offered the opportunity to investigate which values are incorporated in the design and management of health care real estate, which values are prioritised, and how these values are operationalised in concrete choices regarding the building and building related facilities. This section presents the methods and data of six studies.

Research methods

Van den Bouwhuisen and Doodkorte (2014) interviewed 21 general managers, care managers, real estate managers and cluster managers working at two organisations that deliver home care and day care and run a number of old people's homes and nursing home. The respondents were asked to rank the level of importance of each added value of real estate in a list of 10 values. 16 people responded to this question. Wetzels (2014) disseminated an online survey among 84 organisations that offer mental health care (representing 90% of all mental health care in the Netherlands). With N = 20 his response was 24%. Ten organisations were additionally questioned in a follow-up phone call. For this paper we focus on his question "How intensively do you steer on the added value of real estate? Please mark your effort regarding 9 values on a 5-point scale". Prevosth (2011) asked 8 facility managers to rank the top 3 of most important values out of a set of 10 values. The values were presented with a name and pictograph on little cards. Van der Zwart (2014) interviewed 10 hospital managers including CEOs, project leaders and real estate managers that were responsible for the strategic housing plan. He presented 9 values on little cards as well. After presenting 9 values in a matrix of 3 x 3, he asked his respondents to rank the values in each row and in each column in order of importance. Hereafter the respondents were asked to rank all nine values in order of importance. For a detailed description of both latter studies see Van der Voordt et al. (2012). Allemekinders (2015) interviewed corporate real estate managers and policy advisers of six general and three academic hospitals in the Netherlands and asked them to rank 9 values on order of importance. The different research techniques are presented in Table 2. All studies also included a question about *how* i.e., by which design choices or CRE interventions the organisations try to attain the aimed added values. A study by Boelens (2009) investigated this topic as well by interviewing nine representatives of four Dutch hospitals on how these hospitals try to measure and manage 9 values in their daily practice.

Table 2: Comparison of research techniques in 6 studies on Adding Value by health care real estate

	Van den Bouwhuisen/ Doodkorte (2014)	Wetzels (2014)	Boelens (2009)	Prevosth (2011)	Van der Zwart (2014)	Allemeinders (2014)
Sector	Housing with Care	Mental health care	Hospitals	Hospitals	Hospitals	Hospitals
Method	Interviews	Survey	Interviews	Interviews	Interviews	Interviews
Type of respondents	CREM + Care managers	CREM	CREM	FM	CREM CEO	CREM
Response	N=16	N = 20	N = 9	N = 8	N = 10	N = 9
Technique	Rank 10 values on order of importance	Score each value on how intensively steered on; 5-point scale	Show how values are operationalised in CREM-choices	Top 3 of most important values out in list of 11 values	Rank 9 values on order of importance	Rank 9 values on order of importance
Involved in study						
1. User satisfaction	+	+	+	+	+	1+5 combined
2. Productivity	+	+	+	+	+	+
3. Innovation	+	+	+	+	+	3+8 combined
4. Cost reduction	+	+	+	+	+	+
5. Healing environment	+	-		+	-	1+5 combined
6. Flexibility	+	+	+	+	+	+
7. Risk control	+	+	+	+	+	7+10 combined
8. Culture	-	+	+	+	+	3+8 combined
9. Positive image	+	+	+	+	+	+
10. Finance opportunities	+	+	+	+	+	7+10 combined
11. Sustainability	+	-		+	-	+

Prioritised values

Table 3 provides an overview of prioritized values found in the five studies. Because Boelens (2009) did not ask for prioritisation it is not included in table 2 and only used for the inventory of concrete CREM interventions (Table 4).

Table 3: Prioritization of added values in Dutch health care real estate and facilities management

	Van den Bouwhuisen/ Doodkorte (2014)	Wetzels (2014)	Prevosth (2011)	Van der Zwart (2014)		Alleme- kinders (2015)	
To increase/to stimulate:	Housing with Care ¹	Mental health care ²	Cure FM ³	Cure CRE ⁴	Cure CEO ⁴	CREM ⁵	Total
	N=16	N = 20	N = 8	N = 5	N = 5	N = 9	N = 63
User satisfaction	6	3 (11)	7	3	4	7*	30*
Productivity	4	4 (13)	4	2	-	5	19
Innovation	4	4 (9)	1	3	4	2**	18**
Cost reduction	-	6 (17)	3	3	1	3	16
Healing environment	7	N.A.	1	N.A.	N.A.	7*	15*
Flexibility	3	7 (16)	2	-	-	2	14
Risk control	1	5 (13)	2	1	1	3***	13***
Culture	N.A.	1 (6)	2	2	2	2**	9**
Positive image	2	1 (6)	2	1	1	1	8
Opportunities to finance	1	3 (9)	2	-	-	3***	9***
Sustainability	4	N.A.	-	N.A.	N.A.	2	6

1 = highest or second highest score on a 10-point scale

2 = very intensively steered on (including "intensively steered on" between parentheses)

3 = in top 3 of most important values

4 = in top 3 of most important values

5 = in top 3 of most important aspects; * = customer satisfaction and healing environment combined; ** culture and innovation combined; *** risk control and opportunities to finance combined.

N.A. = Not asked for; - = Not listed in top of prioritised values

Because the questions and the lists of presented values slightly differ in each research, the findings are not entirely comparable. Nevertheless, a clear picture is emerging. End user satisfaction is on top. Apparently the impact of the building and building related facilities on patients and staff is leading. This fits with the primary task of health care institutions to provide affordable high quality care. Supporting productivity and stimulating innovation and are also high on the list of most frequently prioritised values. The low ranking of sustainability is mainly due to the primary focus on high quality and affordable care; generally only sustainability measures with a pay-back time of about five years will be considered.

Measures to attain added value by health care real estate

Table 4a -4d show a number of examples *how* i.e., by which interventions the involved health care organisations try to steer on the added value of their real estate. Building on Jensen et al. (2013) and Jensen and Van der Voordt (forthcoming), the 11 values have been clustered in four groups: a) people related values, b) business related values, c) financial values and d) societal values i.e., sustainability. It appeared that real estate objectives are often not formulated in a SMART way (specific, measurable, achievable, relevant and time-bound) (Doran, 1981). Measurement of the outcomes is still underdeveloped, partly due to lack of data and partly due to a limited number of Key Performance Indicators (KPIs). KPIs mainly regard costs, book value, square meters and occupancy level.

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Customer and staff satisfaction and energy consumption are measured as well, but less often. Other values are discussed but not really measured, neither quantitatively nor qualitatively.

Table 4a: Interventions to support people oriented values

	Accommodation/ facilities	Management
User satisfaction	Appropriate installations to create an attractive indoor climate; well-designed interior; being able to choose between 1-bedroom or multiple bedroom; well-thought signposting; sufficient facilities; room service (TV, internet, coffee, snacks); appropriate communication using ICT; well-thought choice of location;	Floor management e.g. well-thought task division between care and FM-staff; policy to attract and retain patient-friendly staff; hospitality policy; keeping a list of customers' complaints and suggestions; quick response to complaints; sound communication; annual satisfaction survey; user involvement;
Healing environment	Supply of 1-bedrooms; places to meet; healthy indoor environment regarding interior design, indoor air quality, temperature, ventilation, acoustics, light; daylight; outside view; greenery; art; appropriate signposting; healthy food; facilities for family to stay at night;	Hospitality policy; healing environment program; application of Planetree concept;
Culture	Opportunities to meet and share ideas; creating a non-institutional environment;	Stimulating collaboration; leadership program; own house style; training of staff;
Positive image	Attractive location; nice architectural appearance; attractive interior design; affordable high-quality care;	High reputation of staff; well-thought communication; steering on high position on ranking lists; hospitality policy; positive connections with the neighbourhood and city; clear positioning and alignment to other types of healthcare

Table 4b: Interventions to support business processes and business products

Productivity	Introduction of New Ways of Working; spatial clustering of related functions; rooms and bathrooms with sufficient space to assist patients and using hoists; digitalisation of document processing; use of smart phones and apps;	Improved efficiency of meetings; clear distinction between front and back office; innovation and optimisation of care processes, patient logistics, and transport of goods; attracting and retaining well-qualified staff;
Innovation	Infotainment bed-terminals; ICT; places for staff to meet and exchange ideas;	Creating skills labs and knowledge centres; internal and external brainstorm sessions to stimulate innovations; suggestion box; personal budget to support staff empowerment and development; co-location of health care providers;
Flexibility	Technical, e.g. by separation between supporting structure and fill-in, and expandable zones; functional e.g. by flexible shared use of standardised activity-based spaces and multifunctional use of space; procedural e.g. shorter lease contracts;	Flexible working times; flexible labour contracts;
Risk control	Safe building (e.g. safe stairs, flat non-slip floors); control of indoor air quality; protocol for fall prevention; future adaptive re-use potential by dividing the building in different zones (hot-floor, hotel, office, factory);	Market analysis; well-considered business cases; planning and control cycles; regular inspections according to accreditation; annual risk inventory and evaluation by a health and safety executive; training of staff; evacuation plan;

Table 4c: Interventions to support financial values

Cost reduction	Less m2 due to more efficient use of space, by sharing of work spaces and standardised consulting rooms, and strict space standards; reduction of energy consumption;	Optimisation of care processes; lean and mean principles; centralised purchasing; appoint someone as contract manager; outsourcing; life-cycle cost system; clear policy how to cope with empty beds; sound business cases;
Opportunities to finance	Creating future value by flexibility and high adaptive reuse potential; attracting more patients by using real estate, facilities and services as a marketing tool;	Well-thought business case; well-thought long-term accommodation plan; mix of ownership, rent and sale-and-lease back; real estate fund with other organisations; use of private investments;

Table 4d: Interventions to support societal values

Sustainability	Sound isolation of building skin; heat recovery; green roofs; Led lighting;	Supply of organic food; waste policy; selection of suppliers based on sustainable products and processes; 'green' energy; sustainability coordinator; campaign to raise awareness among staff and patients;
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4. Discussion

Prioritised values

Overall, noteworthy both people oriented values such as end user satisfaction and business-related values such as productivity and innovation are highly prioritised, followed by “hard” values such as cost reduction, flexibility and risk control. This finding is in line with a value-based strategy (O’Mara, 1999) that perceives place as a means to support the organizational goals. The top 1 ranking of user satisfaction and the high ranking of healing environment may be caused by the phenomenon of socially desirable answers: “the patient is central” and “employee satisfaction contributes to better care” sounds more appealing than “as cheap as possible.” Another explanation may be that user-centred values come earlier in the retina when talking about added value of care accommodations than financial considerations. The low ranking of sustainability is partly caused by exclusion of this value in two studies and partly due to the argument of health care organisations that delivering affordable high quality care is key to them; they try to provide health care in a sustainable way if possible at all, but only when extra costs have a short pay-back time (less than five years). The five studies also showed some striking differences in prioritised values. This may be partly due to the slightly different research design (research techniques, included value parameters) and sample composition (number of respondents, function of respondents). Other factors may be that different sectors are involved and the involved organisations apply different strategies. In the housing with care sector, traditionally people oriented values are key (Van den Bouwhuisen and Doodkorte (2013). However, though user satisfaction and healing environment were often ranked as most or second most important value, some respondents from the same organisations ranked these values as much less important. Apparently the internal consensus is rather low. Comfort and appropriate facilities are perceived as very important in order to attract and retain customers and to keep competitive advantage, now and in the future. In the mental health care sector, the top 3 of prioritised values - cost reduction, flexibility and risk control - represent a rather “defensive” real estate strategy, with a focus on reduction of costs and risks instead of increasing benefits (Wetzels, 2014). The main focus of attention is on building level and less on portfolio level. Facility managers traditionally pay much attention to satisfaction of clients, customers and end users (Prevosth, 2011). Nowadays hospitality is a hot topic as well. One of the hospitals in the study of Prevosth applied for an accreditation by the Joint Commission International (JCI), with a focus on patient safety. As a consequence, risk control showed to be key in this hospital. This example shows that priorities may change, dependent of the internal and external context. Due to the high costs of real estate CREM is also strongly focusing on life cycle costs. Van der Zwart (2014) linked the rankings in his research to different evolutionary stages of CREM adopted from Joroff et al. (1993). Values such as risk and financing are the main interest of the task manager. Flexibility, productivity and cost represent the level of controller. Steering on culture and user satisfaction fit with the stage of a real estate dealmaker, whereas stimulating innovation connects with a strategic approach. In the study of hospitals by Allemekinders (2015), general hospitals showed to prioritise productivity, risk control, opportunities to finance, and cost reduction, whereas academic hospitals prioritised patient and staff satisfaction, creating a healing environment and productivity support. Probably the high competitiveness of general hospitals force to steer on hard factors, whereas better funding opportunities allow academic hospitals to prioritise more “soft” factors. In one of the general hospitals, two patients died due to a breakout of infections. This immediately brought risk control to number one on the list of prioritised values.

Comparison with other sectors

An analysis of 40 municipal strategic real estate plans showed that financial values such as cost reduction and increasing property value were most frequently mentioned, followed by supporting employee satisfaction and flexibility. Productivity and marketing were less common in CRE reports (Ham, 2014). In interviews with corporate real estate managers from different multinationals on benchmarking, cost reduction, optimizing production and services, limiting space and financial flexibility showed to be the key values (Bisschops, 2014). Interviews with corporate real estate managers and facility managers from the office sector and the industry showed that cost reduction,

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productivity and user satisfaction are high on the list of prioritized values (Van der Voordt and Jensen, 2014). These studies show that in other sectors too, not only financial values and business values but also people oriented values are perceived as important, However, hard factors seem to be dominant.

Practical implications

A clear insight into possible added values of corporate and public real estate, which interventions can contribute to these values, how to prioritize different values, and why, can help practitioners to become more aware of how to get value for money and how to cope with potential synergy and conflicts between various interventions. To further improve value adding CREM and FM, both organisational objectives and related accommodation objectives should be formulated more 'smart'. In order to be able to determine whether the accommodation goals are achieved and the intended added values are actually realized, measurable indicators are needed. Knowledge is power, but measuring also takes time, money and effort, so it is important to identify the Key Performance Indicators (KPIs) on which one wants to steer. Common indicators include financial indicators such as capital and operating costs per m² and the Total Occupancy Costs per m² are used, the utilization efficiency of buildings and the number of m² per fte or per bed. Various respondents mentioned the need for additional standardised KPIs regarding e.g. flexibility, productivity and healing environment issues. More standardized ways of measuring of various value parameters can increase the value of benchmarking, both within and between different sectors such as offices, health care, education, and retail and leisure.

Further research

Although the studies presented in this paper shed more light on value adding management in the care and cure sector, the studies are limited regarding the response rates, the number of respondents and the length of the interviews (1 - 1,5 hours). Whereas 1-1,5 hour is usually the best you can get from busy professionals, longer and also repeat interviews could provide more robust evidence. Besides, larger samples including both more cases and more respondents per case, and additional research methods such as in-depth interviews, focus groups, document analysis and observations of actual behaviour and actual care production may provide a more complete picture of *why* different priorities come to the fore, *how* key values may be obtained, and how value adding management of corporate and public real estate and related facilities and services evolved in time. An example of a "walk-through" study with long observations and interviews and a focus on one particular value is the graduation thesis of Taverne (2011). He analysed the floorplans of two hospitals, joined care staff a couple of days during their walks through the hospital buildings, and asked them to think aloud about where and why the building and other facilities supported or hindered them to be productive. His study showed that a smart spatial lay-out can result in a 25% reduction of walking distances between emergency rooms and intensive care. Further research into value adding real estate management and facilities management could also be connected to analyses of the overall corporate strategy in order to attain the best possible alignment between corporate strategies and CREM/FM strategies.

5. Concluding remarks

The last decade a growing body of research has contributed to a better insight into the added value of corporate and public real estate and how to measure and manage added value, theoretically and practically. Added value is a multi-dimensional concept, with various types of values that may have different levels of importance to different stakeholders. The present study contributes to a better understanding of how to operationalise the added value of health care real estate and related facilities. In order to be able to compare findings from different research projects, the different lists of value parameters and definitions should be harmonised and standardised as much as possible. Also still much work has to be done to operationalise all value parameters and to develop ways to measure and manage the benefits and costs of CREM and FM interventions in a reliable and valid way. Witnessing the great diversity in value parameters, measuring systems and KPIs there is still a long way to go. Together with graduation students we hope to continue this research, both in the health care sector

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and other sectors. Together with an international group of researchers working in the fields of FM and CREM and various practitioners in 2016 a book will be published on how to measure and manage the added value of buildings and facilities, supported by state of the art research (Jensen and Van der Voordt, forthcoming). All these activities aim to contribute to a more clear taxonomy of adding value by CREM and FM and related KPIs as input to evidence based value adding management.

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