

# A Strategic Approach to Target Capital Investment on Facility Assets: Literature Review

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## ABSTRACT

Analysis of a strategic planning framework, proposed by Edward Zielinski, focused on reducing operational costs in Facility Management (FM) through using long-term best practices in capital investment. This paper indicates how that framework may assist in the FM decision process of capital investment allocation. The framework structure is integrated through: (1) alignment of FM decisions to the organizational strategy; (2) measuring FM performance with a data-driven approach; and (3) standardization of budgeting processes as support for FM credibility. The authors use a Structured Literature Review to investigate how previous research of the topic and subtopics supports the framework's objectives. Emphasis on referenced case studies aims to investigate the applicability of this framework by FM practitioners. The framework is fully applicable to FM operations. The case study analysis suggests it is a powerful tool for supporting capital investment decisions in organizations. Benefits foreseen include: value creation through alignment of FM decisions to organizational goals, risk control in short-, mid- and long-term FM decisions, creation of structured procedures for FM data acquisition supporting stakeholders' decisions, increased FM credibility through budgeting process standardization, improvement of FM operations efficiency, and senior management awareness of FM priorities. This paper encourages FM practitioners to structure their daily operations by addressing the three most challenging aspects of this profession: understand the client, capitalize valuable knowledge, and secure funding.

Keywords: Strategic planning; decision; facility management

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## INTRODUCTION

The current global market demands that private and public organizations become more effective in their operations. This trend has created a situation in which organizations search for new methodologies that address their specific business issues (Krumm et al., 1998). The good news is this situation commands organizations to be more creative and analytical in their decisions. However, organizations commonly search for "pure" cost reduction short-term strategies, rather than strategies that allow them to concentrate on their core business, which may positively affect their long-term goals and achievements (Krumm et al., 1998). The consequence is that departments within organizations compete for approval of budget expenditures, whether for capital expenses (CapEx) or operating expenses (OpEx), pushing them to be more effective in their department specific operations for their own survival (Zielinski, 2015). The key point in these organizational decisions is how to define the best and more effective approach for distributing available funds, which are strictly limited in virtually all organizations (Verbeeten, 2006). In any case, the decision must result in requirements and financial obligations of organizations being met (Zielinski, 2015).

Typically, organizations constantly change priorities and objectives affecting their investment decisions (Verbeeten, 2006). The investments may consist of capital expenses (CapEx) which refer to acquisition and improvement of physical assets (such as buildings, land, vehicles or equipment), or of operating expenses (OpEx), which refer to costs of ongoing operations, products or systems (such as salaries, utilities or rent) (Appuhami, 2008). Both CapEx and OpEx investments should clearly define future outcome expectations, so better decisions may be made. For instance, if there are enough funds to make capital investments in the short-term that will not affect long-term goals, it may be an opportunity to invest in projects that reduce operational costs (Zielinski, 2015). The organization's financial goals should be clear enough that all departments are appropriately aware of the possibilities and consequences of their individual decisions (Then, 1999).

Facility Management (FM) plays an important role in the process of financial decision-making in organizations (Chotipanich, 2004). The principal reason is that FM typically handles a significant portion of the investments, as its duties are usually related to CapEx and OpEx in amounts that certainly have an impact on the organization's performance. Therefore, it is critical that FM presents a clear, objective, and well-justified case for any budget



sources to find publications related to the specific topics and subtopics (Leedy and Ormrod, 2014). The publication sources determined to be appropriate for this specific topic were: Google Scholar, the University Libraries at the authors' home institution, and other databases, such as the Engineering Village database, the Taylor & Francis database, and the Emerald Insight database. These sources would lead the structured literature review to include papers, books, webpages, and other types of publications related to the topic. The focus of this study included research papers published between the years 2000 and 2016, though a few earlier and relevant papers were considered as well.

While reviewing and analyzing the information included in the relevant publications, new relevant publications were identified in the reference section of each publication. An iterative process was followed, in which new relevant publications were identified through the literature review and reference sections. This process continued until all relevant topics and subtopics were covered with the appropriate content for their support (Leedy and Ormrod, 2014). The record of each publication's analysis was tracked in matrix form for further use during the paper development (Leedy and Ormrod, 2014). To convey the topic, an outline was created in which flow should emphasize the relevance of the topic. Critical thinking was used to identify advantages and disadvantages of every strategic model for each of the framework elements. Since the complete framework has not been tested in previous case studies, an analysis of individual case studies was included regarding each branch of this framework. Case studies note the different benefits and challenges for each branch of this framework, which should be tested in a real case study to confirm its effectiveness in FM operations. A summary of recommendations is provided in the conclusions section.

## ANALYSIS: FM STRATEGIC PLANNING FRAMEWORK

The summary of literature sources and the analysis of each framework branch are summarized in Table 1, followed by a discussion, which is divided into the three elements of the framework, as proposed in this paper.

### FRAMEWORK ELEMENT #1: ALIGNING FM TO ORGANIZATIONAL GOALS AS AN APPROACH FOR EFFECTIVE CAPITAL INVESTMENT

#### Root causes

The role of FM has evolved over time from workplace design, through maintenance and energy, to technology and sustainability, just to name a few (Roper and Payant, 2014). As market behavior changes, organizations are forced to focus on their core activities and identify opportunities for cost reductions (Krumm et al., 1998). One possible consequence of focusing purely on cost reduction strategies might be that organizational change is

forced into a reduction of competitive advantage. On the other hand, it has become clear that organizational success is foreseen when organizations focus on their core activities (Krumm et al., 1998). FM has historically performed in isolation and has been reactive in nature, whereas now, FM has become a much more proactive profession, looking to alignment with organizational goals for its survival (Krumm et al., 1998). Having FM department goals aligned with organizational goals is critical for the organization's success, as such alignment can provide proper direction for FM decisions to address one of its most important tasks, which is to manage capital investments in facility assets. Tsang (1998), Amaratunga et al. (2000), and Green and Jack (2004) propose various strategic models, such as balanced scorecard (BSC) or business performance optimization (BPO), attempting to provide alignment of FM decisions to organizational strategy. Strategic models may address this issue, as long as they consider a practical approach for their application, so their benefits can be perceived (Heywood, 2011). By aligning the FM department with organizational goals, FM can properly sustain capital investment decisions.

Even when FM has a wide range of responsibilities and activities, which may be specific to the organization, the final objective in almost any case is to create a safe and efficient working environment that enhances organizational performance (Chotipanich, 2004). Consequently, there are several common approaches and themes within FM departments, but there may not be common solutions to issues across different organizations, making it difficult to standardize procedures in this profession (Chotipanich, 2004). A possible approach addressing this issue is to convert the FM role to a higher strategic position. Then (1999) indicates that FM efforts should concentrate on creating and using models that promote cooperation between all participants in the process, such that they can perceive the consequences of their decisions on organizational performance. Figure 2 explains how alignment in organizations may encourage cross-interaction between departments. Strategic planning in FM departments has been seen as the only path in which FM may achieve a long-term sustainable role within an organization. To achieve strategic objectives in the long-term, the FM role must account for the next three aspects: the organization's business needs, the status of physical resources, and learning their decisions' impacts (Then, 2000). These three aspects present opportunities to create a cycle of constant improvement. If these concepts are properly attained, natural positive changes may occur within FM operations. Acoba and Foster (2003) assert that these changes are critical for the FM profession, because the global economy has quickly changed organizational goals from high growth behavior to a cost reduction mode. A clear consequence is a tendency to subcontract the work, rather than performing it directly (Anderson and Patil, 2003). According to Acoba and Foster (2003), the FM role has evolved from a simple reactive operational business unit to an organizationally

TABLE 1.—Summary of structured literature review

Source	Strategic Planning Focus			Proposed Framework Model or Strategic Approach	Case Study
	#1 Alignment	#2 Data-driven approach	#3 Credibility and Standardization		
Acoba and Foster (2003)	X				
Allard and Barber (2003)	X			Strategic alignment	X
Amaratunga and Baldry (2000)		X			
Amaratunga and Baldry (2002)		X		Balanced scorecard (BSC)	
Amaratunga and Baldry (2003)		X			
Amaratunga et al. (2000)	X			Balanced scorecard (BSC)	
Amaratunga et al. (2002a)		X		Balanced scorecard (BSC)	X
Amaratunga, et al. (2002b)			X	Structured process improvement for construction (SPICE)	
Anderson and Patil (2003)	X				
Becerik-Gerber et al. (2011)		X		Building information modeling (BIM)	
Brackertz (2004),	X			Strategic alignment	X
Brackertz and Kenley (2002)		X		Balanced scorecard (BSC)	X
Chotipanich (2004)	X	X			
Drion et al. (2012)			X		
Evans (1993)			X		
Freeman et al. (2004)		X			
Green and Jack (2004)	X			Business performance optimization (BPO)	
Heywood (2011)	X				
Kincaid (1994)			X		
Kivits and Furneaux (2013)		X		Building information modeling (BIM)	
Knapp and Oliver (2008)			X	Occupancy planning	
Krumm et al. (1998)	X		X		
Lavy et al. (2010)		X			
Lin et al. (2006)		X		Data quality issues	X
Loosemore and Hsin (2001)			X	Benchmarking	X
Lynch (2002a)			X		
Lynch (2002b)			X		X
McLaughlin (2003)			X	Business case	
Mudrack et al. (2005)	X				
Nizam et al. (2010)			X		
Nutt (2000)		X			
Omar and Heywood (2010)			X	Branding	
Pattison (2013)	X			Strategic alignment	X
Pitt and Tucker (2008)		X		Benchmarking	
Roper and Payant (2014)	X				
Shahidehpour and Ferrero (2005)			X	Time scale	X
Shohet and Lavy (2004)			X		
Then (1999)	X				
Then (2000)	X				
Tsang (1998)	X			Balanced scorecard (BSC)	
Tsang et al. (1999)		X			

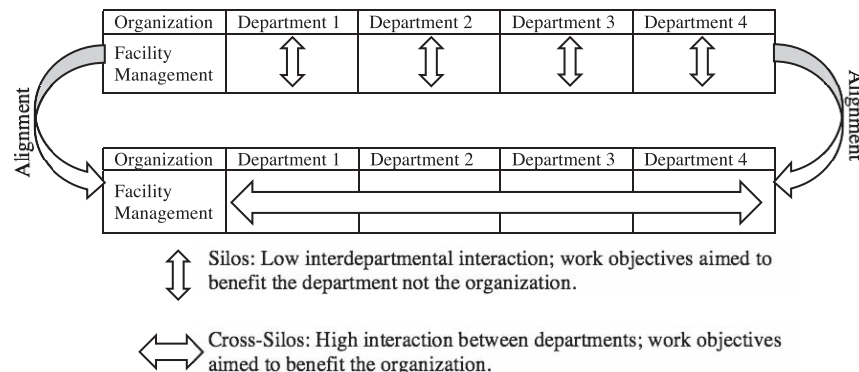


FIGURE 2.—“Silos” type interaction in organizations



integrated arm, generating significant improvements in organizations, if adaptability to change occurs.

### Models

Through numerous models, the FM industry attempts to provide alignment of FM to organizational strategy. Balances scorecard (BSC) and business performance optimization (BPO) are strategic models that can be used as examples. Tsang (1998) and Amaratunga et al. (2000) propose the use of a BSC framework as a model for FM operations. They found the activity of defining long-term strategic objectives based on reliable information obtained from specific Key Performance Indicators (KPI) to be valuable and effective. Applying this framework, the expectations are that decisions will be risk-controlled as required, and aligned with organizational goals. The BSC framework requires stakeholders to consider the perspectives of customers, shareholders and employers, ensuring a balanced decision (Amaratunga et al., 2000). Green and Jack (2004) propose using the BPO framework to align FM decisions to organizational goals. BPO focuses on a structured analysis of stakeholders' needs by addressing two paths: the effectiveness of the routes to achieve these needs, and the performance efficiency of those routes. The BPO framework balances the views of people, processes, and places, so optimization in decisions occurs when every aspect receives no more than the necessary changes (Green and Jack, 2004). Findings of implementing this framework predict the criteria of success, which may be used for unanticipated changes. Such criteria are critical for FM decisions on a long-term basis. Clearly, strategic models create significant benefits for organizational goals by aligning the FM operations.

Even though strategic models have the potential to create substantial benefits for organizations, the actual implementation of strategic models within FM departments is not yet significant in the overall industry (Heywood, 2011). One main reason for this is that strategic models for FM operations still lack a unified approach in terms of not considering previous models, developed earlier (Heywood, 2011). Therefore, it is challenging for strategic models to reach a necessary level of maturity with FM professionals.

### Case studies

Brackertz (2004), Pattison (2013) and Allard and Barber (2003) have demonstrated the benefits and challenges of FM alignment with the organization's strategy. Brackertz (2004) performed a case study analysis of an FM tool used in Australia. This tool provides qualitative and quantitative performance measurements of a portfolio, producing a foundation for the analysis of capital and non-capital decisions that benefit the organizational strategy. This case study suggests substantial long-term benefits to the organization including: accurate data for balancing facility performance with the strategic goal of delivering service, and alignment of decisions to customer's needs. Pattison (2013) developed a case study analysis for a seaport in Seattle, Washington, U.S.A., in

need of an FM program implementation due to deterioration of facility assets. The findings indicate a reduction in operational costs, along with service improvement, for the port operation after implementing a capital investment program aligned with organizational goals. Allard and Barber (2003) have demonstrated the crucial need to align FM operations with the organizational strategy, as FM operational success may be unseen by senior management, even if there are significant achievements. Allard and Barber (2003) analyzed a survey collected from more than 200 CEO's from some of the most admired Fortune 500 and Global 500 companies. Their findings indicate that CEOs consider FM operations to be a significant contributor to the organization's strategic development. However, findings also indicate that CEOs still think it is common that FM departments present misalignment to organizational goals, perceiving under-performance within FM operations.

As concluded by Brackertz (2004), Pattison (2013) and Allard and Barber (2003), potential advantages of aligning FM strategy to general organizational strategy may be significant. Current economic business practices challenge organizations to become more efficient in their operations, thus the FM role is similarly challenged. The strategic models may be the solution for the achievement of alignment in FM departments to overall organization strategy. Those models may provide the basis of knowledge that FM can use to make better decisions in day-to-day operations. These decisions involve critical items, such as allocation of proper and strategic capital investment in facility assets. Innovation may be the solution for enhancing the applicability of strategic models in FM operations (Mudrack et al., 2005). The case studies and research from Brackertz (2004), Pattison (2013) and Allard and Barber (2003) have demonstrated the power of an aligned knowledge for general organizational performance.

## FRAMEWORK ELEMENT #2: USING A DATA-DRIVEN APPROACH ON FM PERFORMANCE FOR EFFECTIVE CAPITAL INVESTMENT

### Root causes

The performance of organizations is being affected by the increasing importance of FM decisions (Chotipanich, 2004). Freeman et al. (2004) argue that changes in people's behavior reflected in the general economy create this behavior, as organizations are constantly challenged to improve their effectiveness and create value for their shareholders. Furthermore, Nutt (2000) states that FM needs knowledge to support decisions, such as allocation of capital investment, and knowledge is created by data. According to Nutt (2000), data should provide information about resources: business, people, property and knowledge. To create a complete strategy, it is necessary to understand the complete and most accurate situation of the organization, which then may provide grounds for implementing strategies to improve the overall operation.

On the other hand, even though Nutt (2000) proposes that knowledge is an asset to develop structured decisions, it could also be detrimental if data is inaccurate or inappropriate. As data quality issues are commonly present within the FM industry (Lin et al., 2006), the strategic and data-oriented models may be the solution for pursuing an ideal structure of decision support. Structuring knowledge has the power to support decisions about FM capital investment.

As the market demands higher organizational efficiency, FM should align performance measurements to organizational needs. Historically, according to Tsang et al. (1999), performance measurement practices in FM concentrated on the operation itself, rather than the service needs of the organization. They suggest that the reason for this measurement misalignment is a lack of an assessment about the applicability of measurement models to the specific organizational situation. For instance, an assessment may indicate that in higher education organizations, the operational approach may be similar to the approach taken in commercial organizations, reason enough to focus the performance measurements on money, a key indicator of success in commercial organizations. In addition, Amaratunga and Baldry (2000) indicate that appropriate and specific measurement indicators need to be identified, through the use of an assessment specifically designed for the organization. The assessment may go so far as to indicate the need to use strategic models such as BSC (Amaratunga and Baldry, 2000). Amaratunga and Baldry (2003) add that without reliable performance criteria, there is no reliable value contribution of FM to organizations. Performance measurement is important for quality control of FM operations, as well as for value and risk assessment. Along this line, Lavy et al. (2010) structured a list of KPIs to be used in performance measurement of FM. The KPIs may be used as a starting point for the assessment, which will then point out which indicators create the most value for an organization's overall strategy.

### Models

Strategic models combined with technology may be the tools used to ensure that FM performance measurement creates value for an organization's strategy. Pitt and Tucker (2008) propose the use of a "benchmarking" framework to achieve a continuous innovation process that may bring new ideas into practical use. In benchmarking, best practices are the context for developing metrics that compare individual FM departmental situations with those in external FM departments, thus detecting improvement opportunities (Pitt and Tucker, 2008). It is crucial for benchmarking to link the organizational goals in measuring performance. Benchmarking may be used along with another strategic model because service measurement in this model tends to be subjective.

Amaratunga and Baldry (2002) propose the Balanced Score Card (BSC) as another model to enhance FM performance measurement. The major benefit of using the

BSC model is the integration of traditional financial measurements with operational, customer service and staff issues, all of which are critical items that permit an appropriate balance for short term and long term objectives on decisions.

Building Information Modeling (BIM) is a new technology for planning and operating facilities. Becerik-Gerber et al. (2011) observe that BIM technologies in practice allow for consistent coordination and computable building information in an electronic format, providing knowledge to support the decision structure of maintenance and operation during the life cycle of buildings. BIM data benefits include: location of building components, access to real-time data, building visualization, space management, facility planning, energy management, and life cycle analysis. BIM provides technical and financial data acquired from buildings, which may cross with organizational software to create valuable knowledge. Kivits and Furneaux (2013) add that even though BIM has initial implementation challenges, when surpassed, it has been demonstrated to be an effective tool that provides reliable data for FM decisions of any kind.

### Case studies

Case studies with strategic models reported by Lin et al. (2006), Amaratunga et al. (2002a), and Brackertz and Kenley (2002) show substantial benefits for organizations, by using appropriate performance measurements for FM decisions. Lin et al. (2007) have noted that data quality issues, such as differences in computing systems, lack of data integrity check, data access difficulty, lack of standards for data acquisition, organizational readiness, and lack of training, are present in most organizations. Even if they have developed a series of policies to address this problem, implementation is still challenging. In fact, solving data quality issues is not achieved in most cases. Amaratunga et al. (2002a) conducted a study aimed to review the application of the BSC strategic model with the approach of improving the data and information held by the National Health Services (NHS) facilities in the United Kingdom. Some benefits identified for the organization included: clear identification of customer/stakeholder needs and critical success factors, improved relationships with customers, customer satisfaction data, and the creation of service level agreements that included monitoring by using KPIs. Brackertz and Kenley (2002) analyzed another case study using BSC, including financial and non-financial data indicators. BSC was applied to analyze data coming from the facilities portfolio of a local Australian government authority. Brackertz and Kenley's (2002) findings indicate a consistent development of high-quality data from facilities' performance information. To Tsang et al. (1999), it is evident that strategic models create support for data acquisition, and are relevant for stakeholders when making short and long-term decisions, such as capital investment in facility assets.

The current literature of performance measurement in FM, above mentioned and as stated by Tsang et al. (1999), suggests that there is a need to improve traditional practices. The traditional methodologies allow FM to visualize only what is within its own scope of work, rather than visualize the big picture of organizational strategy (Tsang et al., 1999). Amaratunga and Baldry (2003) and Becerik-Gerber et al. (2011) argue that with the use of strategic models and technology, the data quality of performance measurements can improve. Modern technologies and strategic models combine financial and non-financial indicators to evaluate performance and link it to organizational strategy. Case studies by Lin et al. (2006), Amaratunga et al. (2002a), and Brackertz and Kenley (2002) have demonstrated the significant benefits of using such models on FM performance measurement. Nutt (2000) argues that a data-driven approach is necessary for FM to enhance the appropriate knowledge support provided by performance measurements. Zielinski (2015) affirms that assessing capital investments is one of the key decisions that FM must take or support on a daily basis. The entire set of organizational goals may be jeopardized if the data used for risk decisions does not provide the complete context for decision holders.

### FRAMEWORK ELEMENT #3: EFFECTIVE STANDARD PROCESSES FOR BUDGETING AS A SUPPORT FOR FM CREDIBILITY IN ORGANIZATIONS

#### Root causes

The role of FM in the built environment is relatively new. Hence, the purpose of FM inside the organizational structure may not be clear or well understood (Kincaid, 1994). FM professionals' clear understanding of organizational goals may provide direction that supports FM decisions and use in the industry (Kincaid, 1994). The better the models, technologies and processes used in FM, the fewer issues may appear in daily operations. The fewer issues in daily operations, the greater the credibility of FM decisions within the organization, thus providing support for attaining financial approval for responsibilities, such as capital investment in assets (Kincaid, 1994). After organizations experience the material benefits of implementing an FM position in the organizational structure, FM professionals become appreciated and are given additional resources and responsibilities, positively affecting the credibility of the FM role (Evans, 1993). As the responsibilities of the FM position increase, the need to perform a wider range of technologies, metrics, and platforms also increases, because the FM professional interacts with a wide range of trades (Evans, 1993). However, Lynch (2002a) has found that this increase of service interaction creates operational disorganization, affecting FM performance credibility. Credibility issues impact budgeting approvals for FM operational expenses and threaten FM capital investments (Lynch, 2002a). Hence, the main problems of budgeting issues for FM departments are related to:

consensus about the FM role, credibility within the organization of FM decisions, and a lack of standard budgeting procedures in FM departments.

One main problem of FM budgeting procedures is related to consensus about the FM role. Evans (1993) states that there is an emerging consensus that the role of FM should be in the core business areas of organizations. The evolution of the FM role has focused on finding efficient ways to develop, maintain and improve physical assets that are needed as support, so the organization can concentrate on its core business. However, as this profession is multidisciplinary, challenges arise in different aspects, so it is quite difficult for FM professionals to master the many emerging trades. Consequently, FM has evolved into a more strategic position. Drion et al. (2012) observe that FM, at the strategic level of organizations, allows the structuring of standard procedures so that operations support the core business strategy rather than non-core issues. However, Shohet and Lavy (2004) point out that the responsibilities of FM vary depend on the type of facility; consequently, operational procedures should be specific to the facility's needs. The main areas for FM duties in the healthcare industry are: maintenance, performance, risk, supply services, and development. Those five core domains are highly interrelated and require technology for effective communication, resulting in efficiency on decisions (Shohet and Lavy, 2004). Every FM department should perform an assessment to define its specific and best standard procedures for implementation. Without standard procedures, the room for error within FM operations might increase. McLaughlin (2003) identifies the most common issues in the FM budgeting process, related mainly to impacts on life cycle costs, optimistic or unrealistic budgets or schedules, and the development of sensitive analysis in pro forma statements. Standard budgeting procedures may support the reduction of common issues. If these are not properly addressed, the approval of project funding might be at risk (Lynch, 2002a).

#### Models

Another main problem of the FM budgeting procedures is related to the credibility of FM decisions within the organization. Lynch (2002a) states that credibility is one of the most common problems of FM in organizations, because it could affect all four types of capital expenditures: those required by regulations, assets that have reached the end of useful life, asset growth, and update of obsolete space functionality. The problem of FM credibility is such that is current challenge faced by FM professionals throughout the world, as exemplified by Nizam et al. (2010) in the specific case of Malaysia. This problem may be due to a lack of effective delivery practices within other departments (Omar and Heywood, 2010), and the main factors affecting those practices are related to technical performance and efficient communication in the exchange process. Hence, it is necessary to implement a communication strategy that supports FM communication of FM



within the different areas or departments in an organization, thus creating credibility for the FM department. An example of this strategy is Branding, a framework that aims products and services to a very specific audience (Omar and Heywood, 2010). Omar and Heywood (2010) conclude that the use of Branding in FM operations may educate senior management regarding FM priorities. When Branding is established as part of the standard procedures, budgeting for FM operations may be a smoother process, creating credibility of the FM department. Another strategy is Occupancy Planning, which uses technology to obtain occupancy data to find unused hidden space in the property portfolio (Knapp and Oliver, 2008). Knapp and Oliver (2008) found that by implementing a strategy based on Occupancy Planning, the flow of information is stabilized, as communication is forced between FM and other departments, thus outcomes forecasting is improved. Another credibility improvement strategy for FM operations has been proposed by McLaughlin (2003), who indicates that Business Cases are a method for providing a comprehensive and convincing deliverable for budget credibility. Business Cases should cover a wide range of a decisions maker's concerns, and they must be structurally presented in such a way that understanding of the complete case and alternatives may be correctly evaluated.

### Case studies

Lack of standard procedures is another main issue affecting budgeting in FM operations. Standard procedures should align with organizational goals, so FM gains credibility within organizations. Lynch (2002b) proposes a wide range of tactics to improve the capital budgeting process, a critical item on which FM credibility has a significant impact. If a proper and continuous capital planning system is implemented along with IT support, there are six main tactics that can improve the standard budgeting process in organizations: financial tactics implementation, capital expenditures risk reduction, improvement of asset performance, project delivery process improvement, design and construction of better buildings, and efficient working (Lynch, 2002b). Loosemore and Hsin (2001) propose a Benchmarking framework to be used for performance measurement. This methodology has the characteristic of including business needs, which forces FM to think outside of their comfort zone. Findings indicate a strong need for such an inclusive methodology, so unbiased improvements in standard procedures may be achieved. Shahidehpour and Ferrero (2005) propose the use of a time scale approach to improve the effectiveness of standard operational procedures in FM. The proposal is made by categorizing the items in real-time, short-term, mid-term, and long-term asset management. This approach enhances the planning process within FM standard procedures (Shahidehpour and Ferrero, 2005). Amaratunga, et al. (2002b) propose the applicability of a structured process improvement for construction (SPICE) as a process development technique in the field of FM. This framework is based on the Capability Maturity model which attempts

to measure organizations' performance in relation to other organizations, by basing decisions on levels of maturity. Findings indicate the benefits to FM operation, with some of them being: the creation of a rigorous process structure that enables strong processes focused on FM operations, achievement of consistency and consensus on the way forward, and identification of strengths and weaknesses (Amaratunga et al., 2002b).

FM practices face a serious problem of definition and credibility due to the diverse nature of FM responsibilities in organizations (Kincaid, 1994). If there is no clear role, then there is no clear standardization of procedures to pursue constant improvement. This situation may lead to unexpected issues affecting the credibility of the FM position (Evans, 1993). As seen above, numerous strategies exist to achieve FM credibility within an organization, but most of them concentrate on two main aspects: (1) standardization of procedures, and (2) budgeting based on customer strategy. It is expected that the strategies analyzed above lead FM departments to attain operational efficiency, as well as credibility with senior management, when targeting capital investment approval for FM activities (Omar and Heywood, 2010). It is critical for FM departments to consider adapting their operational goals to the specific goals of the organization, so their decisions may contribute to organizational goals (Krumm et al., 1998). This will be the main path to achieving proper standardization and alignment with organizational goals.

### CONCLUSION

As discussed above, the FM industry faces a significant challenge in the current global market regarding improving and standardizing its operational procedures; therefore, FM professionals must work on strategies that improve operations. The analysis carried out in this study indicates that a comprehensive strategic approach focused on three elements (strategy, knowledge, and standardization) may actually improve FM performance when targeting capital investment (Figure 1). This approach can be applied to any procedure within FM operations.

The literature suggests that alignment of FM operations and objectives to the general organizational strategy can actually generate improvements in organizational goals. The FM alignment approach is critical for organizations because FM departments tend to increase collaboration with other departments so the flow of decisions is more consistent (Figure 2). Another reason is that FM objectives will match and support organizational objectives, at the short-, mid- and long-terms. Every aspect of FM operations should be linked to the overall organizational strategy. This approach of FM alignment has become more common within the last few decades, as the FM role has gradually adopted new market behavior. Strategic models such as BSC or BPO support this element of the framework (Table 1).

The data-driven approach marks a breakeven point in the evolution of FM operations. The reason for this is a



shift in the type of typical operation held in FM. The literature indicates that in the past, FM operated as a reactive unit, solving issues and investing little effort and time in planning. However, when the general economy changes, organizations tend to be more competitive and create a wider planning phase to improve efficiency. In this shift, a critical requirement for improving FM operations is the accessibility of reliable data for generating knowledge to support stakeholders' decisions. Strategic models, such as BSC and Benchmarking, along with the use of technology such as BIM, support this element of the framework (Table 1).

Literature indicates that the budgeting processes of FM departments usually lack credibility within organizations. This may not be a problem of the budgeting process itself, but a problem caused by a lack of standardized procedures due to the wide range of FM role definitions in organizations. This situation leaves room for error, creating constant issues within organizations. The literature suggests that standardization of processes has demonstrated significant benefits, which results in increased credibility of FM departments. Credibility in FM decisions is critical, because they support the work performed in other departments within the organization. Strategic models such as Branding, Occupancy Planning, Business Cases, Benchmarking, Time Scale, and SPICE, support this element of the framework (Table 1).

The proposed framework, which is the main objective of this paper, offers a mix of the three strategies stated above by balancing the benefits and challenges of each stand-alone strategy (Figure 1). Evidence in the literature is consistent on the benefits that each strategy creates for FM operations. Decisions are supported to reduce risk on short-, mid- and long-term objectives. The creation of structured procedures to acquire valuable data for FM performance supports stakeholders' decisions on capital investment. By using standardized procedures for budgeting, credibility of the FM department is increased, a critical aspect for obtaining approval of capital investment. With credibility in place, senior management is much more educated about FM priorities, and how FM decisions should be aligned with organizational priorities. In sum, this framework addresses the three most desired visions for the FM profession: understand the client, capitalize valuable knowledge, and secure funding.

For future research, this framework comprising the three mentioned strategies is proposed to be applied in specific case studies. An assessment of the organization should be performed to define which of the proposed specific strategic models (Table 1) for each framework element best suit the organizational goals by considering each of the three strategies analyzed here. It is critical that the mix of chosen strategic models or technologies addresses the objectives of the three framework approaches (Figure 1). Measurement over time should be performed to analyze the effects of this framework on FM operations and overall organizational goals.

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