



Control your budget before it controls you

Richard Sievert

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Real estate strategy and value chain thinking

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Real estate investments make up a significant proportion of our overall economy and also represent an attractive fourth asset class for investors. Unlike alternative investment categories, active investments in real estate have been under-analyzed in connection with Michael Porter's research into strategy, value chains and lasting competitive advantage. This article calls

for greater attention to be paid to real estate strategy as a discipline in its own right, given the increasing degree of specialization and niche orientation of many real estate companies.

Professionalization of property-based value creation

The real estate industry is a generic term for a large segment of the economy, consisting of various players who invest professionally in real estate, and who to a large extent establish their own development and/or management organizations to manage and enhance property values. In this respect, property values are understood to be the economic values associated with real estate, in connection both with the existing building stock and with new builds. In some countries, such as Norway, the real estate industry is relatively young in nature - in the sense that real estate has historically been regarded as an ancillary aspect of another primary business activity. A good example of this type of approach might be a fishing company that invests in land-based real estate as a reception point for its own catch and for that of other companies, often based on a strategic assessment that property values will balance out any periodic fluctuations in the uncertain cash flows associated with its primary activity. As such, real estate has also been perceived as a financial hedge, to minimize or eliminate the risks connected to other investments.

Many of the pure real estate companies in Norway, whose primary purpose is to invest in property, arose in the wake of the extensive banking crisis of the late 1980s, when large portfolios of foreclosed real estate changed hands - from individual owners to banks, and then from banks to investors. The need for internal and external real estate expertise has evolved in line with the increasing professionalization and development of the industry. The Norwegian Center for Real Estate Studies defines real estate expertise as the holistic, interdisciplinary knowledge and skills associated with managing and transforming the land use potential and established physical solutions of real estate from one state to another, combined with a realization of the resulting property values - either by means of selling the real estate or through using it as increased collateral for new real estate investments.

As an industry, the real estate sector consists of various property-oriented sub-professions, surrounded by an ever-expanding number of consultants with or without real estate expertise. Today, the real estate professions are largely organized around the categories of commercial real estate (offices, residential rentals, retail, industry,

hotels, logistics) and residential developments for sale to the end user, with participating players from the private, public and nonprofit sectors. In parts of the real estate industry, there is now an increasing tendency towards specialization and niche orientation on the part of players who had previously been indiscriminate generalists. Specialization is generally considered beneficial by financial institutions in their attempts to quantify expertise and competitive advantage among borrowers.

Value chain thinking for real estate players

A value chain is a key concept in business strategy and is used to identify a company's strategic activities. The term was first used in 1985 by Michael Porter, in his book *Competitive Advantage: Creating and Sustaining Superior Performance*. His value chain model is an analysis tool for identifying the causes of a company's competitive advantage. Porter's Five Forces methodology of 2008 is used internationally by companies and their consultants to analyze the degree of competition within an industry, based on the five forces that determine the competitive intensity and therefore the attractiveness of an industry. Attractiveness in this context refers to the overall profitability of an industry. The five forces in Porter's model are:

- Threat of new entrants
- Threat of substitutes (products or services)
- Bargaining power of buyers
- Bargaining power of suppliers
- Intensity of competitive rivalry

An unattractive industry is one in which the combination of these five forces drives down profitability. A very unattractive industry would be one approaching pure competition, in which available returns for all companies lead to 'normal profit'. Porter's theory states that by understanding the competing forces and their underlying causes we can discover an industry's current profitability and even predict and affect competition and profitability over time. According to Porter, a successful competitive strategy will result in superior results, and the company's

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Influencing the experience

By Nick Martindale

Managing the services and processes that support the core business of an organisation gives FMs an 'inside out' perspective • one used all too rarely to inform that organisation's site development strategy.

If the phrase 'facilities management' came up in an after-dinner word association game, the chances are that it would either be met with blank stares or references to one of cleaning, catering or security. Those working in the profession know its influence extends way beyond this, but this perception is an ongoing hurdle in the battle for recognition.

Aside from bruising a few egos,

this presents a serious issue to those working in FM - not least because it can prevent those tasked with operating and maintaining buildings from having an influence into how they fit into an organisation's wider business strategy.

Nowhere is this more keenly felt than in the design or masterplanning of a site or building, whether an entirely new development or a

thus challenged the traditional ways of operating real estate businesses. Moreover, real estate markets and players have moved from being financed locally to become integrated within the worldwide financial system. Traditional real estate players are increasingly being challenged by financially oriented players who possess a more varied degree of internal real estate expertise. At the same time, many of the established players in the real estate segments have begun to look alike, as one difference after another falls by the wayside - leaving customers with little other than price as a genuine basis for comparison. Furthermore, real estate markets have experienced an explosive development on the demand side, which has resulted in stronger competition, higher tenant professionalization and increased market sophistication. This fundamental and structural change, combined with the cyclical challenges facing the real estate industries, has put real estate players under considerable pressure.

The Norwegian Center for Real Estate Studies now sees a need for what, in the spirit of Porter's work, we might call a competitive real estate strategy. It is no longer sufficient for companies merely to be present in the real estate markets in order to make a profit. Even though the larger real estate companies are becoming bigger and more specialized - with increasingly sophisticated business systems - there is still a need for more specialized business models for dealing with competitive real estate strategies. As Porter has pointed out, changes in market conditions can rapidly make existing - or non-existent - strategies ineffective and expose real estate players to substantial risks. For the real estate industries, Porter's philosophy means that it is in the interest of real estate players to implement an

significant renovation project.

"Quite often FM are often the last people to the party," says Andrew Mawson, founder of Advanced Workplace Associates. "On many of the projects we've done, a project manager and a design team will be put together but rarely is there any FM involvement at the outset. If there is an involvement it comes further on in the day, when people eventually think about how the building is going to be managed."

There are a number of reasons why FM should be involved in masterplanning such operations, both economic and practical.

"A lot of developers talk about capital value, but my currency is total expenditure value, so it's the build, the operational and the refresh cost," says Ed Baldwin, partner and head of FM consulting at EC Harris. "That is then influenced by the design choice of that infrastructure or the

build type, and the ability to refresh and modify the asset over time as the business changes. Some designers don't really get that and that's where FM can help. That could be in retail, aviation, a school or a hospital; no business remains static for 50 years."

A longer-term perspective

Indeed, FM's input can provide a compelling insight into whether or not the business case stacks up at all, by taking a longer-term perspective. "We would like to be involved right at the start, where they decide whether to develop or to move, looking at what the operational cost of running that building would be over a period of time," says Ken Raisbeck, vice-president of portfolio performance at Johnson Controls Global Workplace Solutions.

"Architects have a way of doing that, but they're very building-

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real strategic advantage is something that will enable it to perform better than any of its rivals (Margretta 2012). Identification and development of competitive advantage will create value for customers and ensure value for the company, because its chosen positioning in the industry will effectively protect it from the profit-reducing impact of the five forces.

The current industry structure determines how economic value is apportioned between real estate players versus customers, suppliers, distributors, substitutes and potential new market entrants. According to Porter, industry structures are dynamic, not static. This means that the better a real estate company understands its own industry structure, the more likely it will be to uncover new strategic business opportunities or positions that could reshape this structure to its own advantage. It is again worth noting that the real estate industry consists of several specialized business segments, each of which constitutes a separate industry in its own right - with different economic, logical and fundamental attractiveness (Porter 1989).

How can real estate strategy contribute to property values?

Historically, many real estate players have seen little need for a real estate strategy - and have focused solely on conducting opportunistic transactions (Porter 1989). Now that real estate is positioned as the investment world's fourth asset class - on a par with stocks, bonds and money-market instruments - new groups of players have entered the real estate markets and the respective investment segments - and have

effective strategic positioning of their own initiatives, in which measures to counteract the competitive forces and to reshape them to their own advantage will form an essential element of their real estate strategy. Real estate strategy is of the greatest importance in turbulent and uncertain times. In accordance with Porter's work, this will involve identifying positions where the five forces are weakest. Porter's research on companies during financial downturns indicates that the successful companies did not panic, but continued to invest in critical aspects of their business. Moreover, the downturn was actively used to explore and rectify any defective links in their own understanding of the value chain.

The essence of strategy is to decide what one should refrain from doing - which requires discipline and focus. The key to a successful competitive real estate strategy lies in uncovering the factors that make the company unique. The better this understanding and the better the way in which it is achieved, the better the company will be able to respond to trends and to meet customer needs. A strategy based solely on adapting to future trends does not constitute a strategy in Porter's way of thinking, since it does not relate to genuine competitive advantage. Strategic positioning reflects the choices that a real estate company makes about the value it will create and about how this value will be created.

The development of a distinct value proposition to customers lies at the heart of the drive to become unique. The company's value chain must therefore be tailored to provide such a value proposition and the value chain must allow the company to outperform its rivals through a unique value proposition. Value will ultimately be defined by the customer. The focus of

any real estate strategy must therefore be on creating superior value for the selected customer groups, and not on imitating or comparing oneself with rivals in the market. The drive to become a unique player in the real estate markets must therefore be based on innovation, since the key to lasting competitive advantage lies in the organization's ability to create unique values.

Conclusion

Real estate strategy as a specialist discipline is currently in its infancy, in spite of the significant positive impact - and potentially negative impact - of the real estate industries on the overall economy due to its capital-intensive and cyclical nature. By understanding and refining one's own competitive advantage in relation to the real estate industries' value chains, sustainable competitive advantages and superior profitability can be achieved for the benefit of both business owners and customers. Even the presence of rivals may be used to enhance the sophistication of individual players' real estate strategy, given that an increase in skillful competitors may in itself be a factor driving innovation.

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centric, whereas an FM standpoint looks at it more from the inside of the building out.”

There are also intensely practical issues FM can help with when designing buildings or entire sites. Martin Pickard, managing director of FM Guru, warns of the risks that can occur when facilities are designed without the needs of the people who will be occupying or maintaining it in mind. “At the extreme end, when they don’t engage us, we end up having to run buildings that haven’t got cleaners’ cupboards, where you can’t access the plant because they’ve put panels in the way, atriums where you can’t clean the glass, or light fittings so far off the ground you need to spend a fortune to get scaffolding in to change a light bulb,” he says.

Mawson goes even further, stressing the need for FM to ensure not just the practicalities of the building but to influence the “experience” those working there will have, in the same way that Disney would with a ride at one of its theme parks.

“It’s thinking very carefully about every piece of behaviour that touches the consumer; every smell, every sound,” he says. “Nobody really brings it together in a way that recognises the experience that the consumer is going to have. FM needs to step into that space.”

Joined-up approaches

There are cases where FM is more involved in masterplanning building and site design. Raisbeck gives the example of The Shard, where all the relevant parties were brought in early on.

“Our role there was to think about how the logistics would work, so how does vertical transport work, how do you get goods in and out of

a multi-use building, and how do you clean the windows,” he says. Corporate headquarters, data centres and scientific manufacturing sites are all areas where this kind of joined-up approach is needed, he adds.

Private sector businesses tend to be quicker to grasp the business case around such models, adds Baldwin, stressing the potential in areas such as airports, retail complexes and pharmaceutical sites. “The private sector cannot afford to wait if the cost of their asset is increasing and it’s impacting on downtime so they’re not getting the performance,” he says. But the use of building information modelling (BIM) systems - now mandated in the public sector - is starting to raise the profile of FM in building design, he adds, while in the public sector the public finance initiative (PFI), which revolved around design, build and operation, also prompted a greater focus on the longer-term effectiveness of buildings.

The UK, however, has much to learn from other countries, in particular the US, about how it approaches building design and the role of FM within that.

“The biggest change factor in the US is scale,” says Raisbeck, giving the example of one organisation with a 12-mile wide site. “We don’t necessarily have sites of that magnitude within Europe.”

Yet how FM is viewed as a profession is also different in the UK. “In the US it’s seen more as asset leadership as opposed to an FM operator, which is probably known as a concierge or a caretaker,” says Baldwin. “In Europe it’s a much more recognised profession and people are elevated up to an executive role.” He believes the profession needs to change the type of talent it brings in, focusing on business acumen as much as technical skills. “It’s having that economic, technical and strategic thinking in your skill bag rather

Case study: Airbus

When Airbus looked to develop the Airbus Aerospace Park at Filton, near Bristol, it was agreed that a full engagement process was required with the wider Airbus community for the proposed new facilities.

“We developed a site strategic master plan which was agreed by all stakeholders and was the enabler to deliver an outline planning consent with the local authority to protect this development concept for the foreseeable future,” says David Adams, head of UK Real Estate and Space Management.

The involvement of those tasked with operating the site in the future was instrumental in helping to secure the investment required. “The business case which embraced everything from design right through to operational issues allowed us to carry out a hard and soft services review on-site,” says Adams. “We had an old and fragmented site and this was an opportunity to consolidate significant operational improvements within this investment by bringing teams closer together.”

From an occupying perspective, the facilities team helped to design a completely new office furniture layout and design for the new building incorporating new conference and meeting room facilities with new state-of-the-art audio-visual equipment and new automated booking utilisation hardware to improve efficiency.

Adams says there was a degree of concern associated with the imposing layout plans for the new offices designs, which was only overcome when people were able to see how it would work in practice with the aid of office pilot studies. “It wasn’t until we moved the significant numbers of staff into their new facilities that they realised their fears were unfounded. We managed to turn it into a positive experience which is now considered a benchmark for decisions within Airbus.”

than just the ability to specify and procure supply chain and operate the building,” he says. “If we can get to the top table we can show the value and influence of design, as opposed to being a bit down the chain ourselves.”

Pickard, too, believes education is part of the solution, not just in the talent coming into FM, but also in stressing to other building environment professionals the benefits of involving an occupier perspective at an early stage. Initiatives such as the Leesman Index - a compilation of staff satisfaction surveys based on employee feedback around their working environment - can help here, he says. “When you’ve got incontrovertible statistics which show that the buildings that are currently being designed are not as fit for purpose as anyone would want

to be, that’s something that we should be making a lot more noise about,” he says.

For Chris Kane, ex-head of BBC Workplace and principal of CK Associates, the challenge for FM is to ensure that it remains relevant in an ever-changing world, and break down some of the silos that have traditionally restrained it.

“The demand side - the consumption of buildings and facilities - is really about how those buildings enable the organisation that is housed within it to do great work, so it moves from a building to a people-focus, particularly where there are a growing number of organisations offering their workforces different ways of working,” he says.

For Kane, a modern FM practitioner needs to be able to switch seamlessly between the practical realities of the day-to-day operations and the wider strategic viewpoint, which can help shape that broader people agenda.

“There are days when you have to deal with a security crisis or the fact that something has gone wrong with the toilets, but there are other days when you have to deal with financing a new scheme,” he points out. “You have to be a helicopter operator; you need to be able to hover down to the coalface to get things done and then go back up to a strategic level to talk to senior leaders, and all points in between.”



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Artificial light in the office

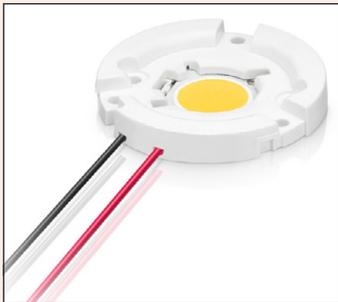
LED on the test bench

By Dr Uwe Slabke, Philipp Kaiser

Various artificial light sources are used in the office, but the market is evolving more and more towards one in particular: LED. But what exactly is the light emitting diode capable of nowadays? What do you need to look out for when designing projects? And how can you find the “right” lighting solution for you?

LED technology has undergone rapid development. This is reflected in new LED products, which are increasingly threatening the position of the lamps that are already available on the market. When it comes to the purchase of new lights, luminaire manufacturers are already making up to 70% of their revenues in projects with LED lights with integrated LED modules. In this context, there are two strong arguments that will promote an even more widespread “invasion” of LED lighting in office spaces: price and efficiency. Both have improved significantly. In terms of the quality of light, it has also improved significantly, but in this regard good products have already been available on the market for a long time. Nonetheless, it is still quite difficult to carry out an effective evaluation of LED products.

The fact is that LED technology has increased its efficiency to such an extent that right now LED lamps generally provide the highest light output. Under laboratory conditions, they can already



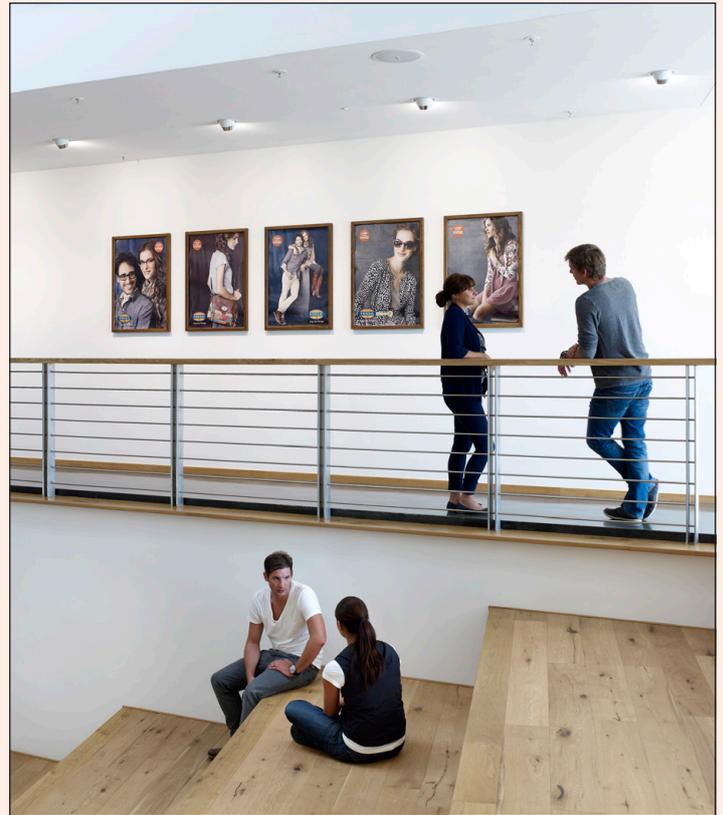
The LED has undergone rapid development in terms of its performance data. Under laboratory conditions, it can already achieve figures in excess of 300 lm/W (lumens per watt); in real-life environments the efficiencies in the overall system are around 130 lm/W (compared to about 100 lm/W for T5 fluorescent lamps). The image shows an LED module from the Philips CrispWhite series. The color temperature is 3,000 degrees K, and the color rendering index (CRI) is Ra 90. By way of comparison: The Ra of daylight is 100.

Image: Philips

reach values in excess of 300 lm/W (lumens per watt). These values cannot be matched by any other artificial light source in interior lighting. An analysis of existing, approved bulbs clearly indicates that only two types of lamp make any sense for everyday office use: LED lamps and T5 fluorescent tubes. The latter type can currently achieve efficiency values of around 100 lm/W; a typical lamp and optical system setup averages around 80 lm/W. LED technology, however, offers a range of other benefits, especially for office lighting. Unlike any other conventional light source, LEDs are semi-room spotlights. In other words, the beam angle of the light is generally 120°. The entire light output will then be emitted in this direction. With other light sources, the beam angle is almost 360°. LEDs can therefore direct the light precisely where it is required, and a decrease in lighting performance as a result of directing the light via reflectors is significantly reduced. Overall, LED products deliver substantially better lighting efficiency in relation to the working plane. In “real environments” (outside the laboratory), corresponding products for office applications can today achieve efficiencies of around 130 lm/W, with very good color quality (4,000 K and CRI11). In functional areas such as equipment rooms, corridors and toilets, 1-1.5 W/m² total lighting power per unit area can be obtained in the planning, with light intensities of 100-150 lux. Luminaire types such as downlights benefit enormously from these properties of the LED. For office areas planned in accordance with EN 12464 and workplace-related lighting concepts, they can now achieve values of around 6 W/m² at 500 lux.

Better than the Duracell Bunny

In addition to their low energy consumption, the long working life of LED lamps is another benefit. Marketing materials cite lifetimes of 50,000 hours, while in the area of street lighting figures in excess of 100,000 hours can be achieved. The lifetime of LED



Another advantage of the LED: its color rendering properties. It achieves color rendering indexes (Ra) of 80 to 90 and is therefore also suitable for areas in which brilliant light is required with very faithful illumination of colors. The picture shows Fossil's European headquarters in Grabenstätt. In the center of the building is the auditorium, equipped with Lunis wall washers. In areas where walls with display cases and pictures need to be illuminated vertically, brilliantly and homogeneously, Lunis SL wall washers are also used.

Image: Guido Erbring

products is, however, heavily dependent on the quality of the individual luminaire components and on the manufacturing quality of the luminaire itself. Anyone who implements large-scale projects should have the relevant lighting systems tested by independent institutions. The most obvious component limiting the service life is, of course, the LED itself. Experience suggests that in the first place it is a good idea to use only LEDs from well-known strong brands with relevant experience in lighting, since smaller companies will struggle to afford the necessary production and testing efforts or to meet the high quality assurance requirements. The aging of LEDs differs from the usual aging mechanisms of other components, since it is highly dependent on temperature. In general, the luminous flux of an LED will decline over a period of several thousand hours

- to what extent will depend on the ambient temperature and the operating current (see image of loss of luminous flux). The drop in luminous flux during the first 6,000 hours generally varies between 1% (for the top products) and 10% (for products of a lesser quality).

On account of these mechanisms, the standard system for indicating the service life of LEDs specifies a rated lifetime in hours. For example: the indication “L80 50,000 hours” would therefore mean that after 50,000 hours the lamp in question would have a residual luminous flux of 80%. In addition, a B value is specified, which indicates the proportion of LED light sources in the luminaire which do not meet this criterion on account of the statistical distribution of the drop in luminous flux. “50,000 hours L80

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LED on the test bench

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F. Hoffmann-La Roche AG is currently building a 178 m high office building (architects: Herzog & De Meuron) as its new corporate headquarters in Basel. The office tower building will have room for around 2,000 employees.

Image: Herzog De Meuron

Looking for the “right” LED lighting system?

These points need to be checked:

- Design
- Ergonomics
- Mechanics, installation, maintenance
- Technology
- LED module, package
- Thermal considerations
- Technical lighting quality
- Operation, switching, dimming etc.
- Ballast technology
- Environmental considerations
- Warranty
- Service
- Cost of replacement parts
- Quality and lifetime
- Price and depreciation
- Sensors: daylight and presence

B20” therefore means that after 50,000 of service 80% of the luminous flux will remain, but that 20% of the LEDs used will no longer meet this criterion; in other words, they will emit less than 80% light. Anyone wanting to play it safe in their lighting project should be looking for the values “L80 B20”, even with lower lifetimes, because in that case you can reasonably assume that only 20% of the LEDs will produce a lower luminous flux. Furthermore, if individual LEDs and modules fail, that will be recorded under the drop in luminous flux.

The lifetime of LEDs is determined by the “IES LM-80 test”. This involves operating and testing a representative number of LEDs in real life conditions with different operating currents and at three different temperatures (55°C, 85°C and one freely selectable temperature) over a period of at least 6,000 hours. Every 1,000 hours the testers measure the luminous flux and the chromaticity coordinate shift for each LED. The overall lifetime is calculated from these values using the “IES TM-21 method”. The LED Institute, for example, also



The lighting, consisting of approximately 10,000 luminaires, will be based entirely on LED technology. In this project, high demands are being placed on function, technology, energy efficiency and service life. The office areas are modular in design and can be flexibly transformed into the required mix of individual or group offices and meeting rooms.

Image: Herzog De Meuron

performs this measurement for the entire lighting system.

One module out, another module in?

With regard to the interchangeability of LED modules at the end of their lifetime or in the event of a failure, the question arises to what extent a luminaire with a service life of 50,000 hours or more needs to have interchangeable modules at all. This needs to be taken into account, of course, in the event of continuous operation, but otherwise if you assume 2,000 operating hours per year in an office environment, a lifetime of 50,000 hours represents a service life of 25 years. In the course of general renovation measures, the whole luminaire will then usually be replaced, especially in the case of conventional lamps. This is similar to the situation with mobile phones: since the arrival of smartphones and the continual development of phone batteries, the cost and ease of replacing the battery is no longer one of the customer’s considerations when purchasing a phone, since nowadays the batteries are hardly ever changed in these products. Although there have been efforts, for example by the Zhaga Consortium, to introduce universal and standardized LED modules, in reality this has not happened. The goal when using LED products is to obtain tested quality in the project, so that there are no significant failures during the lifetime of the products. Once again, it is recommended that you look at well-known LEDs and ballasts, which in the case of large-scale projects should be verified by testing.

In the recent past, there have been increased cases of failure, with resulting recall actions. Firstly, the indicated specifications - for instance in the area of CRI, phi or binning - were not met; secondly, in some cases there were significant drops in luminous flux and a large number of total failures. In the case of large-scale projects in particular, these types of problem cost a lot of time and money. You can reduce the risk by

checking a small number of products in advance. Further information on fitness for purpose can be obtained from quality inspections based on random sampling from series production.

Artificial light - what does the future hold?

The immediate future of lighting will certainly no longer be about individual luminaires with an on/off switch, but about low-cost, intelligent, networked lighting. It will be similar to the situation we have seen in the development of the camera: digitization, miniaturization and integration with software solutions have become a central part of this technology. ActionCam, integration with mobile phones and Google Glass represent the technology platform - Instagram, Facebook, Whatsapp and other Internet platforms, including individual photo albums, represent the other features of this technology. And for anyone who is thinking about sustainability: reductions in CO₂ can now be achieved at a very low cost by the optimization of lighting. A good lighting design should first of all take account of the atmosphere of the room, and only then focus on the functionality of the residence or workplace, since a lighting system should always meet the needs and expectations of the user. LED technology, thanks to its freedom regarding shape and arrangement of luminaires, makes it possible to produce new attractive solutions that can also create new relationships with the illuminated space and its furniture.

¹ CRI = Color Rendering Index By way of comparison: sunlight achieves a CRI of up to 100.

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www.led-institut.de

Moving toward green data centres

By Scott Harris

Operating a data centre is risky business. Interrupt service for just a moment, and it may cost tens, if not hundreds, of thousands of dollars. That's why data centre owners have poured millions of dollars into redundant systems that protect uptime at all costs. However, these systems come at a price: sky-high energy use. The price goes beyond utility bills. External pressure is rising on data centres to reduce their carbon footprint. Several high-profile news stories and watchdog reports have brought the issue into the public consciousness, and robust sustainability reporting is becoming the norm. Additionally, many local and state governments have either put into place or are considering regulations on energy use and carbon emissions, creating uncertainty around the long-term legislative landscape. These external pressures, combined with internal financial pressure, make unchecked energy use a major risk factor.

Growing pressure to go green

Public consciousness about the high demand for energy at data centres is growing. In 2010, The New York Times ran an investigative piece on major tech companies operating their high-energy data centres in rural areas with little oversight. In 2012, Greenpeace started handing out letter grades to data centre owners for their overall sustainability performance. Major corporations had to suffer the ignominy of headlines that listed them as "failing" on data centre sustainability in comparison to their competitors. Reports addressing the current state of affairs and areas in which there is progress to be made have continued to emerge, often issued directly by these companies.

The pressure is rising from governments as well. In the U.S., places like California and the City of Seattle now mandate public reporting of energy use. This kind of transparency can potentially lead to unpleasant pressure from either government officials whose goal is to reduce energy use across their jurisdiction, or from third-party organizations looking to shed light on high energy users. Many city and state governments have also instituted carbon reduction plans, and may look to institute market-based plans to push emission reductions.

Pressure comes from within the organizations themselves, too. Activist shareholders as well as those focused solely on the bottom line may see excessive energy use in data centres as a symptom of poor management. Managers

and executives looking to burnish their sustainability credentials or simply cut costs may see data centre energy usage as an opportunity to make significant changes in the organization. Public relations and marketing teams may want to see more action behind the words with sustainability teams providing a form of oversight. Where exactly the internal pressure comes from depends on the organization, but assuming it won't come at all turns a blind eye to a potential, and significant, risk on the horizon.

In the end, managing energy is about managing risk. Without insight into energy use, and the authority to affect change based on that information, companies are risking money, the ability to make effective long-range plans and their reputation. Sustainability, carbon reporting and effective energy management are, at the big-picture level, inescapably upward trends. Finding ways to be ahead of the curve is what good companies do when they plan for the future, and energy management can significantly offset this potential risk.

Total mindset shift

Many organizations have already embarked on top-to-bottom changes to address the growing push for cleaner, more efficient data environments. As both public and private stakeholders become increasingly savvy regarding the relationship between big data and the environment, relying solely on surface level gestures toward sustainability (such as carbon offsets or renewable energy credits) is precarious and unproductive.



Moving toward green data centres requires a complete mindset shift in how organizations design, build, operate and maintain these assets. No matter whether this transition is driven by cost factors (capital and operating expenses), by environmental responsibility (reduction of operational carbon footprint) or by some combination of the two, the only way to achieve meaningful impact is to truly prioritize sustainable data centres through energy management, facility location, energy-efficient design and on-site power generation.

Tactics of going green

Energy management

Reducing energy consumption is a key element of operating more sustainably. There are a number of measures that can be implemented at existing facilities to reduce energy consumption, and the right package of facility improvements varies according to the specific systems and performance levels at each site.

The first step, however, is tracking and benchmarking energy consumption. Energy usage can be captured on a periodic basis by performing detailed energy audits, either as standalone consultative reports or as the precursor to identifying potential energy conservation measures. Data centre managers can gain a better understanding of their costs and opportunities for improvement by monitoring and benchmarking energy usage on an ongoing basis.

Many facility owners elect to go a step further and employ a dedicated energy manager whose full-time job is to find ways to

reduce power consumption, either for a single data centre or a multi-facility portfolio. This role is charged with implementing a full energy management program that achieves the organization's sustainability goals.

Sustainability factors in site selection

For most organizations, energy is included in the complex process of determining the location of a new data centre but is a lower priority compared to utility infrastructure, geographic reliability, ease of permitting and government incentives.

Clearly and publicly incorporating energy concerns (beyond cost) as a core evaluation dynamic in site selection demonstrates an organization's commitment to sustainability as a part of the evolution of the data centre portfolio. Factors that should be considered include:

- How clean is the power feed? During site selection, each locale's utility feeds are primarily evaluated in terms of reliability and capacity. But when making a commitment to cleaner data, it is equally important to weigh the fuel sources supplying a local utility. Some utilities are beginning to deliver substantial amounts of clean energy and efficiency, while others are far behind.

Committing to a site served by utilities with primarily "dirty" fuel sources makes it more difficult to drastically change the true carbon footprint of the facility overall. By contrast, selecting a site whose local utility commits to

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Moving toward green data centres

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green or lower carbon fuel sources dramatically improves the facility's sustainability.

- Location dictates consumption. Cooling a data centre requires a substantial amount of power throughout the year. Cooler, drier climates help decrease the energy consumed. Such climates can also enable the use of a variety of free cooling systems and strategies that can reduce the need for cold air generation, particularly in winter months.

Energy-efficient design

Due to the increasing cost of energy and the focus on reducing carbon emissions, many data centre owners are now reevaluating how they design their critical facility redundancy schemes. The previous mindset was to always deploy the most hardened designs for the entire network to protect all applications within the facility from downtime equally. The "tier" system defined by the Uptime Institute is based on the notion of uniform hardware availability throughout the entire site. However, when reviewed, many of the applications are not as critical, or don't require the same resiliency as others.

In many cases, owners realize too late they could save capital during construction by deploying varying levels of equipment redundancy, which also reduces operating expenses by lowering the amount of unnecessary equipment. This allows for multi-tier

facility site designs, or enables the owner to build lower-tier facilities that meet uptime requirements at a lower cost.

Recently published case studies have also shown that sites that deploy a blended UPS (uninterrupted power supply)/utility IT power scheme can achieve a similar level of reliability to the traditional models with multiple UPS/IT power schemes. This empowers site designers to remove additional failure points and maintenance requirements from the systems without significantly impacting uptime.

'Sustainability, carbon

Reporting and effective

Energy management are

inescapably upward trends'

Incorporating energy-efficient designs is also becoming a best practice in the industry. This includes installing containment systems that segregate the hot and cold aisles, which increases HVAC efficiency and allows for higher operating temperatures. Another prevalent industry trend is the move to adiabatic or evaporative cooling. However, this option comes with a limitation: although it reduces the mechanical power demands of the facility, it increases water consumption. Choosing to use evaporative cooling should depend on the specific resource needs of the location.

Onsite power generation

The environmental impact and carbon footprint of data centres can also be reduced through investments

in onsite renewable power generation options such as solar, wind and geothermal. In addition to lowering utility costs, drawing primary power from onsite generation protects data centres from power spikes and other events that can cause outages and equipment damage.

Onsite power generation requires significant capital outlay. As a result, this is often a more viable option for larger organizations with data centres whose scale requires amounts of power large enough to justify an expenditure for a large solar array or wind farm. Generating all of the power required for a data centre may be cost prohibitive from a capital standpoint, but many data centre owners are electing to go to the hybrid route and utilize onsite renewables to augment utility-based energy.

Another trend in onsite power generation is the deployment of lower carbon emission systems such as natural gas fuel cells. These systems can provide onsite primary power or as a method to augment the grid power supply with cleaner energy.

Strategic moves

The tactical approaches above can improve energy efficiency and sustainability across a data centre or a portfolio of facilities. More dramatic changes throughout a company can transform an entire organization from energy mega-consumer to sustainability advocate.

Accountability

The easiest way to demonstrate commitment to sustainability is to incorporate real sustainability goals into organization-wide and employee goal planning. This challenges

the entire organization with high-level goals that are driven down to departments and from there to individual employees. Developing an accountability plan for each person in an organization eliminates the mindset that "someone else is responsible for sustainability."

Transparency

Real improvement on sustainability demands that an organization move beyond the old notion that information on energy and carbon performance should be secret. Data centre operators have traditionally been reluctant to publicize meaningful data about the usage and sources of energy at their facilities.

The companies and institutions that run some of the largest data centres in the world are beginning to understand that disclosing environmental performance through public reports and dashboards actually helps boost their green profile and helps drive ongoing, meaningful change.

Thought leadership

The companies and organizations that build and operate data centres have considerable sway with regional utilities, government on multiple levels, and the designers/manufacturers of core infrastructure systems within the data centre. That level of collective influence can be leveraged to help drive substantial improvements to the energy mix utilities are providing, innovations in the energy efficiency of data centre operations and financial incentives for using clean energy. At a minimum, data centre operators should make a commitment to being a key part of energy policy conversation and decision making process.



Scott Harris holds the position of energy manager at McKinstry, a full-service design, build, operate and maintain firm. Harris is responsible for the implementation of energy management programs for McKinstry's facility management clients, based upon their energy and sustainability goals. His experience in energy management, specifically in critical environments, allows him to make crucial decisions across disciplines.

Harris is also a regular participant with data centre industry groups such as The Green Grid, 7x24 Exchange and Uptime Institute.

Innovation management or conflict resolution? How to take advantage of stakeholder interactions to drive FM innovation and improvement processes

By Giulia Nardelli

In FM, just as in any other sector of the contemporary economy, innovation has become a not only recommended, but also required element of survival and growth. External FM providers as well as internal FM departments are aware of the role of innovation as tool to succeed and compete in the dynamic contemporary FM market. Some FM organisations have developed a dedicated innovation strategy and manage innovation and improvement strategy systematically. However, innovation and improvement processes are not just about creative ideas and project management, and many FM practitioners admit that they still struggle to establish innovation routines and to manage innovation and improvement processes leading to successful outcomes.

One of the reasons behind this struggle lies in the nature of the service process behind FM service provision and related innovation. According to the European standards, FM services deal with the integration of processes within an organisation to maintain and develop the services, which support and improve the effectiveness of its primary activities (CEN, 2006). Because of their supporting nature, FM services are characterised by a service process, which involves a heterogeneous range of stakeholders on both demand and supply side. In fact, each organisation requires a more or less formalised unit to take care

of the FM services, and ensure that its employees can carry out their core tasks and activities. Such unit, the internal FM unit, carries the responsibilities of FM service provision, and, when FM services are outsourced, manages the relationships and outsourcing contracts with the external FM service provider(s). The internal FM unit thus plays a double role: (1) internal service provider in the eyes of the organisation and its employees; and (2) customer in the eyes of the external service provider, with whom it negotiates the contracts at the basis of the service provision. Beside the internal FM unit, on the demand side of the FM service

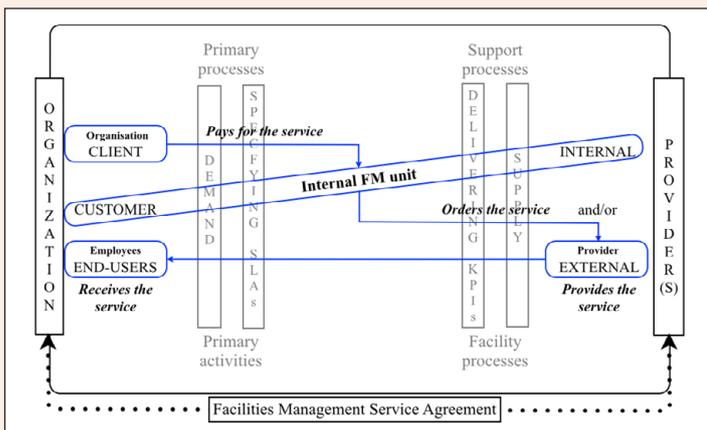


Figure 1. The FM service process. Source: Nardelli, 2015 – Adapted from EN15221-1, 2006.

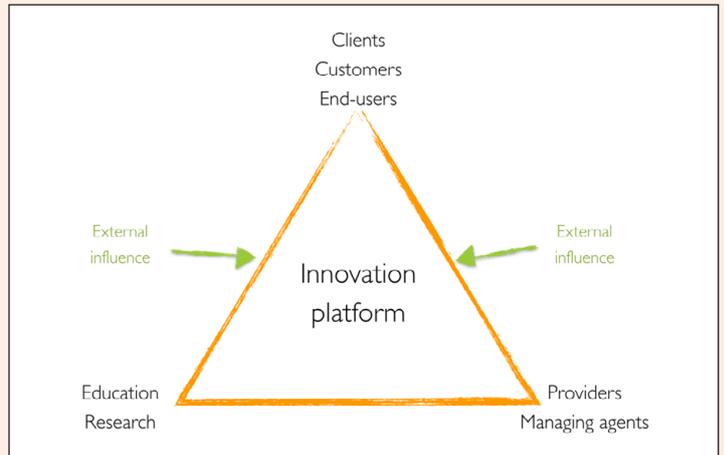


Figure 2. Example of FM Innovation Platform. Source: Nardelli and Broumels, 2015.

provision there are (1) the organisation as a whole, which orders and pays for the FM service provision; and (2) its employees, who eventually receive and take advantage of the FM service provision (figure 1).

This heterogeneity of the range of stakeholders, who are involved in the FM service process, complicates the management of innovation and improvement processes in FM. Every time a new process and/or service are introduced, the needs and expectations of all different stakeholders need to be taken into consideration. The complexity stands in the differences between these needs and expectations: clients, for example, typically focus on the overall ratio between FM costs and employee satisfaction of the facilities, while end users have much more individual needs and expectations, as they are the receivers of FM on a day-to-day basis. On the other hand, external providers care mostly about being able to efficiently provide satisfactory services so as to honour their contract with the internal FM unit. Consequently, every innovation and improvement process will have to contemporarily answer questions such as: how will the process impact on the budget? What added value will it bring to the overall organisation? How will it affect individual end user satisfaction? How will it affect operational service provision and related costs?

So how can FM innovators ensure success of innovation and improvement processes, while dealing with such a heterogeneous group of stakeholders, and their needs and expectations? All stakeholder needs and expectations should be taken into consideration to guide processes of innovation and improvement, from idea generation to concept development and launch. To do so, the innovation developer(s), be it the internal FM unit or the external provider (or a combination of the two), should (1) clarify what different stakeholders need and what they would expect from the new process or service; (2) translate those needs and expectations into concrete goals and objectives and implement them throughout the innovation or improvement process; (3) demonstrate the fulfilment of needs and expectations to all stakeholders throughout the whole process, by continuously communicating

with different parties.

While this communication has traditionally been carried out after launch of the innovation, it would be recommended to start interacting with stakeholders earlier in the innovation or improvement process. This can be done by selecting specific actors to participate in the innovation or improvement process through dedicated tools, such as workshops and user surveys. However, such involvement should be carefully planned and managed. For instance, representatives of the client, i.e., the executive management, will not be interested in discussing operational matters, such as the type of food to be served in the canteen, but they should be closely involved in the strategic decision-making behind the shift from an independent canteen service provider to an integrated FM solution. On the contrary, end users have an individual view on FM that makes their contribution hard to process at the strategic level; but they can provide useful insight on day-to-day FM, being able to suggest, for example, a switch to environmentally-friendlier time-limited taps or more efficient space management based on effective usage. Consequently, some tools for involvement are more appropriate than others depending on the stakeholders, whose contribution is sought, and on the nature of the decision making to be carried out. On one hand, workshops will work best for an active discussion with the top management on strategic issues. On the other hand, user surveys as well as mapping and profiling tools are most appropriate to (1) ask end users about the user satisfaction and hand-on experiences and to (2) observe their daily behaviour with respect to facilities and FM services.

Another way to support successful innovation and improvement processes is the development of dedicated structures, such as Innovation Platforms or Innovation Boards. A platform that is consistently managed and supported by mutual commitment from all parties can facilitate the development of innovation and improvement practices and processes over time, both within and beyond the boundaries of the platform itself. To do so, first of all potential stakeholders should be identified and actively involved since

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Control your budget before it controls you

By Richard Sievert

It's typically not a good thing to exceed budgets. The ability to accurately estimate and control costs is critical to assuring economic growth and survival of organizations as well as individuals. Facility managers must analyze financial needs and develop realistic budgets to successfully complete projects and maintain their operations within the fiscal expectations of senior management. Fulfilling these duties in a complex built environment of constant changes, budget cutbacks, restructuring programs and increasing compliance-related initiatives is a major challenge.

Higher standards and economic stakes plus a variety of other factors are raising the level of responsibility and financial accountability of facility managers. They must take time to carefully assess whether there are enough internal and external resources to adapt their facilities and operations to ensure the success of their organizations.

FMs must determine whether sufficient funds budgeted or if additional funding will be needed to address issues such as:

- Implementation of new technologies
- Stricter codes and regulations
- Tax and insurance increases
- Energy conservation and sustainability mandates
- Occupant health, safety, comfort and security concerns
- Maintenance and repair backlogs
- Building system renovation and construction projects
- Space relocation and rearrangements

The following 10 smart practices will

help facility managers develop realistic budgets and maintain financial control of capital projects and facility operating costs.

1. Realistic budget and cost-control estimates are necessary for success

Essentially, a budget is a plan for the short-term future (generally monthly, yearly or an alternate time period tied to a specific project). Cost estimation (forecasting of future expenditures) is the basis of budgeting. These estimates are based on objectives — the problem is, one never knows exactly what the future will hold.

Budgets are expressed in terms of numbers of dollars, hours, gallons, kilowatt hours and many other measures used for monitoring and managing utilization of important resources. A budget is the key part of a planning and control system for any program within an organization. Having a budget by which to direct management of the organization's facilities confirms the FM's position of real management responsibility. Controlling total building

depending on the circumstances and on the development of the platform over time.

In summary, innovation and improvement processes are not just about creative ideas and project management. To raise awareness and successfully contribute to the core business of organisation, it is crucial that facility managers adopt partnership approaches that bridge between demand and supply when developing and implementing innovation and improvements. This can be done by involving selected stakeholders in the innovation and improvement processes based on how their needs and expectations fit with the type of decision making to be carried out. In alternative, dedicated structures can be built, such as an Innovation Platform, where representative stakeholders can meet, interact and share idea generation initiatives as well as concrete decision making for implementation and launch. By doing so, potential tensions and

life cycle costs and keeping them within budget constraints are basic functions of a professional facility manager.

2. Good communication will help keep your budget out of the red

The amount of risk a facility manager encounters can be measured by a comparison of the amount of variance between agreed upon budget and actual cost. The risk can be reduced by proper budgeting procedures and communication with team members to identify and control risks before they become liabilities. Stakeholders need the right cost and budget data at the right time.

Proactive organizations have a robust system for alerting stakeholders about budget status. For example, a team could receive a yellow warning on routine status reports if the costs exceed budget by 5 to 10 percent. If they exceed budget by 10 percent or more, the team would get a red warning signal, or a green light if costs fall within the approved budget.

3. Learn to speak the language of your financial managers

FMs need to get close with the finance department and speak their language. To do so, they must communicate the value of their operations relative to financial justification (e.g., return on investment, payback period, life cycle costs) and impact on the organization's strategic plan. The FM team will be viewed as more valuable if it increases the organization's profits without sacrificing quality, health, safety and comfort.

Affordability is the biggest barrier to achieving objectives. It is important to have a clear understanding and team consensus regarding the objectives for each element in the budget. Since facilities are fixed assets they typically cannot be liquidated quickly to recover financial losses from bad investment decisions. Therefore, it is important to make wise decisions and not over-simplify the duties and risks associated with cost management.

4. Consider all types of costs

conflicts due to mismatch of needs and expectations between stakeholders can be overcome and even turned into drivers for innovation and improvement.

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Bad budgets lead to bad decisions. Facility managers and their teams are tasked to complete projects of the highest technical quality on time and often within an unrealistic budget. Without sufficient funds, they will not be able to achieve the first two of those objectives.

Consider the various types of costs — fixed, variable, direct and indirect — when preparing budget estimates. Thoroughly evaluate factors that are likely to influence cost (e.g., personnel resources, time, methods, materials, location, equipment, facilities, designers, contractors, local economic conditions, codes and regulations, insurance, permits, etc.). In addition to initial costs (e.g., procurement, installation, construction), consider life-cycle costs, which include all costs over the useful life of an asset.

When there is not enough money, architects and engineers may not be able to justify spending the additional staff hours necessary for analyses and optimizing designs to meet the owner's best interests. Adequate funds must be allocated for design in order to motivate engineers to provide the most cost-effective solutions for both current and future needs and complete detailed specifications.

5. Thorough designs are needed for accurate estimates and to prevent change orders

Detailed and complete drawings and specifications help prevent costly change orders and clearly show contractors their required scope of work. Some owners are obsessed with shopping for low-cost design and engineering fees, which can result in higher construction and operating costs.

Owners often solicit quotations to use in developing the project budget without the benefit of a design. Without complete, detailed construction drawings and specifications that reflect project scope, quality and performance requirements, contractors may be inclined to submit low quotations to win the bid. This can, however, result in costly delays and change orders, which are usually set at a high profit margin for the contractors.

6. Prepare alternative design schemes, compare life-cycle costs and design to budget

Prior to design development, prepare sketches of alternative design schemes and life-cycle cost estimates for each to ensure selection of the most economical systems and components. Once the optimal design has been selected, the design professional can develop detailed construction drawings from which contractors can prepare detailed estimates and submit bids.

It is important that the design professional develop designs in accordance within the budget, known as the "design to budget" principle. This will help prevent contractor bids from exceeding budget.

7. Budget time to prepare program

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Innovation management or conflict resolution?

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the very first steps of development of the platform. In other words, representatives of all stakeholders, from clients, customers and end users to external providers, managing agents and even external contributors (e.g., researchers), should be invited to join the design of the platform so as to be able to contribute to its characteristics, values, vision and mission (figure 2). At the same time, diverse stakeholders often have different expectations and attitudes towards the platform, which need to be identified and used to eventually create sub-groups of actors. Finally, tools and methods to facilitate interaction and contribution of stakeholders—such as, for instance, workshops or online competitions—should be selected, applied and modified

Control your budget before it controls you

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requirements for your projects

The ultimate success of a project depends on how well you do things in the beginning. Be sure to allow enough time to collect and analyze data in relation to project needs and objectives. It is the owner's responsibility to prepare a good set of predesign performance criteria (program requirements) prior to contracting with architects/engineers to complete the final design documents and before committing full funds for construction of a project.

Programming is the first phase of the project life cycle. It defines performance requirements, such as functional, technical, financial and time, which serve as basis of the project design. These requirements are typically included in requests for proposals (RFPs) and are used to negotiate design contracts, guide design development and determine the feasibility of design alternatives.

Facility managers' ability to control costs decreases over time. Typically, programming and design fees represent a small percentage of the overall life-cycle cost of a project. Yet, it is at these early stages of project development where there is the greatest ability to control the overall cost of a project.

The ability to control project costs diminishes from 100 percent at the start of the programming and conceptual design phases to roughly 5 percent at the start of construction. Once the construction phase begins, contractors merely follow the plans and specifications. Contracts have been let, material and equipment have been ordered and labor hours have been committed.

8. Use a phased gate approach to manage costs

A phased gate approach is highly recommended to control project financial and other risks. In this approach, the team presents deliverables at the completion of each phase in the project, and release of funds for subsequent phases is contingent on the prior phase remaining within budget.

Make sure the appropriate customers and stakeholders review and give their written approval of the deliverables at the end of each phase before proceeding with further development of the project. To keep the project within budget, you should prepare estimates as the project progresses. Always communicate and document the assumed accuracy of any estimates you give or receive. Add an appropriate contingency allowance (usually a percentage of the overall cost estimate) to cover the additional costs for unknowns that might surface.

When a project progresses, cost estimating accuracy increases proportionately as scope of work and unknowns are identified. The cost of preparing an estimate also rises

in direct proportion to the degree of accuracy required.

There are generally three types of cost estimates:

1. Order of magnitude

- Approximate estimate made without detailed data
- Typically based on historical cost figures, rule of thumb and square foot costs
- Used during early planning and programming phase for initial project evaluation
- Accuracy is usually low depending on how much information is available
- Sometimes called rough, conceptual or ball-park estimate

2. Budget

- Used to establish the funds required and for obtaining approval for a project
- Based on flow diagrams, layout, equipment details, preliminary drawings and specifications (generally include a design that is at least 30 percent complete)
- Accuracy is greater than with order of magnitude estimates depending on policy and how much information is available
- Sometimes called appropriation, design or control estimate

3. Definitive

- Used for bid/evaluations, contract changes, extra work and legal claims
- Based on well-defined data, drawings, specifications, contractor and equipment quotations, site data and project schedule (generally includes completed design)
- Accuracy is greater than with budget estimates depending on policy and how much information is available
- Sometimes called construction estimate, lump sum or check

9. Assemble the right team

The development of accurate and reliable cost estimates requires special skills, including knowledge of design and engineering, construction methods and materials, construction costs and construction procedures. A major reason why owners sometimes underestimate the time and money required for new construction, alterations, major maintenance and repair projects is an inadequate understanding of the technical requirements and complex tasks required.

Do not underestimate the need for selecting the best team of design, construction, operation and maintenance personnel to plan, budget and carry out your projects. Use the appropriate types of contracts to allocate risks and responsibilities among team members.

Many components in a facility

construction project can be easily overlooked. For example, installation of new production equipment, changing the use of a space or increasing the amount of people occupying a space may produce enough heat to require additional air conditioning and ventilation capacity. If an additional air conditioner is ordered, there must be enough power to run it and adequate space for the associated equipment, power distribution and support systems. It may also be necessary to complete an engineering evaluation to determine if the structure can support the weight of the equipment and related systems or if framing modifications are required.

In addition, the FM team should evaluate associated fire protection needs and sprinkler capacity. New employees associated with expansion, consolidation or remodeling projects may require additional space and facilities such as rest rooms.

These changes must all comply with building codes, regulations and insurance requirements. It is imperative that construction drawings and specifications be prepared by appropriate design and engineering professionals. FMs should provide suitable documentation to ensure compliance with codes and regulations, procurement of permits and that contractors properly perform construction and equipment installations within the pre-established budget.

10. Use the value engineering method to analyze and develop budgets

Perform value engineering studies during the programming and early design phases when the opportunity to control project costs is greatest. Value engineering is a vital project programming and preconstruction cost management method which involves careful analysis of initial and operating costs of materials, systems and equipment. It is a function-oriented, systematic multi-disciplinary team approach to eliminate and prevent unnecessary costs while retaining high quality.

The value management methodology is a powerful way to plan project budgets, identify user needs and priorities and expedite consensus decisions regarding the lowest-cost way to achieve project objectives without sacrificing quality and performance. It is also a great way for FMs to demonstrate cost avoidance efforts to senior management and optimize the relationship between cost and worth of facility functions. The FM team should perform a value engineering study at the beginning of each new financial planning life cycle.

FMs can apply value engineering to manage growth-oriented facility projects and cost reduction initiatives. Analysis of the functions that make a project, product or service successful differentiates value engineering from traditional cost reduction. Value engineering helps teams understand what functions the customer needs and

is willing to pay for and then generates lower-cost alternatives to satisfy those requirements.

A value engineering job plan is a systematic procedure for accomplishing a value study and includes the following stages:

- Phase 1: Information gathering
- Phase 2: Function analysis
- Phase 3: Creativity
- Phase 4: Evaluation
- Phase 5: Development
- Phase 6: Recommendations

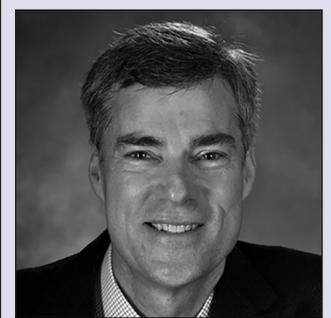
Make a case for your budget and document everything

Monitor actual versus budgeted costs and make adjustments before it is too late to prevent major problems from occurring. Document all important communications to protect your own assets. You need an audit trail to justify decisions made and financial expenditures if problems arise in the future.

When presenting your budget results, communicate the impact on your overall organization's strategic plan and financial performance. State the financial benefits versus costs, resources required and technological constraints. Allocate sufficient time and funds to develop the optimal design and cost-control procedures for your project and facility operations.

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Richard W. Sievert, Jr., Ph.D., CFM, PMP, CVS, CCP is a professor in the Construction Management Program in the College of Engineering at Drexel University. He teaches courses in facility management, project management and value engineering. He also facilitates value engineering workshops and conducts applied research to help owners and managers of facilities meet demanding budgets and customer requirements.

Prior to joining the faculty at Drexel, Sievert was president of The Sievert Group of engineering, construction and mechanical services companies for nearly 30 years.

Practice Network Group

Karin Schaad, Chair



How time flies by! In the last issue there were loads of information about the approaching EFMC conference in Glasgow and now it is already long

past. But, as you all know, after the conference is before the conference, meaning that we are even now preparing to send out call for papers for next year's edition of the EFMC in Milan. In order to make it worthwhile for even more FM professionals to attend, several things will be changed for next year's conference. One issue we are looking to tackle is to make the EFMC more affordable by slightly reducing the number of tracks while keeping up or even improving the quality of the remaining presentations.

Since not everyone was able to attend the Gala Dinner, this event will be

replaced by a simpler, more casual stand up dinner, giving attendees more opportunity to mingle and talk to a greater number of people. This will also include a meeting point where some of the topics addressed during the day may be further discussed with likeminded attendees.

First, however, there is another Members Meeting coming up at the end of October. This, too, will be taking place in the great and centrally placed city of Milan. Those of you who have not visited the Expo yet might want to add a day or two to the journey and take that in as well.

For the Members Meeting, too, there will be changes in order to make it even more interesting for FM professionals to attend. While there will be separate network group meetings on the first day as usual, on the second day several workshops will be held where the members of the various groups actually collaborate with each other on developing a solution for the proposed topics. Since the purpose of EuroFM as an Association of Associations is to bring together Research, Education and Practice, these workshops will hopefully lead to a better understanding of what needs and skills each of the groups brings to the table.

At the Members meeting we will also give a short viewing of the video "women in FM" which was produced following the panel discussion with the same title at the Glasgow conference. Although only a small group of people attended the discussion, those who did found it such a motivating and empowering experience that the idea of the video was brought up (by one of the few male attendees, no less!). We are very proud that in the short time span since Glasgow, we were able to capture the essence of the panel discussion in a short video aimed at encouraging young female FM professionals to work hard and aim for the top in spite of all the difficulties they might encounter.

As stated in the last EFMI Issue, the Practice Network Group wants to discuss topics of interest to the FM professionals at every meeting, in order to make meetings more attractive to members. In the future, one or two topics from the top of the list put together from the results of the survey will be published in the PNG Agenda, so PNG members will know what to expect and can prepare for the discussion. Within the next PNG meeting, we would like to discuss the Topic "Facility Leadership", since we were not able to discuss it in Glasgow.

At the PNG meetings, we will also get updates on open issues from the previous meetings. Unfortunately, so far there is not much to tell about the FM Data Report. While we are working out how to organise the compilation of the required data in a sustainable and durable way, how to put the data together will now be the topic of a student thesis. There will however be information about the progress made on the ISO Standard and the EU Coalition.

All Practice Network Group members are very welcome to give input about any other FM-related topics they wish to bring forward or discuss at the PNG meeting or give suggestions about what should be further investigated.

In order to allow for better coordination and to make sure there is time enough for everyone who wishes to present a topic, please contact me in advance at karin.schaad@bluewin.ch.

I am very much looking forward to hearing from you or to meeting you again in Milan starting with the Welcome Reception on Wednesday, 28.10.2015.

A presto e tanti saluti

Education Network Group

Pekka Matvejeff, Chair



I hope all of us have had an opportunity to enjoy the summer break so that we are now full of energy when tackling various challenges wherever we are and whatever we do. It

was also very motivating and energizing to meet many of you in the 2015 EFMC in Glasgow in June.

EuroFM board has defined the Network's strategic goals and they were shortly discussed in Glasgow. The discussion will go on in Milan in October. One of the goals is to add value to the members of EuroFM Network through bridging practitioners with research and education. One concrete way under this strategic umbrella is to develop a concept for FM student's internship-process in such a way that this future FM potential would be easily in reach for our members and on the other hand, students would be offered a platform, where they could

find internship opportunities amongst our members.

It was a coincidence that at the same time, when the EuroFM Education Network Group started to develop this idea further, IFMA Foundation and BIFM had similar developments on their agenda in order to promote the idea of working in a collaborative way between Students-Education-Employers to set up sustainable internship opportunities for the future of the FM industry.

Based on the initiative presented by Adrian Anderson (IFMA Foundation) a group of EuroFM, BIFM and IFMA Foundation representatives (Deborah Rowland, Margaret Nelson, Karin Schaad, Richard Keane, Adrian

Anderson and Pekka Matvejeff) gathered together in Glasgow in June in order to develop the concept idea forward together.

The main objective of this work is to enhance and increase the connection between commercial organizations and EuroFM's vast network of Academic Institutions. Another goal is to enhance the collaboration between EuroFM, BIFM and IFMA Foundation.

I am calling all our members to join this development process and ask for your input and ideas into it. Feel free to contact me, if there is a need to discuss this initiative further. Meanwhile, looking forward to meeting you in Milan!

Research Network Group

Susanne Balslev Nielsen, Chair



Like the best well assorted food markets

Our annual conference EFMC is like visiting a rich, colorful and well assorted food market, where the displayed goods are FM knowledge

and not food. And as in the best food markets, FM knowledge in a variety of shapes, colors and origins.

The EFMC2015 was, as always, rich on research offers. As chair of RNG, I can say to be very satisfied with the research paper sessions and with the fact that all research papers are available on the EuroFM website as well as in printed version. My deepest thanks go to all the people who made a large and dedicated effort to smoothly run the event: presenters, moderators, scientific committee, sponsors and all others who somehow helped out. Thank you!

The planning for next year's EFMC in Milan has already started, and the call for papers encourages FM researchers

to submit papers about their ongoing research. The competition of getting a paper accepted is likely to be harder this time, as I expect that many abstracts will be submitted as compared to the limited number of slots for full paper presentations. With the help from the scientific committee and the program planning committee, we will work hard to ensure that the academic quality and the practical relevance of the FM research presented at EFMC continue to improve. This way we can ensure that also EFMC2016 will be a rich and inspiring marketplace, where FM knowledge is offered, considered and hopefully brought home.

As any good salesman, a researcher

will listen to outspoken opportunities for bringing new products to the market. The next members meeting in Milan in October is dedicated to networking opportunities to connect FM companies with relevant researchers and educators; but also to co-create a supply chain for new FM insights to be offered at our unique FM knowledge marketplace in 2016 and beyond.

So come to Milan in October and make yourself know by sharing your offerings to other EuroFM members, and let them know what you would like to succeed with; and you can be certain that some kind of help, in the networking spirit that always characterizes EFMC, will show up.

