

The Facility Manager Information Worker of the Future

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Abstract

One of the difficulties in the field of facility management (FMgmt) is the identification of value. FMgmt has been a longtime technical profession, staffed by personnel with engineering, construction, or design training and education. The hypothesis of this paper is to show that, although technical expertise is currently required to manage facilities, it is becoming more important to know how to interface/communicate the value of FMgmt to the rest of a company in non-technical information (value, performance information, and cost.) This paper proposes that unless FM's (Facility Manager) can master the interface, they will not be successful or sustainable, and either be outsourced or eliminated. It proposes that FM's must realize that their most critical function is not managing the facility (which can be outsourced) but demonstrating/identifying efficiency (better operations for a lower cost) to the facility owner. This requires a FM to become more of a non-technical information worker who does more with less. The emphasis must move from technical knowledge to efficiency, or performance, based on concepts such as outsourcing to performing contractors.

Keywords

Facility Management, Information Worker, Outsourcing, Value

1. Introduction

In the 1980s the predominate measure of a successful facility manager (FM) was if the facility was maintained within the budget, there was no drastic failures in equipment, and no client was highly

dissatisfied. It was not a requirement to identify any performance factors of the facility; productivity, efficiency, customer satisfaction, and equipment performance were not measured. As manufacturers moved into the 1990s and into the worldwide competitive marketplace, facility management (FMgmt) was viewed as a cost. FMgmt workforces were reduced, outsourced, and realigned in attempts to save costs. However, due to the lack of performance information, and short term objectives of owners, the changes were not successful in increasing FMgmt value. Ironically, because the FM's could not quantify their own value, owners did not understand their value, which resulted in indiscriminate cost cutting, hampering the efficiency of FMgmt operations. Christer Idhammer (2005) notes that "most organizations focus more on cutting maintenance costs, and, as a consequence, maintenance costs go down temporarily, only to increase much more than the initial savings. This behavior and results have been proven many times, especially in economic downturns. Reliability increases production throughput and drive down maintenance costs. Maintenance cost reduction is a consequence of reliability performance; it is never the other way around."

An example of this was the outsourcing of equipment maintenance at a General Dynamics (GD) C-4 Systems plant in Scottsdale, Arizona. All the site's HVAC systems, filtration and central plant equipment maintenance tasks were out-sourced to a well known company who manufactured the mechanical equipment/systems in attempt to minimize cost, increase equipment reliability, and increase performance. The outsourcing company was required to show that their costs were below the in-house costs. The outsourced service was selected based on cost but the FM did not check on the previous performance of the company. To make a profit, the outsourcing company maintained the equipment at a very minimal level, deferring much of the maintenance. The incumbent FM was in agreement with the outsourcing because it reduced the FMgmt cost (which was the only objective) and moved the risk of breakdowns to the outsourcing company. However, this was not in the best long term interests of the FM or the client. GD discovered that the third party maintenance entity was not motivated to exhaust their profits to elevate low performing systems to a superior state, due to risk of the possibility of losing the contract when the contract period was over. Also as third party contracts came due, there was a tendency to lose the expertise working the contract, thereby reducing the number of personnel with the expertise to effectively managing the assets.

The potential penalty for deferring maintenance can be from 15:1 to 40:1 (Leonard, 2001). In other words, a \$1 dollar part if left at risk could escalate to approximately \$15 dollars if allowed to fail and effect other components (including additional labor and downtime). Eric Conrad (2005), managing director of facilities at CB Richard Ellis - Seattle, notes that "poorly maintained facilities can reduce the assessed value of a property anywhere from 5 to 20 percent of the potential value." At the GD plant in Arizona, a new FM eventually took over the plant and cancelled the outsourced service. Within the five years of the mechanical equipment outsourcing there was a noticeable degradation in the performance of the equipment, resulting in a high repair cost of \$850K/year. (The most significant degradation occurred in the condenser tubes, which had failures at a rate of approximately 20 percent.) The cost of the equipment maintenance outsourcing was \$36K year. An estimate of the cost of in-house maintenance before the outsourcing was \$90K/year. Initially, this was looked at as a cost savings of \$54K a year; however, it turned out to be a short term savings with increased cost over time (\$796K/year). Within nine years after the elimination of the outsourcing the failure rate was reduced to .02% (General Dynamics, 2004).

One of the most serious drawbacks in manufacturing industries is the motivation for top management to make short term decisions without considering long term consequences (www.linl.gov, 1999). Ownership is continually encourage to minimize costs to boost short term profits. Although FMgmt personnel understand the importance of maintenance, FMgmt has not done a good job of identifying and communicating its value, resulting in reduced budgets due to the perception that it is a deferrable cost. The problem is compounded when the FM's take the approach of management by cutting and deferring maintenance. The authors propose that the FMgmt has been minimizing the value of its own profession by:

1. Making decisions to cut the level of service with shrinking budgets.

2. Not being accountable to increase the efficiency and performance of facility services.
3. Not being able to communicate the increased value to the facility ownership in non-technical terms.

FM's have not understood that the profession of FMgmt is like any other profession: it must become more efficient; it requires measurement; it requires the ability to identify and communicate efficiency and value. Doing more with less has become a standard business mantra and in order to remain competitive and survive, FM's must look within their organizations to demonstrate value and opportunities to manage costs and demonstrate value to the client.

If the FM cuts services and defers maintenance, they are no longer motivated to act in the best interest of the client. They become a commodity (cannot differentiate by performance and value) and became a target for outsourcing. To reduce this trend, a methodology has to be created that allows the FM to:

1. Operate within shrinking budgets.
2. Become more efficient and identify value.
3. Be able to fund efforts to investigate and implement change.
4. Have the support of the facility owner to put resources into becoming more efficient.
5. Act in the best interest of the facility owner.

1.1 Hypothesis

This paper proposes that the FM's career can only be sustained if he can change the FMgmt practice of cutting costs and deferring maintenance to one of creating and measuring efficiency and value. Measuring increased performance resulting in reduced costs and presenting this information to the FM's clients acknowledges their value. "Results orientated organizations focus first on the quality and volume of production throughput, followed closely by the cost to produce the required quality and volume. This approach will improve reliability performance, which will drive manufacturing costs down (Idhammar, 2003)." This paper hypothesizes that the FMgmt community must change its main focus to:

1. Measuring the performance of its facility management in non-technical terms.
2. Identifying areas of potential change.
3. Implementing concepts of efficiency.
4. Implementing an environment of change that includes education, continual measurement, and a philosophy change, instead of cost cutting.
5. Setting aside a percentage of the budget for these functions.
6. Communicating and getting support of these concepts from the facility ownership.

The authors propose that even though the FMgmt community has implemented benchmarking, and attempted to do the above, the failure is caused by the FM not having a strategic plan of change, not being able to communicate the strategic plan to facility ownership, and not treating the FM as a value added business. The authors propose that the most critical function in being a successful FM in the cost cutting environment is to be able to educate and get the support of the FMgmt ownership. Simply put, the most important function of the FM is to communicate the value of FMgmt to the facility ownership. This function requires more communication and business level strategic planning skills than technical engineering and traditional facility management skills.

1.2 Methodology

The research effort will attempt to do the following:

1. Identify a FM who has identified, measured, and communicated efficiency and value to their owner.
2. Prove that the owner has allowed the FM to put together education programs to continue to identify value and efficiency, while also reducing costs.
3. Measure the FM against the hypothesis of this paper.

2. Identification of a Progressive Facility Manager

The Performance Based Studies Research Group (PBSRG) at Arizona State University went to the local International Facility Management Association (IFMA) chapter with the intention of finding a FM who was susceptible to the research concepts. To facilitate the research, they searched for a FM who had the following characteristics:

1. Had a philosophy of change.
2. Was interested in getting involved with education and learning new concepts.
3. Had a background of implementing some of the concepts.
4. Had a facility ownership that was progressive and understood efficiency and value.
5. Understood the concepts of efficiency and performance.
6. Had participated with improvement efforts and measurement of savings.

Of the 250 participating FM's in the local IFMA chapter, only a handful were potential candidates. One in particular, stepped forward and volunteered to participate. This was the FM from the General Dynamics C-4 Systems facility at Scottsdale, Arizona.

3. Strategic Plan to Test the Hypothesis

The FM and PBSRG at Arizona State University met in the spring of 2004 and set the following parameters for the research effort:

1. The time period would be four years from kickoff in fall 2004.
2. Arizona State University would support the research effort by offering a masters degree program and certificate program education to support the implementation of the new philosophy.
3. An innovative partnership would be created that involved GD and ASU, where both parties would use their resources to create an interface between practicum and higher education.
4. The FM involved would take this effort on and participate in the proposed masters program, using this research as the thesis.
5. The centerpiece of the research would be the application of the "information worker" concept of creating an information environment that would communicate the concepts of efficiency and performance information to the facility ownership.
6. The FM would capture the current and past performance in simple, non-technical terms to assist the funding in support of the above.
7. The strategic plan would be written in the thesis, and be proposed to the IFMA organization as a philosophy of information and leadership instead of management.

After looking at the educational program options, it was decided to resurrect a dormant masters degree concentration in the Del E Webb School of Construction (DEWSC) in Facility Management. Discussions were held and proposed to the masters degree chairperson and head of the DEWSC. The masters degree concentration would focus on the requirements of the research. The core classes would include:

1. Cutting-edge best practices in FMgmt.
2. Information Measurement Theory (IMT).
3. Advanced Procurement (practices in measuring performance).

4. Design of Experiments to Identify Performance.
5. Leadership and Information Environment.
6. Thesis to Implement Research Concepts at Facilities.

The General Dynamics FM then signed up for the IMT class and this paper, introducing the research effort, is a result of the class. The strategic plan is not only limited to the subject GD campus site, but also to other General Dynamics locations and IFMA participants. To reach other participants around the country, two efforts were initiated:

1. The Facility Management Research Institute (FMRI).
2. The future offering of the masters program by distance education.

The FMRI objectives are:

1. To combine the knowledge and practices of General Dynamics facility management, the research capability of Arizona State University, and the opportunity to do research.
2. To build an education center making research knowledge available to FM's all over the country.

The General Dynamics FM, based on the research/education/efficiency efforts, coordinated with the General Dynamics facility ownership to donate 1,800 SF of laboratory, office, and classroom space for three years.

4. Documentation that FM's Can Bring Efficiency and Value

A major component of this research effort was to identify if the FM could emphasize efficiency and value, and communicate that to the facility ownership to get support for ongoing efforts to become more efficient. When the FM took over in 1996, the total operations and maintenance budget was \$4M. The largest portion of these costs was in-house labor expenditures. The FM's largest cost on his operating budget was utilities. The remaining amounts were for materials, outsourced services, and equipment. The FM, after quickly looking at performance information, decided that the energy, labor and equipment uptime areas would have the largest impact on efficiency and performance. The FM prioritized these areas according to existing resources:

1. Energy management
2. Preventative maintenance tasks
3. Job Assignments
4. Labor efficiency and productivity
5. Equipment performance

Each has been explored and efficiency and value creation have been identified; however due to space constraints, only one of the above areas will be presented in detail. For additional information contact PBSRG via www.pbsrg.com.

4.1 Example of Efficiency and Value Creation - Labor Efficiency and Productivity

A planning and scheduling program was initiated by the FM to assist in optimizing existing in-house labor productivity and efficiency in the area of preventative maintenance. This concept aligned personnel expertise and abilities to achieve maximum efficiency. Routine maintenance tasks were scheduled on a consistent basis, lowering costs and elevating equipment reliability. The research indicates that deferring maintenance promotes a risk/reward ratio anywhere from 15:1 to 45:1. An example would be to allow an electric motor bearing to run until failure. If corrected, for appropriately \$666 dollars, the end result could

have prevented the total destruction of the component at \$10,000. If the equipment supported critical business/manufacturing needs, a four-hour unplanned downtime period could result in additional cost impacts.

Effective maintenance programs also save energy. Misaligned belts, bad bearings or failing pulleys all contribute to unnecessary load to the motor, increasing energy costs. The implemented preventative maintenance (P/M) program has substantially reduced the number of tasks arising from delinquent preventative maintenance in the GD facility. Figure 1 shows the reduction of tasks arising from delinquent P/M.

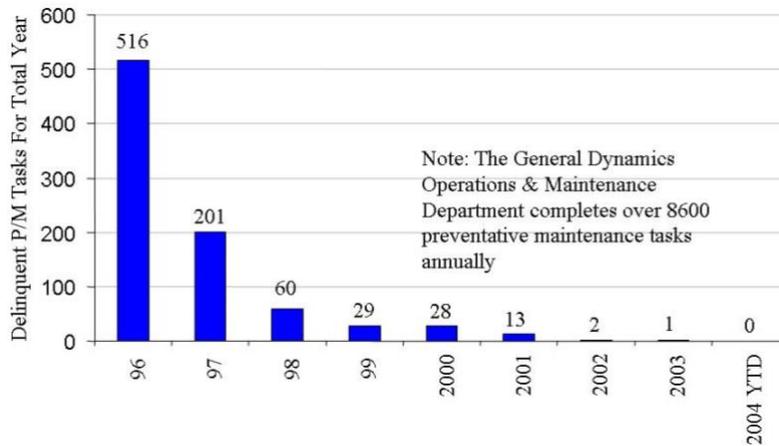


Figure 1: Delinquent P/M Tasks

5. Conclusion and Future Actions

The General Dynamics FM has been very successful in becoming more efficient. His grasp of the research concepts has accelerated the research program and he has begun to understand the importance of demonstrating/identifying efficiency (better operations for a lower cost) to the facility owner (see Figure 1). This objective research project is to fundamentally change the approach of FM's from one of management to one leadership and being an "information worker." The effort includes using performance information, focusing on the presentation of the information to the facility owner, education and training, the constant measurement of performance by the operators and the introduction of new concepts and programs which facilitate efficiency and measurements. The research program is planned for four years, and the subject FM and GD Scottsdale campus will be the focus of the research. The research also includes the capturing of the learned concepts, implementing them into the masters degree program for FM, and making the program available to FM's around the country. What makes this research program unique is that the researcher is bringing the problems and resources to the university for solution, and the site is the laboratory.

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