

# ACCOMPLISHING TOTAL ASSET MANAGEMENT

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## ABSTRACT

Within individual business units of the FM organization, “facility assets” often have different definitions, valuation methods, units of measure and information management standards. As a result, efficient and accurate reporting, analysis, and strategic planning are difficult or impossible at both the business unit and corporate levels. This article presents a unified Total Asset Management (TAM) approach that Facility Executives may implement immediately to guide individual decisions and actions thereby streamlining corporate facilities asset management.

## INTRODUCTION

*It was six men of Indostan  
To learning much inclined,  
Who went to see the Elephant  
(Though all of them were blind),  
That each by observation  
Might satisfy his mind.*

So begins the poem by American poet John Godfrey Saxe based on a fable told in India many years ago. In the poem each man touches a part of the elephant and arrives at a strongly held conclusion that the elephant is like a wall or a snake or a fan or a tree. They argue amongst themselves and, though each is partly right, all are wrong because, as the moral concludes:

*So oft in theologic wars,  
The disputants, I ween,  
Rail on in utter ignorance  
Of what each other mean,  
And prate about an Elephant  
Not one of them has seen!*

The experience of working with multiple, individual business units of an institution, a corporation or a government agency to create best-in-class policies and operations associated with facility assets can be

surprisingly like this fable. However, like the moral of the fable, experience has shown that enlightenment lies in the ability of senior and business unit management to achieve a coherent vision of and an appreciation for their living, breathing facility information resource.

## **WHAT IS TOTAL ASSET MANAGEMENT?**

Within individual business units of the FM organization, “facility assets” often have different definitions, units of description and measure, valuation methods, and information management and transaction standards. As a result, efficient and accurate inventory, planning, analysis and reporting are difficult or impossible at both the business unit and corporate levels.

*Total Asset Management (TAM) is a holistic, inclusive and coordinated approach to facility asset management. It promotes both a philosophy and a set of best practices intended to overcome limiting conditions by coordinating asset-related business processes across multiple business units, integrating asset-related information systems, and adopting best-in-class practices for maintaining and using the information resource.*

## **TAM REQUIRES AN ENTERPRISE PHILOSOPHY**

The first guideline for accomplishing TAM is to establish an enterprise-oriented facility asset management philosophy. “Think globally, act locally” is the basis for this philosophy. ***Corporate management must create a philosophical and physical environment fostering productive individual actions that will simultaneously fulfill the aggregate needs of the enterprise. Individuals must recognize that while they are acting to accomplish the mission of their business unit, they are also acting to accomplish the missions of other business units and the organization as a whole.*** This philosophy has many implications for facilities asset management.

## **WHAT IS A ‘FACILITY ASSET’?**

TAM requires a shared language. Use of the label ‘facility asset’ can vary significantly within an organization. To the finance department an asset is defined by a specific set of accounting rules. To the real estate department assets are real property. To the maintenance department an asset is most often a piece of equipment that must be maintained and/or repaired. Say ‘asset’ to the grounds department and they will likely think of their most expensive tools or vehicles even though one might have been referring to the memorial trees or sculpture under their care.

In the TAM environment, ***a facility asset is any facility-related physical resource that is significantly important to the organization and requires management.*** Using this definition, facility assets typically include the following types of physical resources:

- Property – i.e.: land parcels including natural features and non-building or infrastructure improvements.
- Buildings – i.e.: occupied and/or unoccupied structures situated on properties.
- Infrastructure – i.e.: Roads, bridges, tunnels, etc.
- Building Equipment - i.e.: permanent equipment such as environmental systems, power and lighting systems, elevators and escalators, etc.
- Office Equipment – i.e.: computers, furniture, significant office equipment and tools.
- Vehicles - i.e.: automobiles and trucks as well as self-powered ride-on implements.
- Grounds and plant materials - i.e.: significant hardscape, trees and landscape materials.
- People – Employees, contractors, consultants, customers and visitors require facility support in order to accomplish their purposes.

## **SCOPE OF FACILITY ASSETS TO MANAGE**

The scope of individual or aggregate assets maintained within these categories is directly dependent on business needs (which determine significance) but here are a few guidelines:

- Include all elements that must be identified individually and for which an individualized history must be maintained in order to comply with legal, fiduciary, compliance or policy requirements.
- Include all facility elements that, though they are not owned by the organization, are significantly important to achieving the mission. Rented, leased or borrowed real properties for example.
- Include all facility elements that are maintained (e.g.: monitoring, service, repair/replacement) by members of the organization. Examples include maintained assets which, for various reasons, do not appear on the capital asset inventory.
- Include all elements that are important for other than financial or operational reasons such as historically significant assets.

## **GRANULARITY AND DETAIL**

Finally, the definition of facility assets must address the issue of granularity. Asset resources can be managed individually or in aggregate depending entirely on the specific needs and capabilities of the organization. ***The guiding principle should be a balance between the usefulness of the***

**information and the ability of the organization to maintain the information in a current state.** Whatever the determination, TAM requires that **all assets of the same type must be maintained across the organization at the same level of granularity and quantified using the same units of measure.**

Mini case study – Granularity and Units of Measure:

In one organization, capital assets, according to the business processes and accounting rules of the organization, were listed such that a single record in the capital inventory included multiple physical assets. This happened when, for example, an entire funded project with a site, a parking structure and a building addition were recorded as a single capital asset. However, in a separate inventory maintained by the Real Property group, the building - including the addition but not the site or parking structure - were listed as a single property record for the purposes of space management (i.e.: - occupancy, organizational ownership and chargeback). Furthermore, the Maintenance Department used a different definition of the property record that included the parking garage but not the landscaping. This situation made calculating asset performance time consuming, labor intensive and imprecise.

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#### **COORDINATING ASSET MANAGEMENT ACROSS MULTIPLE BUSINESS UNITS**

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TAM involves a wide range of facility assets not usually controlled by a single business unit. In addition, subject matter business units such as Finance, Real Estate, Design, Engineering and Maintenance must interact with support units such as Personnel, Purchasing and Information Systems. At the same time, each unit must provide for inventory, valuation, legal and physical maintenance and renewal in order to protect the asset and assure its availability to the organization. These combinations of factors form the most significant risk to the TAM approach.

The following strategies and tactics have proven useful for motivating and integrating multiple individual business units, departments and individuals to fulfill their requirements by cooperating to accomplish TAM. Furthermore, they will mitigate complications caused when organizations evolve, assignment of responsibility migrates or, in the case of outsourcing, functions are eliminated entirely.

#### **✓ TAM Strategy – Empower Self-Motivated Participation**

- Participation is most productive and longest-lived when it is based on enlightened self-interest. That is, both business unit and individual cooperation will be more likely to be consistent and sustainable if the participants are enlightened and if they perceive substantial benefit in return. Begin the TAM implementation with a discovery phase to determine business processes, sources and users of information. Canvass the organization to Identify opportunities to build mutual benefit. Conduct focus groups and

individual interviews early in the project to not only collect information but, more importantly, to inform the user community, build ownership, and promote a team spirit.

Mini-Case Study: Building an Enterprise Philosophy:

A government agency responsible for several buildings in a complex occupied by essentially independent agencies was faced with the challenge of operating and maintaining the facilities using staff that report to the management of the independent agencies. The facilities management agency formed a steering committee made up of representatives from the independent agencies and initiated an assessment project to develop requirements for an integrated facilities information system. Interviews and focus groups were hosted at all levels of all of the agencies in order to receive input, to give employees a chance to view and discuss potential solutions, and to build familiarity. The results of the assessment included significant recommendations for business process, required information and transaction capabilities as well as options for technology infrastructure and computer-aided facility management systems. However, the most significant result of the study was undoubtedly the team-building effect of the process. Organized now on a sort of 'United Nations' model, the management team continues to work with individual agency staffs to establish consistent standards and practices so that information generated during the management of their facilities contributes effectively to the ability of each agency to be responsive to its customers and to compare its performance to the other agencies and to industry benchmarks.

During implementation of an asset information system it is important to continue to inform the organization as a whole and individual stakeholders through broadcast e-mail, newsletters, web sites, active standards development and review committees, and regular executive briefings.

✓ **TAM Strategy – Eliminate ‘Desk Drawer Databases’ and Build-in Evolutionary Potential**

Before adopting a TAM approach, organizations tend to have internal ‘islands of automation’ where each business unit currently responsible for a portion of the facility assets maintains their own information – often in a ‘desk-drawer database’. They tend to have the following features, which, if they are present, will make them dysfunctional:

- The information resource may be paper-based, a series of electronic word-processing documents, desktop spreadsheets or database, or even a single-purpose off-the-shelf application. Databases tend to be either developed in-house by members of the unit or highly customized to accomplish the particular business processes of the unit.
- Individual business units typically use different strategies making retrieval, interchange, analysis and maintenance difficult.
- Information is available primarily to the members of the business unit. Members of the ‘owning’ unit must carry out any actions to either add contributions to the resource by other units or to share information from the resource.

- Functional reassignment of responsibility and/or reorganization is difficult due to the personalized nature of the information resource, narrowly defined standards, and structural inflexibility.

The TAM strategy to combat these conditions is to make the data model modular and enterprise-oriented and to make access and end-user interfaces ubiquitous. Figure 1 illustrates a modular asset information environment. The goals of this environment are:

- To protect the information resource by use of enterprise content standards, holding it in industry-standard containers using long-lived data formats.
- To make consistent information available even

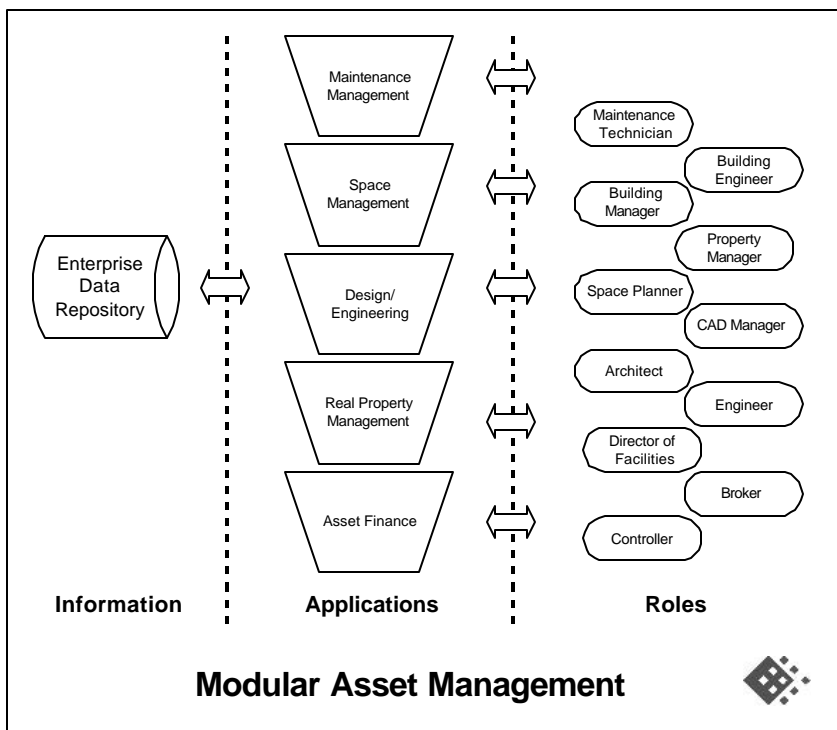


Figure 1 - With a modular asset information and end-user environment, information is held in an enterprise container, transacted by subject-oriented applications and accessed through user interfaces that may be easily redeployed as roles are reallocated.

though applications change or are upgraded.

- To make best-in-class, subject-specific applications available throughout the organization; even if redundant organizations exist in multiple business units.
- To make the end-user interface ubiquitous so that as responsibilities are reassigned, distributed or centralized, the management roles may be easily relocated.

✓ **TAM Strategy - Broaden the Definition of Control.**

Departments no longer have to hold data at their physical location and limit access to their own personnel in order to maintain security and quality control. Departments that make use of granted privileges to extend their information resource out into other units of the organization will be able to enlist the support and assistance of other departments and ease some of the burden on their staff. Figure 2 is a sample responsibility matrix illustrating roles and responsibilities as well as local verses enterprise approaches.

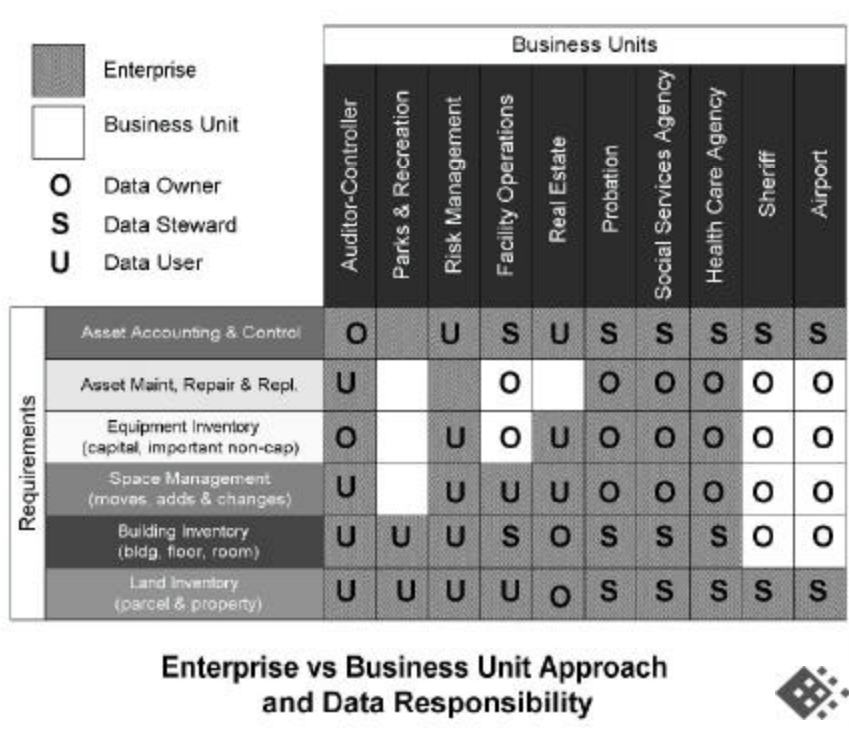


Figure 2 - Rather than limiting the organization by using only the Data Owner role, TAM extends access and usefulness of information by defining Data Owners - which can view, edit, create and delete data; Data Stewards - which can view and edit data; and Data Users which can only view data. This approach allows wider distribution and participation throughout the organization while maintaining control.

**✓ TAM Strategy – Appropriate Definition of the Role of the Information Systems (IS) Department**

Inappropriately defining the IS role can drive a wedge between the information systems professionals and subject-matter business units.

The IS department should be the infrastructure, applications and data standards owner for the enterprise. They should be concerned with infrastructure, applications and data standards that are critical to the enterprise. Department-specific equipment and departmental applications that do not effect the enterprise should be the responsibility of departmental management. It varies by organization but at some point it becomes counterproductive for IS to micromanage technologies departments use to accomplish their missions. When business units see the IS department’s involvement as meddling and excessive, they become reluctant to follow useful guidelines or involve them on new enterprise issues.

At the same time, business units must understand and accept the IS department’s responsibility to protect and optimize the company’s investment. Finally, business units should assume the role of

subject-matter owner of data rather than abdicating that responsibility to IS personnel simply because the resource is computer-based.

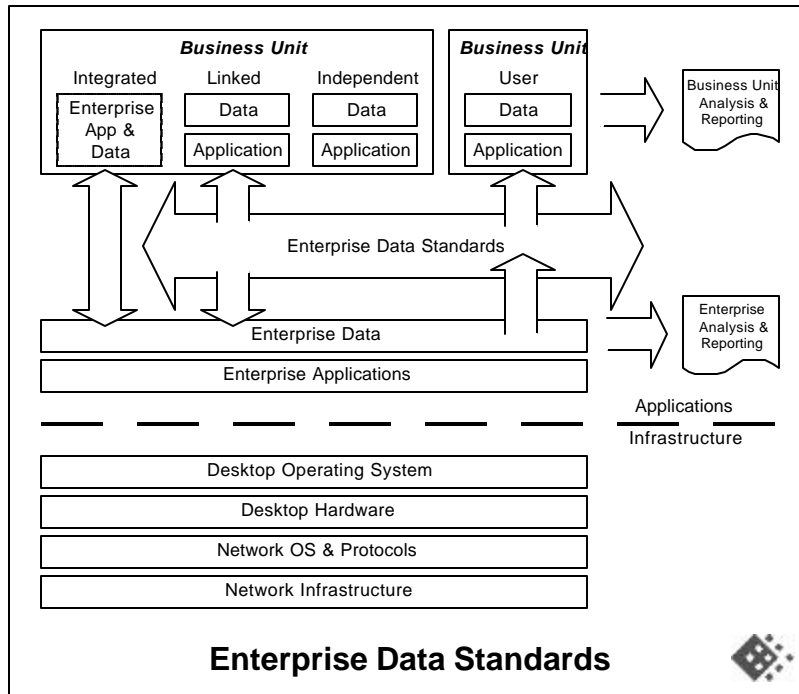


Figure 3 - Appropriate definition of IS versus business unit roles will enhance productive cooperation throughout the organization.

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## INTEGRATING FACILITY ASSET INFORMATION SYSTEMS

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At its core, TAM seeks to manage the facility asset from a time even before it is operationally activated until long after it has been deactivated. This is because, in addition to managing the present and active asset, TAM also addresses planning and historical requirements. Currently, no single asset management application can support TAM. There are several reasons for this:

- Currently available applications are designed to fit traditional functional roles within the organization. Horizontal applications, though some can address multiple functions, do not provide adequate depth in many areas. Vertical applications, which fulfill detailed requirements, are too narrowly defined functionally.
- Certain functions, which appear to use asset information similarly, differ significantly. For example supporting Facility Condition Assessment versus supporting Demand and Preventive Maintenance require different units of measure and levels of detail in the facility asset information resource.

- Organizations cannot implement all aspects of a TAM approach simultaneously. While growing the resource over time, various applications and/or versions of applications may be used.

The following is a list of the most prevalent categories, by function, of applications with a brief explanation of each.

- Pre-Development Solutions – An emerging category, these applications maintain existing portfolio, historical project development information and construction component information as well as non-facility asset information such as consultant and contractor characteristics. Applications use this information to provide analysis and what-if tools to support early project scenario exploration. As a project progresses the application can collect as-is information about the project, which can be used as a resource for future analysis.
- Real Property Management – Vertical applications dedicated to real property inventory, lease management, financial analysis and document management.
- Architecture, Engineering and Process Design Systems – Vertical applications provide a wide variety of facility asset-related capabilities including bubble diagramming, stacking and blocking, furniture and equipment layout, systems furniture/equipment layout and component inventory and CAD graphics.
- Computer-Aided Facilities Management (CAFM) – Horizontally integrated applications that typically maintain a property inventory, space management, move management, asset inventory, integrated CAD graphics, some facility-related financial recordkeeping and budgeting. Optionally, applications will provide extended real property management, computerized maintenance management, project planning and budgeting, and materials handling.
- Facility Condition Assessment (FCA) – Vertical applications that provide an executive tool for both strategic capital planning and tactical project prioritization. FCA databases include detailed asset inventory and condition information as well as building component current and life-cycle characteristics and, usually, CAD graphics. Extensive analysis capabilities are available for capital budget and maintenance project planning. Some vendors are beginning to integrate products with CMMS and project management products. CMMS integration provides for ongoing updates to both CMMS and FAS databases while project management integration supports maintenance project planning.
- Computerized Maintenance Management Systems (CMMS) – Vertical applications dedicated to sophisticated asset inventory, materials handling, corrective and preventive service, planned maintenance, and maintenance projects. Most are integrated with CAD and raster graphic applications to display facility plans and system diagrams.

Fortunately, integrating many of these applications between categories is possible due their support for industry-standard databases, data exchange protocols, client-server networks and recently, Internet environments.

## CONCLUSION

Facility assets have a significant effect on the financial and operational performance of every organization. Because these effects and the need to manage facility assets exceeds the normal scope of individual functional managers a new paradigm of enterprise cooperation is needed. Total Asset Management represents the philosophical approach, tools and methods the next generation will need to manage the enterprise.

## ADDITIONAL READING

Klammt, Fred, (2001), Financial Management for Facility Managers, in Teicholz, Eric (ed.), Facility design and management handbook, McGraw-Hill. ISBN: 0-07-135394-1, (pp. 5.1-5.37).

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## A SAMPLING OF INTERNET RESOURCES FOR ASSET MANAGEMENT

### Pre-Development Information Systems

- ❑ <http://www.visionplanner.com> – VisionPlanner, Inc., Suite of products, “VisionPlanner streamlines the pre-development stage of project planning and upfront analysis for the Architecture, Engineering, Construction (AEC) and Real Estate markets.”

### Computer-Aided Facilities Management Systems

- ❑ <http://www.peregrine.com> – Peregrine Systems, Inc., “Peregrine solutions [manage] all of the assets used inside the organization — from IT and telephony to real estate, facilities, fleets of vehicles, even knowledge assets. Benefits accrue through the full asset lifecycle.”
- ❑ <http://www.fisinc.com> – Facility Information Systems, Inc., “Facility Information Systems, Inc. is an information systems company providing enterprise software and implementation services to large organizations for facility management and corporate infrastructure resource management.”
- ❑ <http://www.archibus.com> – Archibus, Inc., “the ARCHIBUS/FM product line includes tightly integrated products for managing the costs, forecasts, and workflows associated with your properties, leases, space, fixed assets, telecommunications, maintenance, and moves.”

## Computerized Maintenance Management Systems

- ❑ <http://www.datastream.net> – Datastream Systems, Inc., “Datastream is the global leader of technology-based solutions for asset lifecycle management.”
- ❑ <http://www.psdi.com> – “PSDI develops, markets and supports enterprise asset maintenance software. Businesses, government agencies and other organizations use MAXIMO to assist them in maintaining high-value capital assets such as plants, facilities and production equipment.”

## Facility Condition Assessment

- ❑ <http://www.vfa.com> – Vanderweill Facility Advisors, “VFA was founded in 1992 ... for determining facility conditions and integrating technology solutions for strategic capital planning.
- ❑ <http://www.isescorp.com> – ISES Corporation, “The primary services provided to clients involves the preparation of comprehensive facility condition analyses.”
- ❑ <http://www.ame.net> – Applied Management Engineering, “AME is an engineering firm specializing in facility engineering and management. FCIS was originally developed to support in-house efforts. Now, the FCIS System is commercially available.”

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