

Facilities Asset Management “A New Career Field for Construction Management Graduates”

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Facilities Asset Management (**FAM**) is emerging as a potentially new career field for Construction Management graduates. A recent study by a National Research Council committee generated much of the substance of this paper. The paper will underscore the importance of multiple initiatives from industry, government, and academia to support this fast growing career field. To ensure that this field effectively develops to meet the challenges ahead, the writers recommend that: (a) organizations recognize that the facilities asset manager be a senior executive to properly oversee the integration of people, facilities and technology; (b) industry, government and academia create the proper culture, mechanisms and channels to support the career development of the facilities asset management professional; and (c) the institutional and academic communities appreciate the need to initiate, fund and sustain research in the field.

Keywords: Facilities Asset Management, new career field, facilities leadership and management

Introduction

The federal government today owns more than 500,000 buildings, facilities, and their associated infrastructures worldwide. These facilities, representing over 3.5 billion square feet, were acquired to support agency missions ranging from national defense and foreign policy to research and space exploration. The facilities' portfolios span the spectrum in size from a few human services buildings and structures to building assets that compare in size to a small town. These public assets are valued in excess of \$328 billion (FFC, 2001). At least 30 individual agencies are involved with facilities acquisition and management, spending upwards of \$20 billion annually to acquire new facilities and renovate existing ones. Additional expenditures for facilities maintenance, repair, renewal, demolition, and security upgrades are not readily identifiable but probably amount to billions of dollars annually.

Clearly, portfolios of this magnitude are complex and their management is a significant challenge. Historically, a dependency on craft-trained professionals has existed to meet the need for Facilities Asset Management (**FAM**) professionals. These craft-trained professionals usually emerged and move into management positions via the traditional “on-the-job” training process (OJT) without formal university education. However, on-the-job training (OJT) methods have not necessarily provided the multi-disciplinary skills needed in the complex built environment.

As the requirement for a new type of **FAM** professional emerged, some federal agencies began hiring retired military engineering officers to provide the requisite experience and leadership. This has infused qualified outside people into the ranks. Nevertheless, this approach should not be the only method used in acquiring senior leadership. Agencies must create their own

professional development programs to nurture future executive leaders. These programs would optimize the critical capacity to integrate the development activities across the **FAM** function, align these activities and programs with the overall mission, and provide for an environment that rewards innovation and appropriate risk-taking. Moreover, the academic community needs to appropriately respond to and support this emerging discipline and field.

Given these circumstances, it is not surprising that the Federal Facilities Council recently requested that the National Research Council (NRC) appoint a committee of experts to undertake a study to “help ensure effective federal facilities asset management (inclusive of property development, financial and operational functions) in the next fifteen years.” This study, the latest in a series of works by NRC, examined several dimensions of the federal facilities management challenge. The study focused upon the outsourcing of management functions, strategies for managing investments in federal facilities, and stewardship (NRC, 2000; NRC 2004; NRC 1998). The members of the committee studying the “Core Competencies for Federal Facilities Asset Management, 2005-2020” are shown below.

The charge of the most recent committee was to identify and assess:

- (1) Forces that will drive change in how federal buildings are planned, designed, built, operated, and managed;
- (2) The potential impact of new and emerging technologies on facilities management-related processes;
- (3) Organizational capabilities that federal departments and agencies will require to effectively oversee a facilities asset management program;
- (4) Individual skills required for effective facilities asset management;
- (5) Development strategies, processes, and training to ensure that required organizational and individual core competencies will be in place and sustained over time;
- (6) Performance indicators for measuring progress toward organizational goals for workforce development.

The committee’s working definition of **FAM** was: “**FAM** is a systematic process of maintaining, upgrading, and operating physical assets cost effectively. It combines engineering principles with sound business practices and economic theory and provides tools to facilitate a more organized logical approach to decision making” (NRC, 2004). To accomplish its assigned tasks, the committee met six times between June 2005 and July 2006. Committee members received briefings and interviewed representatives from various federal agencies including the Department of Defense, Department of Energy, General Services Administration, U.S. Coast Guard, National Aeronautics and Space Administration, the Smithsonian Institution, U.S. Navy, and the U.S. Army Corps of Engineers. In addition, representatives from leading private industries were interviewed to define competencies.

The Unique Role of the Facilities Asset Manager

The **FAM** professional is a “connected integrator” of multiple functions. The roles and responsibilities for this class of manager are unique among managers in the capital project life cycle system. The **FAM Manager** must be connected to, empowered to integrate with, and able

to influence multiple functional areas. *Of all the various parties involved in a project's life cycle, the FAM manager is the only one involved throughout the life cycle, serving as the dominant player throughout the Operations and Maintenance phase, which constitutes over 90 percent of the life cycle work.*

The **FAM manager** is challenged with leading an organization that possesses many subordinate elements, all using differing technologies (construction, design, energy, engineering, electrical, environmental, fire, forestry, historical, IT, janitorial, landscaping, maintenance, mechanical, parking, power, safety, sanitary, security, space, traffic, and others). This horizontal spread increases the likelihood that leaders are managing functional areas in which they have minimal technical knowledge. The horizontal nature of the organization increases the challenge of efficient and effective information flow and creates a condition where a wider range of core competencies and training is needed. The reality is that the **FAM manager** must be more directly connected to the agency leadership and be engaged when strategic, as well as tactical, decisions are on the executive table. Indeed, it was the consensus of the NRC committee that the **FAM** manager must be a senior level executive.

Typical U.S. University Academic Structures

Figure 1 illustrates the typical profile of academic disciplines for many universities and colleges. It highlights the fact that few departments, schools, or colleges are currently addressing the **FAM** field of degreed education. This lack of university graduates in the **FAM** field necessitates recruiting entry level BS graduates from other disciplines. This also requires better marketing of career opportunities to attract recruits and the need for increased facilities asset management image building.

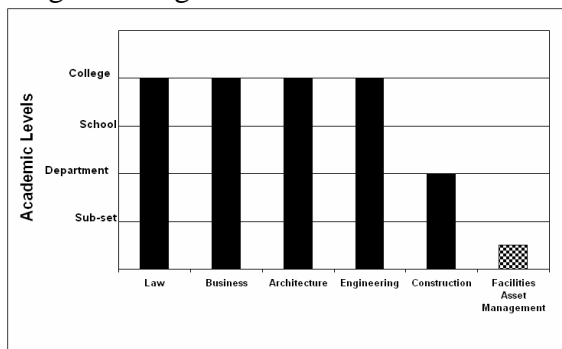


Figure 1: Typical Profile of Academic Disciplines

Current Status of FAM Professional & Educational Development

Executives in architecture, engineering, and construction (AEC) initially receive their education and degrees in areas of study with a technical focus. These graduates are then required to learn new skills in **FAM** if they are to progress within their respective career fields. Where a dearth of talent for **FAM** exists, this gap is filled through the additional hiring of talent possessing degrees in less technical and more business-related areas of study. Nevertheless, the need for leadership and management skills cuts across both the operational as well as the traditional AEC

community. This cross-cutting need for leadership and management skills is a critical facet of **FAM**. It calls for a skill balance and a level of continuing education that will ensure both the individual's and agency's success. For example, over time the need for people management and leadership skills will take priority over the enhancement of technical skills. A professional with a honed set of leadership and management skills will continue to progress whereas one who is lacking such skills will likely reach a point of career stagnation. One effective approach to ensure access to a pool of **FAM** talent is for universities and colleges to provide education, certifications, and degrees in this field. In some corners of academia, scrutiny and serious consideration are being given to this new field of endeavor in higher education. However, the pipeline for new degrees in facilities asset management likely will not be producing such talent in the near future.

While **FAM** programs are not commonplace within the mainstream academic community, that does not mean that courses and programs do not exist. Table 1 presents a listing of **FAM** education programs developed by Mr. James P. Whittaker, President, Facility Engineering Associates, P.C.:

Table 1
Academic Programs

<i>BS Degree Programs</i>	<i>MS Degree Programs</i>	<i>International Programs</i>
BYU	Georgia Tech	Hong Kong Polytechnic
CSU – Pueblo	Texas A&M	FHS Kufstein Bild. (Austria)
Ferris State	Arizona State University	Hanze University (Netherlands)
Cornell University	Cornell University	United Kingdom (Various)
Wentworth Institute		
North Dakota State		

Facilities Asset Management Competencies

Core competencies should be structured to ensure that leader development efforts are focused on the attainment of high levels of individual and organizational performance. They can also be structured to be enduring even as resources diminish, demands increase, and priorities and strategies shift. Competencies provide a basis and a common language for discussing educational publications, doctrinal manuals, assessment and feedback tools, and ways to access distance and distributed learning programs for self-development and lifelong learning. Figure 2 shows the balance between skills during career progression.

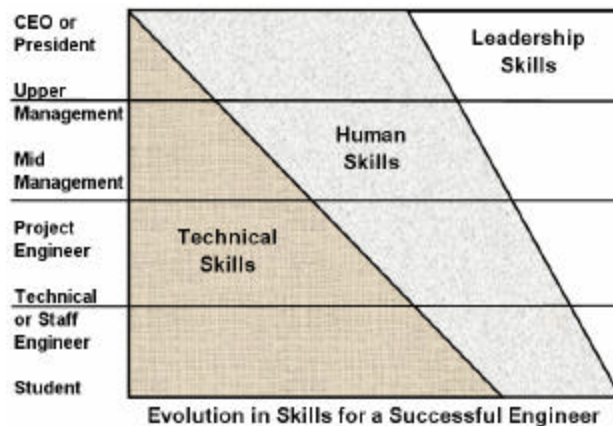


Figure 2 Leadership Developments for Engineering Managers (Farr et. al. 1997)

FAM Competency Literature Search

The committee conducted a literature search of competencies and skills required for facilities managers. The research revealed that the core skills of facilities managers are wide ranging. While there were varying responses to questions of whether **FAM** professionals require formal education in facilities management disciplines, there was a consensus that **FAM** organizations require skills at different levels, from the operational (entry level) to senior management (executive level). Professional development at the various levels should include the development of technical skills, management or business skills, and leadership skills. A conceptual model of a potential career development track incorporating these competencies is shown in the figure to the right.

The emphasis of the literature search was on **FAM** at a strategic level where practitioners would be considered as having professional standing. Much of the published research was conducted in the United Kingdom where the facilities management profession, some may argue, was established earlier than in the United States. In the publication ***Facilities Management: A Strategy for Success***, Payne listed four areas in which facilities management professionals are involved (Payne, 2000):

1. Property and built environment, requiring the professional skills of architects, legal services, space planners, and quantity surveyors (i.e., real estate assessment, cost estimating, valuation);
2. Workforce management of the built environment, requiring the input of human resources professionals, building services (e.g., HVAC and electrical maintenance), and environmental;
3. The technical expertise of maintenance staff;
4. Service-related processes within facilities, including catering, cleaning, security, mail room, reprographics, and required input from practical operational management.

Developing Management Skills

As degreed technical professionals within the **FAM** arena progress within their careers, upward mobility will be predicated upon their availability to develop and refine a management skill set. The challenge for organizations and individuals is how best to ensure that this management skill set is developed and maintained. Some organizations encourage the pursuit of an MBA degree, joining professional societies, attending management seminars, and obtaining the proper work experiences. Tuition reimbursement for university-based education and training to employees is regarded as a good investment. Providing a series of personal development opportunities builds professionalism within organizations. Participation in these opportunities should enhance and improve the employee's management skill set. When management is added to the technical skills set, the balance between technical skills and management skills keeps changing with career progression. The peak on the management element seems to appear at mid-career, before leadership skill development, which takes a larger time allocation.

Promoting Leadership Skills

Leadership is a skill set that goes beyond management capacities. In essence, it is the ability to influence beyond one's authority. Self-education, seminar attendance, reading, observing life and experiences, and having active organizational mentors can all serve the process of leadership development. Mentoring appears to be the most critical component. The committee's research revealed that educating or promoting a leader is significantly more challenging than training a manager. Consequently, the manager populace within organizations, in general, significantly exceeds that of the leader populace. It is important to note that leadership skills may increase over a career as the employee moves up the career ladder.

Organizations value these skill sets differently. Professional development programs should address all four elements—technical, management, leadership, and wisdom—address the balance needed at different levels as careers progress, and understand and appreciate why the balancing keeps changing.

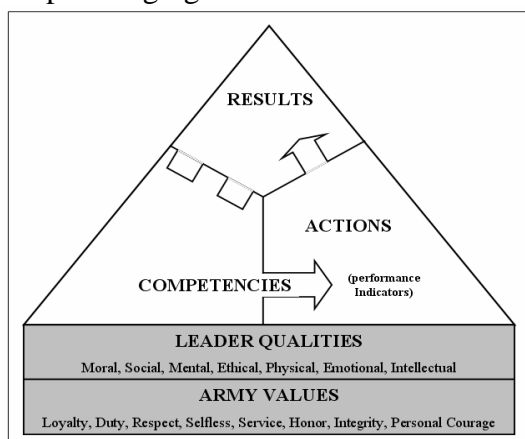


Figure 3 Competencies for the Army of the Future (Horey, J. 2004)”

Competencies are a means to define and communicate leadership requirements in organizationally relevant terms. The competencies that are essential, or core, to all Army leaders will focus their developmental efforts on attaining Future Force capabilities. Gayvert (1999) argues that Army leadership “ought to be identified, taught and discussed as a function, or set of functions, different from management, administration or command.” An Army leadership framework shown in Figure 3 that incorporates core competencies provides a common denominator for leader development. Like values, core competencies are portable across time, levels of authority, levels of responsibility, and unforeseen situations. While individual situations or missions may stress the use of different competencies, components, or behaviors, leadership competencies as a whole are enduring across leader positions, assignments, and time. Just as values shape the characters of leaders, competencies can be used to guide leader behavior.

The Challenges Ahead

If the **FAM** discipline is to evolve and grow as society, industry, and government will require, then multiple initiatives are needed from industry, academia, and the government. Forming or improving a career development program in the **FAM** field offers challenges and opportunities for federal agencies, as well as other public and private organizations. Given the evolving, as well as the “moving target,” nature of **FAM**, such a program will require continuous review and update to ensure its effectiveness. However, this also provides federal agency leadership an opportunity to shape the evolution of this career field, allowing for more control over its direction and progression. Federal agency executives need to consider professional development as a top value investment. Agencies should institute development strategies to ensure that required organizational and individual competencies will be in place and sustained over time. These strategies should address a comprehensive program that provides a long term plan for professional development, education, and training for the workforce. It is important to note that developmental strategies are more than just training. Training should be part of the development strategy but should not be the sole focus of any professional development effort. A comprehensive development program should include both new and current employees. The establishment of such a program will require the creation and adoption of a recognized education philosophy and a core set of values that underlie all of the respective development components. It is vital that support be sustained with annual budgets and a focus on the development of the agency’s core competencies.

Professional development education in the arena of **FAM** fundamentals is particularly needed for agencies hiring entry level university graduates. The slowly emerging recognition within government and industry of **FAM** as a formal career field requires agencies to educate new hires in asset management fundamentals. This leads to the recruitment of “cross-over” graduates from architecture, business, construction, and engineering at colleges/schools for a career in **FAM**. This will require significant recruiting and marketing of future **FAM** candidates. Cross-over candidates will require an understanding of the benefits of entering the facilities asset management career field. Agencies can convey this needed understanding by adopting core education, development, and training values.

Obtaining a Bachelor of Science degree usually focuses on the technical aspects of the academic discipline. The graduate is hired to work in the functional area of the degree. To maintain his or her proficiency of technical skills, the professional is encouraged to adopt a concept of “life-long learning” to renew and refresh the technical knowledge.

Knowledge Development

Research is the cutting edge area of any growing field of endeavor. The knowledge developed from such research activities serves not only the immediate community of professionals but also those who are served by that community. For **FAM** to become a true profession, knowledge development must play a significant, extensive role, with the results implemented in an effective manner. The knowledge development process will provide a continuous improvement environment for both the agencies and the individual professionals. Formal programs ensuring such an environment need to be established.

Knowledge Development (Research) Model

This five-step model shown in Figure 4 serves as a guide for agencies to implement a knowledge development approach. Knowledge development requires active participation of the leadership team and an extensive investment in resource and time. The most immediate, applicable form of knowledge development is that which is internally generated within the agency itself. It is likely to have the most immediate impact. If an agency does not have adequate internal resources to conduct extensive research, engaging an outside source of expertise can serve this purpose. Externally generated and conducted knowledge development is often characterized as research and is normally related to a broad spectrum of organizations rather than to a single agency. Such studies may come from academia, professional societies, or from private consultants. In conducting research, outside organizational utilization, in addition to providing personnel and expertise, can also provide the “independent voice” needed for credibility. Most “breakthrough” contributions come from such sources because of the “risky” nature of success of such endeavors. Involvement of agency personnel is still desirable and needed to ensure proper guidance of the research efforts. The embryonic and emerging nature of the **FAM** discipline underscores the importance of knowledge development as a critical element in the improvement of core competencies. Indeed, less “conventional wisdom” and “acknowledged best practices” information are available for the facilities asset management profession than for the more established professions where research is already commonplace.

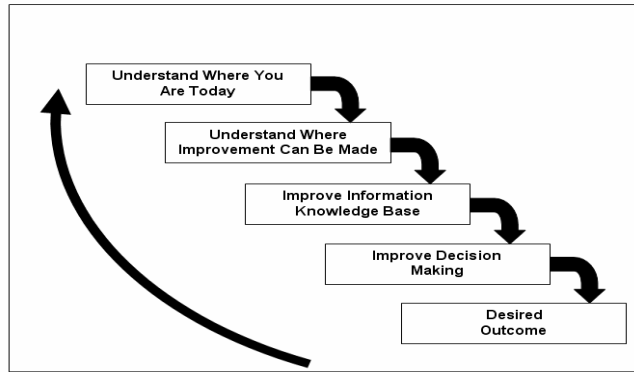


Figure 4 Knowledge Development (Research) Model

Institutional & Academic Research

Some professional organizations do invest in applied research for this field, but few academic programs in the university system conduct applied facilities asset management research. The National Science Foundation (NSF) currently does not have a facilities asset management category, nor does it provide funding for this field. Developing an extensive portfolio of research activities across such diverse areas as represented by this field of endeavor will be a major challenge but a challenge that can also derive great benefits.

Universities intending to develop and expand **FAM** research areas and add new areas of discovery and investigation are starting with little recognition or support. The driver of these new opportunities, in both educational content and research, would change the business practices of facilities owners and provide an infusion of new technology in facilities asset management practices.

Cultural Change - Education as a Core Value

A significant challenge for any agency's leadership is to change the organization's culture. A first step toward achieving this goal is the development of education and training as a core value. As each agency assesses its requirements for **FAM**, it may be necessary, and likely, that it will develop its own value set. Both the individual and the organization must take ownership of the core values that emerge from the "culture assessment process." These values should serve as a key part of the development strategy and be included as part of the performance evaluation system. They also will serve the agency leadership as it creates talent-retention and succession plans. Values should be interagency in design and coordinated among other federal agencies. The committee's research in the various approaches to professional development yielded a set of what has been termed "truisms" (Rose, C. & Nicholl, M.J. 1997). These "truisms" can serve as fundamental or guiding principles as agencies address and establish their own core values. They are:

- Every person can learn;
- Individuals learn at different rates in different ways;
- Learning is a lifelong process;
- Every person wants to do a good job;
- Self-esteem affects learning; learning enhances self-esteem;

- Education and learning are shared responsibilities;
- The education process requires innovation, risk-taking, and the ability to manage change;
- Continuous improvement is desirable and possible.

Each agency needs to evaluate its own level of education and training capability. Adequate subject matter experts will be needed at the different levels within the agency to serve as instructors in an in-house capacity. Given the wide range of core competencies required in the conduct of **FAM** functions, and considering that most new college level recruits will come from degree fields outside this career field, it is likely that agencies will need to outsource education to consultants and professional organizations in the near term. It can be argued that a degree in CM may be a better entry level education than engineering or business.

Key Findings

To summarize, this paper, which was based upon an NRC committee's recent study of **FAM**, has introduced a number of key findings:

- The roles and responsibilities of **FAMs** are unique among managers in the life cycle management system. The horizontal nature of the organization increases the challenge of efficient information flow. It creates a condition where a wider range of core competencies and professional development is needed.
- The recognition of the **FAM** position as a senior executive is paramount for agencies to accomplish their mission in an efficient and economical fashion.
- The ability to attract and recruit high quality employees is essential for any organization to achieve world-class status.
- Current **FAMs** have diverse backgrounds and education in disciplines not directly related to facilities asset management.
- Universities are **not** producing an adequate number of **FAM** degreed professionals to meet the needs of this career field in the federal space.
- Entry level **FAMs** will have to be recruited from "cross-over" disciplines (e.g. architecture, business, construction, and engineering).
- Little university research information exists in the field of **FAM** and even fewer research findings are being introduced or implemented within the federal agencies.

Universities are not producing **FAM** graduates and are conducting little **FAM** research. Such is not the case in the more mature disciplines such as engineering, architecture, and business administration. In the developing discipline of construction, universities are producing graduates but conducting little research. In the future, as **FAM** matures as a profession, universities will need to produce both degrees and **FAM** research deliverables. Preparing graduates to fulfill exciting new leadership roles for the rapidly evolving **FAM** industry represents an educational and research challenge as well as an opportunity. The challenge centers around the complex commerce of facilities operations, which involves a diverse collection of companies and agencies linked together through the common objective of completing particular projects.

Recommendations

In addition, the authors suggest the following:

1. Construction Management programs should develop **FAM** curricula, consider establishing **FAM** degree programs, and move into **FAM** research.
2. Associated schools of construction should work with government agencies to:
 - a. Recruit graduates from cross-over disciplines and create an entry-level orientation course to merge new university hires into the broadened life-cycle-management career field of facilities asset management;
 - b. Establish a civil schooling program wherein selected construction career professionals can obtain a master's degree in related **FAM** functional areas;
 - c. Petition the National Science Foundation (NSF) to create a research grant category in Facilities Asset Management and fund respective research annually;
 - d. Provide government funding for developing new knowledge (research) at the same two percent level as the investment in education and training.

Indeed, this discipline continues to evolve and mature; additionally, the aging **FAM** workforce will soon move on, necessitating the recruitment and development of new talent. These challenges require a pro-active and multi-dimensional response to ensure the health of this burgeoning field.

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