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Integration of Business and User-Centered Corporate Real Estate and Facilities Management

van der Voordt, Theo

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Personal involvement in FM

A red thread in my academic carrier of over 40 years is the development and sharing of knowledge about the experience and use of the built environment, including offices, health care facilities, childcare facilities, learning environments, housing, and public spaces. The latter is currently part of urban FM. My main drive to do this for such a long time is the willingness to contribute to an environment that enables people to conduct their activities in a satisfactory, comfortable, efficient and effective way, and that fits with the preferences, needs and values of organizations, customers, end users and society as a whole. In other words: to contribute to user-centered and value-based briefing, design, management, evaluation and further improvement of buildings, facilities and services.

I started my carrier as an engineer. However, during my study in civil engineering I noticed that I am less interested in concrete, steel and building technology, and more in what drives human beings. I became more aware of this in my first job as a construction engineer. After thorough consideration I left my job and applied for a job as a research assistant at the Centre for Architectural Research at the Delft University of Technology. This small group included sociologists, psychologists, an expert in acoustics, an economist and an urban planner. My first research regarded the image of a city, based on the ideas of Kevin Lynch (1960): what environmental characteristics can help people to build a clear internal image and mental map of a city, and as such support them in spatial orientation, wayfinding, and creating a sense of belonging and being connected? Quite soon our team started to study health care centers and childcare centers, in order to develop guidelines for briefing, design and management. In addition to Post-Occupancy Evaluations (POE), using observations, walk-throughs, questionnaires, interviews, and group discussions, we developed the method of comparative floor plan-analysis (CFA). Key in CFA is an assessment of a collection of floorplans on similarities and similarities regarding the access of the buildings, inner circulation patterns, spatial-functional layouts etc., and trying to understand the motives behind design and management choices by interviews with clients, architects and end users, and other POE methods. This makes it possible to develop so-called annotated typologies of buildings: design alternatives with comments on what works and what works not, why, and for whom.

Other main research topics in the eighties and nineties of the last century were crime prevention through environmental design (CPTED), Universal Access i.e., Design for All, building adaptable housing (to make them more suitable for people with physical impairments), and assisted living facilities for the elderly, including people with dementia. The insights from these two decades were summarized in the book *Architecture in Use* (Van der Voordt and Van Wegen, 2000), which is also available in Dutch and Portuguese. The methodological lessons learned regarding POE and CFA and different types of design research, design studies and typological research have been incorporated in the book *Ways to study and research architectural, urban, and technical design*, edited by Taeke de Jong and myself (2002), with over 40 contributions of other staff members of our faculty.

As common in most large organizations, I had to cope with various reorganizations. In the mid-eighties our Centre for Architectural Research merged with the Centre for Urban Research. Later on, our staff was re-allocated to different departments. I moved to the department of planning, design, and management of buildings. Although I learned a lot from my new colleagues – mainly architects – I noticed that the end users were not key in this group. So, in the late nineties I moved again, to the department of real estate and project management, later renamed as Management in the Built Environment (MBE). Here I got familiar with corporate real estate management (CREM) and facilities management (FM). My focus shifted toward workplace studies, in particular regarding the impact of activity-based work environments on employee satisfaction, perceived productivity and wellbeing, and performance management and measurement.

Other topics in the last decades are adaptive reuse of vacant office buildings, models and tools for the development, implementation, evaluation, and monitoring of successful CREM and FM strategies, and adding value through appropriate design and management of buildings, facilities, and services. A special POE in which I was personally involved regarded a user survey of another Faculty Building to which we had to move after our former faculty building burnt down in 2008 (Gorgievski et al., 2010). An overview of the teaching and research of the MBE department can be found in the book *Dear is Durable* (2016), edited by Arkesteijn et al. (2016). Overall, I was and still participate in a huge variety of FM and FM-related topics and co-authored and co-edited numerous publications with different people (see the bibliography at the end of this contribution). This shows the wide scope and richness of our field.

Another red thread in my carrier is life-long learning. With a background in civil engineering, I had to learn new theories and tools from the fields of environmental psychology, sociology, statistics, architecture, and corporate real estate and facilities management. I got inspired by journals like the Journal of Environmental Psychology, Environment and Behavior, Building Research & Information, Facilities, the Journal of Facilities Management, the Journal of Corporate Real Estate, and many more. Furthermore I got inspired by many conferences, in the seventies and eighties mainly of the International Association of People and the their Physical Surroundings (IAPS) and the Environmental Design Research Association (EDRA), since the late nineties in particular by the European Facility Management Conferences (EFMC) of EuroFM, the European Real Estate Society (ERES), the International Council for Research and Innovation in Building and Construction (CIB), and more recently also of the Transdisciplinary Workplace Research network (TWR).

Currently I find myself as a teacher and researcher of the built environment, not knowing whether I should call myself an environmental psychologist, design researcher, specialist in people-environment relationships or FM/CREM expert. But what's in a name? The most important is to contribute to a better fit between business and people and their physical surroundings.

An anthology does not provide the space to write extensively about all mentioned topics, even when it is a personal one. In the next sections I will discuss three topics: 1) similarities and dissimilarities between FM and CREM; 2) trends in CREM and FM strategies; and 3) adding value through FM and CREM.

Similarities and dissimilarities between FM and CREM

ISO 41011:2017 – Facility management, Vocabulary, defines Facility Management (FM) as an organizational function which integrates people, place, and process within the built environment with the purpose of improving the quality of life of people and the productivity of the core business. A former definition defined FM as the integration of processes within an organization to maintain and develop the agreed services which support and improve the effectiveness of its primary activities. Corporate Real Estate Management regards the management of the real estate portfolio of a corporation by aligning the portfolio and services to the needs of the core business, in order to obtain maximum added value for the business and to contribute optimally to the overall performance of the organization. In the past, facilities management (FM) and corporate real estate management (CREM) used to be rather separated. Both fields have a different history, different key objectives, concepts, theories, data, and tools (Van der Voordt, 2016).

FM originates from professionalizing IT services and is traditionally linked to facilitating people and business processes in buildings-in-use, by appropriate furniture, plants, cleaning services, security services, and so on. CREM regards accommodating people and is usually linked to the whole life cycle of buildings and real-estate portfolios, from the first initiative and briefing and design phase till managing of buildings-in use, renovation, adaptive reuse or demolition and new building. FM and CREM have their own journals, too, e.g., *Facilities* and the *Journal of Facilities Management* versus the *Journal of Corporate Real Estate* and *Corporate Real Estate Journal*. However, conferences such as the European Facility Management Conferences and the CIB World Building Congresses discuss topics that are related to both FM and CREM, like workplace management, performance measurement, benchmarking, added value, maintenance, and sustainability. Conferences under the auspices of the International Real Estate Society's sister societies discuss CREM- and FM-related topics as well. Both FM and CREM are pretty young academic disciplines that are strongly based on practice. Both FM and CREM focus aim to provide well-designed and appropriately managed buildings, facilities and services that add value and fit with the needs of clients, customers, end users and society as a whole. Table 1 shows a number of similarities. Figure 1 visualizes the relationship between alignment (of demand and supply, and organization/end users and their physical environment) and adding value.

Table 1: Similarities between FM and CREM (adopted from van der Voordt, 2016)

- management disciplines, including strategic management, procurement management, workplace management, information management, risk management, relationship management, financial management, project management, contract management, change management, quality management.
 - connect people, processes, housing, facilities, services, and technology.
 - facilitate the effectiveness and efficiency of the organization.
 - shift from a one-sided focus on cost reduction to more attention for added value.
 - facilitate new ways of working through workplace innovation and activity-based workplace concepts.
 - search for the optimal balance between individual use and shared use of spaces and facilities, insourcing and outsourcing, centralization and decentralization, and shared service centers.
 - increased attention to the entire lifespan of buildings and facilities.
 - increased awareness that investment decisions have consequences for organizational performance and operating costs in the use and management phase.
 - public-private partnership in major projects.
 - involvement in an early phase of the plan development.
 - increased attention to sustainability, adaptive reuse, smart technology, and wellbeing.
 - increased attention for a variety of functions, including offices, healthcare, education, retail and leisure, and industry.
 - evidence-based and data-driven decision-making.
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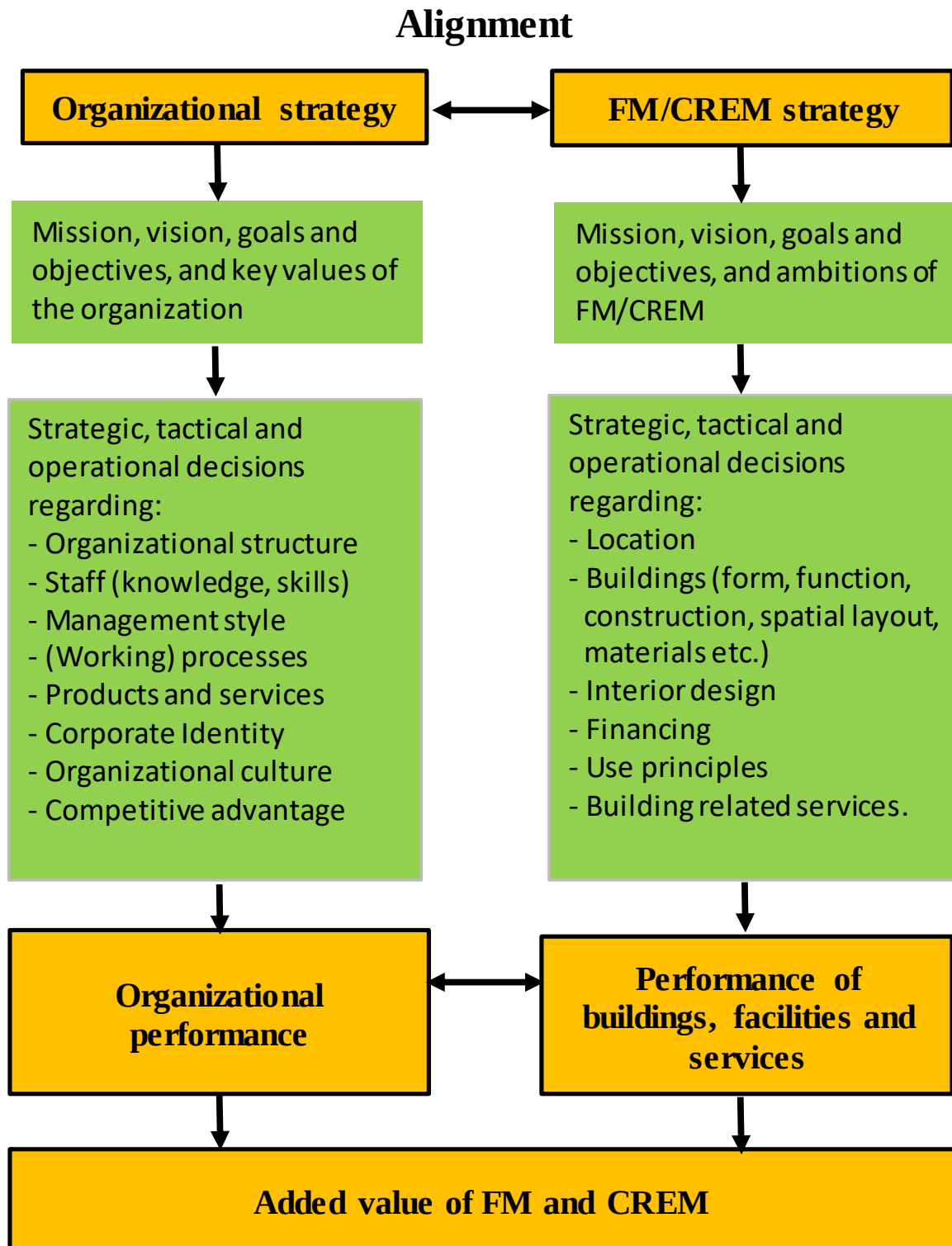


Figure 1: Relationship between alignment and added value of FM and CREM (Source: T. van der Voordt)

Trends in FM and CREM strategies

In 1993, Michael Joroff and his team¹ presented a five-stage real estate evolutionary model, from technical to strategic, from engineering buildings, minimizing costs, standardizing usage, and matching market options to convening the workforce. According to Joroff et al., the traditional role of maintenance by ad hoc interventions has shifted towards a more strategic role, with a cumulative integration of minimizing real estate costs and cost efficiency (controller), standardization of building usage (dealmaker), matching real estate with business plans and market options (intrapreneur) and management using performance indicators regarding costs and quality (business strategist), see Figure 1 and Table 2. The fifth stage includes acting in a planned and proactive manner in cooperation with other disciplines, strategically aligning the accommodation with the vision, mission and goals of the organization and the external context and incorporating different stakeholders. The stages are cumulative: each subsequent stage builds on the preceding stages. Each more complicated stage adds a new role in the search for real estate value. The first three stages occur principally through project level work related to the internal needs of the corporation. Stage four addresses portfolio-wide needs, focusing on outward trends affecting the business units. Stage five tackles company-wide competitiveness, involving a myriad of stakeholders outside the corporation's more traditional bounds. Furthermore, as the organizational stages evolve from taskmaster to strategist, the benefits obtained by stakeholders evolve from short- to long-term, with a growing customer orientation and a need for continuous learning and change. Each successive level brings the real estate unit closer to the senior corporate management.

Table 2: Main characteristics of the five stages according to Joroff et al. (1993)

1	Taskmaster	Supplies the corporations' need for physical space as requested
2	Controller	Satisfies senior management's need to better understand and minimize real estate costs
3	Dealmaker	Solves real estate problems in ways that create financial value for the business units
4	Intrapreneur	Operates like an internal real estate company, proposing real estate alternatives to the business units that match those of the firm's competitors
5	Business strategist	Anticipates business trends, monitors, and measures their impacts, contribute to the values of the corporation as a whole by focusing on the company's mission rather than focusing only on real estate

Joroff et al. wanted to contribute to corporate real estate managers' awareness that "their business is not real estate, but the business of the business." The CREM maturity model provides a framework for analyzing, creating, and managing a strategy for change. It outlines a pathway for the evolution of how Corporate Real Estate can be managed as "a fifth resource of a firm," in addition to capital, people, technology and information.

¹ Joroff, M, Louargand, M., Lambert, S., & Becker, F. (1993). *Strategic management of the fifth resource: Corporate Real Estate*. Industrial Development Research Foundation, United States of America. Report 49.

Michael Bell, one of the team members, identified twelve shifts: 1) from real estate orientation to a business focus; 2) from a transactional to a process orientation; 3) from control-oriented to service-oriented; 4) from reactive to pro-active; 5) from decentralized to centralized; 6) from in-house expertise to collaboration; 7) from hiring experts to do a job to inviting service providers to become members of the team; 8) from automate to automation i.e. using information technology; 9) from relationships built on personal contact to interactions supported by information flows; 10) from big to small; 11) from standardization to customization; and 12) from real estate skills to general management capability. This was noticed already in the early nineties! Issues such as activity-based working, teleworking, how to maintain a sense of community, cost savings, productivity, flexibility, satisfaction of the staff and senior management, and the added value of CRE were included in this report already as well. The report marked a paradigm shift in how corporation leaders understand the concept of “workplace” and perceive the “value” of the real estate that they own or lease.

Twenty years later, Joroff and Becker (2016)² argued that the evolution of corporate real estate reflects six primary shifts in how corporate real estate is viewed and how it can best be managed, with close connections to workplace management:

1) From financial to Business Asset i.e., a shift in the mindset that viewed corporate real estate as a passive financial asset with a high cost to one that perceives the real estate portfolio as an asset integral to the conduct of the business, with high use value and proactively promoting new ways of working that, along with more flexible, informal and open corporate management and culture, and transformative information technologies, enhances business performance.

2) Workplace as an integrated Ecological System, comprised of physical design and space, information technologies, workforce demographics, work processes, and organizational culture. The design and management of these interdependent factors aim to support different kinds of work, not only as a place that houses people to do assigned tasks, but also as a means of attracting and retaining the best and brightest employees and engaging and enabling their talent and energy. The ‘workplace’ is more and more recognized as a system of loosely linked spaces inside and outside the “office” (the building) designed to support specific activities such as quiet work, informal communication, and client and group meetings, and relies on cyber as well as physical space.

3) Needs vs. Preferences. Where once the modus operandi of the corporate real estate function was simply to take orders from business units for property, and deliver it on time and within budget, now the role is to proactively work with business units to anticipate their needs and to sharpen their understanding of how to best meet these needs through real estate and workplace strategies.

² Joroff, M., & Becker, F. (2016). Exploiting change and uncertainty to drive corporate value. In Arkesteijn, M., Van der Voordt, T., Remøy, H. & Chen, Y. (Eds.), *Dear is durable* (pp. 105-113). TU Delft Open.

4) Power and Opinion vs. Data. Decision-making about real estate and workplace investments is now more often underpinned by analytics and rigorous review of business context, data about real estate financial, individual, and team and department performance data, and how space is being used.

5) From stable/static to Agile. At the time when the corporate real estate paradigm began to shift, enterprises were largely perceived as relatively stable, with a known culture and known tasks and processes. Today, everything is subject to change. This requires facilities and arrangements for corporate tenancy that are flexible, in which space can be rapidly acquired and just as rapidly abandoned almost anywhere in the world.

Currently, IT-enabled time- and location-independent working have become a daily reality for knowledge workers. New work practices like blended working and activity-based working seem to become the new normal worldwide. Workers are more and more enabled and allowed or even encouraged to use different locations (e.g., corporate offices, client or partner offices, home office, coworking spaces, on the go) and work settings within the office (open and enclosed workstations, phone booths, lounge areas, project rooms). Along with the expanding range of choice, individual workers and teams are discovering and adopting their own preferred ways of working. Recent events like the COVID-19 lockdown may work as a catalyst in this process.

Organizational behavior has become more central in implementing corporate strategy. Particularly for knowledge-based organizations, desired outcomes are highly dependent upon behavioral patterns in the workplace (how workers collaborate, learn, concentrate, and recuperate). Hence, we see many corporate programs focusing on behavioral change, which is frequently linked to workplace change. ‘Nudging’ desired behavior through workspace design is gaining attention in both practice and research. An example is the promotion of healthy behaviors in the workplace (physical movement, relaxation, social contact, nutrition), which receives growing attention in relation to reduction of sick leave, burn out, and sustainable employability.

Due to the global ‘war for talent,’ employers can no longer force employees to work in unattractive environments or at unattractive locations. Convening the workforce has become a necessity rather than an ambition. Optimizing the ‘workplace experience’ has become a key topic. At the same time, the user-centered approach seems to be shifting from a focus on optimizing user satisfaction towards a more goal-oriented focus on specific user needs and behaviors that are important for organizational effectiveness.

Given these developments, a sixth stage has been added to the CREM maturity model (Hoendervanger, Van der Voordt, and Wijnja, 2017; Wijnja et al., 2022), see Figure 2. Where the fifth stage is focused on creating added value in relation to corporate strategy, the sixth stage adds a user-centered approach. Being both a business strategist and end user strategist, the CRE manager creates work environments that support work practices and encourage behavioral change, in alignment with both corporate goals and employee needs. In addition to the skills that are needed in stage 1 – 5, psychological knowledge is required to analyze, facilitate, and stimulate workers’ differing and changing needs and behaviors. In an online interview with Joroff he supported this extension of the original model, emphasizing that a user-centered focus

should be part of all previous stages as well. It is expected that the collaboration between CREM, HRM and IT will be further extended by incorporating other disciplines such as labor psychologists, occupational health specialists, neurologists, data specialists, and artists.

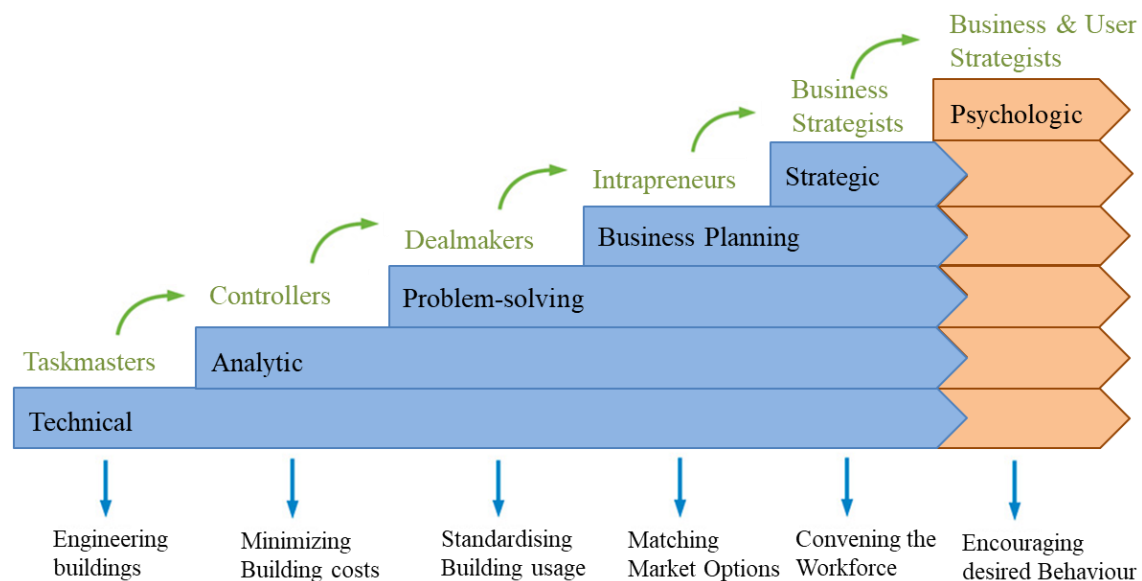


Figure 2: Five-stage real estate evolutionary model of Joroff et al (1993), extended with a sixth stage (Hoendervanger et al., 2017; Wijnja et al., 2022)

Whereas the CREM maturity model has originally been developed by CREM-oriented people, the same trends are visible in FM. This supports the trend to a further integration of FM and CREM, which is clearly represented in current practice, where FM and CREM are often integrated in the same department or service center, with an internal distinction between strategy developers, project managers, and facility managers.

Adding value through FM and CREM

The shift from a cost-oriented approach towards a more value-based approach inspired Per Anker Jensen, professor in FM at the technical university of Denmark (DTU), to start a EuroFM working group on the added value of FM. I was one of the participants from the start. This work culminated in a huge number of papers and conference presentations, and two anthologies: *The Added Value of FM: Concepts, Findings and Perspectives* (2012), and *Facilities Management and Corporate Real Estate Management as Value Drivers: How to manage and measure adding value* (2017).

Added value is defined as the extent to which the trade-off between benefits, costs, and risks of interventions in buildings, facilities and services contributes to organizational goals and values, a better fit between people and buildings, and an optimal match with societal needs such as sustainability and corporate social responsibility. The books tried to open the black box of input -> throughput -> output -> outcome -> impact/added value by discussing a taxonomy of six types of interventions and different value parameters. The first book presents six value

categories: 1) Use value: quality in relation to the needs and preferences of the end users; 2) Customer value: trade-off between benefits and costs for the customers or consumers; 3) Economic, financial or exchange value: the economic trade-off between costs and benefits; 4) Social value: connecting people by supporting social interaction, identity and civic pride; 5) Environmental value: environmental impact of FM, Green FM; 6) Relationship value e.g. getting high-quality services or experiencing a special treatment. Building on this work, the second book elaborated 12 value parameters by presenting state-of-the art research for each parameter and ways to manage: 1) people related values (satisfaction, image, culture, health, and safety), 2) process and product (productivity, adaptability, innovation and creativity, risk), 3) economy (cost, value of assets) and 4) societal (sustainability, corporate social responsibility).

In order to support decision makers in value adding FM and CREM, Hoendervanger, Bergsma, Van der Voordt and Jensen (2017) developed a Value Adding Management process model with four steps, see Figure 3. The VAM model is action oriented and follows the same steps in the renowned Deming cycle. The PDCA cycle is widely applied to support total quality management and is familiar to many practitioners. The principles of input-throughput-output-outcome/added value correspond with what to do and why, how to implement, and how to measure its impact. The link with FM and CREM is key in the VAM model.

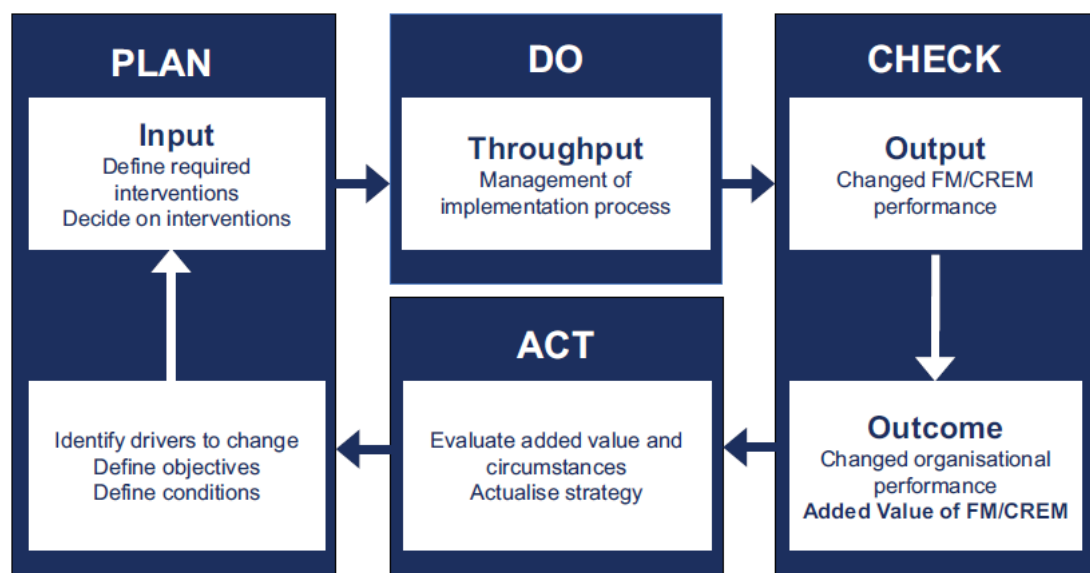


Figure 3: Value Adding Management process model (Hoendervanger et al., in Jensen and Van der Voordt, 2017)

The VAM model guides decision makers through the process of adding value in four steps, from identification of performance gaps, objectives for improvement and selection of appropriate interventions to its implementation and a check on whether the objectives have been attained, what value has been added to whom, and which Key Performance Indicators are most appropriate to measure the added value by FM and CREM.

The main actions in the *Plan-phase* are to identify the drivers to change i.e., to define if there is a gap between the desired and actual performance of the organisation and the accommodation, facilities, and services, and to define which interventions may result in improved performance. The Plan-phase ends with clear decisions about which interventions should be implemented and how to implement them. In order to support this first step, Jensen, and Van der Voordt (2020) developed a typology of Value Adding FM/CREM interventions. Analyzing the context of value adding management may start with exploring the different roles, interests and power of stakeholders involved, using stakeholder analysis. A SWOT analysis can help to identify the need and direction for change, concerning both the organisation and the FM/CREM processes and products.

The *Do-phase* encompasses the implementation of the proposed interventions and management of the change process. Decisions to be made include who should be involved in the process and how, time schedules, how to cope with resistance to change, and how to cope with the different needs of different stakeholders. A major challenge is to keep focus on the initial goals. Implementation processes tend to develop their own dynamics, which can easily shift the focus from long-term strategic organizational goals to short-term tactical and operational goals of the participants.

In the *Check-phase* the costs and benefits of the intervention(s) and its impact on the performance of the organisation and its facilities has to be measured, both during the change and ex-post, after the implementation of the intervention(s) has been realized. To be able to measure whether the performance has been improved, a baseline measurement i.e., an ex-ante measurement, before the intervention is implemented, is needed as well. It is also necessary to evaluate if the changed performance fits with the organizational strategy, mission, vision, and objectives and as such adds value to the organisation.

The *Act-phase* is quite similar to the Plan-phase. However, whereas the Plan-phase may start with an analysis of changing internal or external circumstances or a strategic analysis of the strengths and weaknesses of the organisation and FM/CREM products and processes, these factors are already considered before the Act-phase. When all objectives have been attained and maximum value has been added, the Act-phase may be limited to consolidation of the new situation, until new drivers to change come to the fore. If the objectives are not sufficiently attained or not optimally, or if too many negative side effects come to the fore, new interventions or broadening of earlier interventions should be considered. Another option is to reconsider the objectives. It may happen that the aimed performance was not realistic and feasible within the current conditions. Moreover, the context or conditions of the original objectives may have changed, which might force the organization to change its organizational or FM/CREM strategy. If new or revised interventions have to be implemented, the Plan- and Do-phases start again.

The cyclic character emphasizes that value adding management is or should be a continuous process. Evaluation of realized output/outcome/added value may be a starting point for new interventions.

Concluding remarks

This contribution shows the growing maturity of our field. In the last decades, FM emerged from a rather tactical and operational discipline towards a discipline with a much wider and more strategic scope. Whereas traditionally FM focused on facilities and services in buildings-in-use, to support clients, customers and end-users, and corporate real estate was perceived as more strategic and important during the whole life cycle of buildings, considering the needs of clients and shareholders, nowadays both fields get more integrated, due to its many similarities, joint goals, and objectives. Both disciplines aim to optimize buildings, facilities, and services in order to get the best possible match between demand and supply, from a business point of view as well as with respect to end user needs and societal values. Both FM and CREM tend to become more data-driven, supported by modern technology, and shift from a cost reduction focus towards a wider scope and adding value. New terms such as workplace manager, accommodation manager, and sustainability coordinator who covers the whole range of buildings, places, facilities, services, and human behavior (also summarized as “bricks, bytes and behavior”) come to the fore. Whereas the boundaries of FM become less clear, we should not call all building related activities FM. It might be worth rethinking the definition of FM. For the future, a further strengthening of the connection between FM and CREM and other disciplines may be expected, such as HR and IT, financial control, and social sciences, supported by new technologies like artificial intelligence, digital twins, and smart tools to manage and measure the added value of FM and CREM. Hopefully, this will help to provide smart, sustainable, and healthy buildings, facilities and services that enable businesses and people to act in a comfortable, efficient, and effective way and supports the quality of life.

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Theo J.M. van der Voordt, PhD
Emeritus Associate Professor
Corporate Real Estate and Facilities Management
Department of Management in the Built Environment
Faculty of Architecture and the Built Environment
Delft University of Technology
Delft, Netherlands

Theo J.M. van der Voordt (MSc., PhD) is emeritus associate professor in Corporate Real Estate and Facilities Management at the Department of Management in the Built Environment, Faculty of Architecture and the Built Environment, Delft University of Technology. His research includes new ways of working, workplace management, performance measurement, transformation, and adaptive reuse as a means to cope with structurally vacant office buildings, successful real estate strategies, and adding value by real estate and related facilities and services.

He is the author of numerous journal papers, book chapters and books, including Costs and Benefits of Innovative Workplace Design (2003), Architecture in Use (2005), Transformation and adaptive re-use of vacant office buildings (2005, in Dutch), The Added Value of Facilities Management (2012), Corporate Real Estate and Facilities Management Strategies (2012, 2017, 2022, in Dutch), Facilities Management and Corporate Real Estate Management as Value Drivers: How to manage and measure adding value (2016) and Dear is Durable (2016).

His work on offices is conducted in close co-operation with the Center for People and Buildings in Delft, a knowledge center that specializes in the relationship between people, working processes and the working environment (www.cfpb.nl).

E: theovandervoordt@gmail.com

W: <https://www.researchgate.net/profile/Theo-Van-Der-Voordt>

<https://www.linkedin.com/in/djmvandervoordt/>