

# I. EXECUTIVE SUMMARY

## Research Objective

The charter for this initiative proposed a study to research tools and models used by Government, industry, and academia that have the potential to assist Governmentwide landholding agencies in managing their portfolios of real property assets.<sup>1</sup> The objective of this initial study is to inventory and assess if there are sufficient tools and models being used by Government and industry to support further research in this area.

## Summary of Findings

Based on our review of Government, industry, and academia asset management tools and capital planning models, we found:

- **Government Performance and Results Act: Compliance and Understanding**

In our research we found that although the Federal community is aware of the new Office of Management and Budget (OMB) capital budgeting guidelines, agencies still have a long way to go before integrating them into their capital planning. In addition to Vice President Gore's Reinventing Government Initiative and the Government Performance and Results Act (GPRA), the new OMB capital budgeting guidelines represent one more significant input that Federal agencies need to incorporate into their strategic and capital planning.

That is not to imply that some agencies are not further along in this process than others. The United States Coast Guard (USCG) is one example of an agency that has been cited by the General Accounting Office (GAO) and various congressional committees as "a leader among agencies taking successful strides to improve their capital asset management process" for its advances in this area.

- **Public Sector: More Use of Processes Than Tools and Models**

Our research uncovered numerous "processes" as opposed to actual "tools and models," as defined for the purposes of this study. The governmental organizations and universities that we surveyed have been recognized by the GAO for their ability to link strategic planning goals and objectives with the capital planning process. Upon further review, there are few agencies making significant use of objective analytical tools or methods within their larger decision-making frameworks. Decision-making criteria tend to vary from one project or organization to another and the criteria became more subjective the closer we examined them.

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<sup>1</sup> See Appendix A for copy of charter.

- **Private Sector: Balanced Use of Processes, Tools, and Models**

Our research of the private sector was limited in scope due to both the reluctance of firms to participate in this study and the lengthy process required in identifying the appropriate contact. Of the private sector firms contacted, we were only able to interview Ford and General Electric Company. Both companies have a delineated process for asset management and capital planning as well as the analytical techniques and measures needed for making financial investment decisions. There appear to be both a concrete set of steps to follow as well as analytical tools and measures to apply. The analytical techniques used by the firms we interviewed as well as those highlighted in a study conducted by the Department of Veterans Affairs are explained in more detail in Section III, Findings and Appendix G.

- **Software as a Tool**

Our research shows that there is no dominant industry leader in asset management or capital planning software. Organizations, both private and public, rely heavily upon fully customized spreadsheets and databases or off-the-shelf software that is later customized internally. Both sectors have mentioned the need for integration. Specific software packages are highlighted in Section III, Findings and Appendix D.

## **II. RESEARCH METHODOLOGY**

### **Data Collection**

The Office of Governmentwide Policy (OGP) utilized a variety of media to gather information for this study. Initially, in December 1997, OGP sent letters to more than 80 Federal agencies, professional, industry and trade groups, and academic institutions.<sup>2</sup> This letter introduced the study as well as requested any information pertaining to real property asset management tools and models that were being used by industry. Another request was included in the May 29, 1998, issue of the Federal Real Property Association Newsletter. In addition, a request for input was included on the OGP Policy Works Web Site. As of August 1998, the Tools and Models page had been opened 251 times but has generated no responses.

The majority of information contained in this report was obtained through telephone interviews initiated in the latter part of July 1998 and continued into October 1998.<sup>3</sup> Through the use of telephone interviews, the Office of Real Property in OGP was able to arrange a site visit at the US Fish and Wildlife Service and request written documentation from the various organizations.

### **Selection Process**

Initially, as indicated above, 80 Federal agencies, professional, industry and trade groups, and academic institutions were solicited for input in the study. However, the organizations chosen to participate in the telephone interviews were selected from the entities cited in the GAO's draft report on "Leading Practices in Capital Decision-Making."

### **Definitions**

For the purpose of this study, tools and models are defined to include educational courses, computer software, Government and industry best practices, and analytical methods or models. Additionally, for the purposes of this study, capital assets are defined as real property holdings such as land, buildings or other related facilities.

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<sup>2</sup> See Appendix B for a copy of the letter.

<sup>3</sup> See Appendix C for a list of organizations contacted.

### III. FINDINGS

Our research effort into Tools and Models for Real Property Asset Management led us to uncover "processes" -- the steps agencies take in developing their capital plans. We have found, in the public sector, that a variety of tools and models are in use, but not yet consistently utilized on a widespread basis. The private sector, however, utilizes a number of analytical techniques specific to the type of capital asset being evaluated. This section will describe in more detail some noteworthy examples of the tools and models currently in use by the industry.

#### TOOLS

##### *Software*

According to the "Real Estate Investment Trust Information Technology Survey," sponsored by the National Association of Real Estate Investment Trusts (NAREIT) and conducted by KPMG Peat Marwick, there is no clear market leader providing software applications or support to the Real Estate Investment Trust industry. Nor does there appear to be integration among property accounting, property management, and portfolio analysis software. The top three applications used for property level accounting include Skyline, MRI, and CTI. The top four applications used for property management applications are Skyline, AMSI, CTI, and MRI.<sup>4</sup> The key criticism cited in the study was the lack of integrative systems.

##### *Off-the-Shelf Software*

Two examples of customized off-the-shelf applications worthy of note include:

- **United States Fish and Wildlife Service's Refuge Management Information System (RMIS)**

This database software was customized internally to meet the United States Fish and Wildlife Service's (USFW's) internal and external data tracking needs as well as to meet OMB capital planning guidelines and GPRA requirements. Two of the RAMIS system's modules have been designed to describe, categorize, rank, and track deferred maintenance projects and unfunded capital projects; and, significantly, to identify the programmatic goals those projects are intended to meet. The Land Acquisition Priority System is another USFW database that ranks land acquisition projects and focuses acquisition efforts toward service priorities.<sup>5</sup>

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<sup>4</sup> See Appendix D for a list of software packages.

<sup>5</sup> See Appendix E for more information on the US Fish and Wildlife's management information systems.

- **United States Army Reserves' (USAR) Facility Life-Cycle Planning (FLCP) Program**

As the name implies, FLCP offers a life-cycle approach to master planning. The USAR cited several goals that the new system would help them to accomplish. First, the system will enable them to estimate the costs of future repairs to their facilities. These cost estimates can then be used as justification for future budget requests to Congress. In addition, FLCP will improve the entire planning process by avoiding the practice of first waiting for a condition to fail before it is replaced or repaired. The database for the new system is under development. A demonstration of the new system may be available to OGP at a future date.<sup>6</sup>

#### *Customized Software*

According to the NAREIT study, customized spreadsheets and databases are the predominant solution for asset management purposes. Our discussions with Ford and General Electric confirmed NAREIT's findings. For example, Ford currently has an extensive system that tracks its fixed assets but is not integrated with its project tracking or accounting databases. Therefore, they are in the process of creating a fully customized system that will connect all three systems. General Electric also has a fully customized system that was created to track their portfolio of leased properties. Other fully customized data tracking systems include:

- **United States General Services Administration, Public Buildings Service (PBS)**

**System for Administering and Tracking Real Property (STAR)**

This database is used to track PBS's real property, but its primary focus is to track lease transactions and bill agencies accurately on a monthly basis.

**Electronic Acquisition System - Standard Automated Contracting System (EAS SACONS)**

This system is used in PBS for procurement support and is being tested for use with non-real property property.

**Inventory Reporting Information System/Project Manager's Toolbox (IRIS / Toolbox)**

PBS uses this system to track small building projects, work items, safety items, work authorization numbers. This system is still in the testing stage.

- **United States Department of State**

The Office of Real Property Management uses ARCHIBUS and FIRM to manage its domestic property. ARCHIBUS, developed by Booz-Allen & Hamilton, uses the facilities management database package. The system is used to track internal space

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<sup>6</sup>See Appendix F for more information on USAR's FLCP program.

within buildings. In the future, State hopes to combine ARCHIBUS and FIRM into a seamless query tool.

***Educational Courses***

In the past five years, there has been a significant increase in the demand by corporate real estate executives for educational offerings in financial analysis. According to two major trade associations, NACORE's Institute for Corporate Real Estate and the International Development Research Council (IDRC), course offerings and enrollment have more than doubled in the past several years. Currently, both organizations offer either a designation or certificate focused in financial analysis of corporate real estate holdings.

**MODELS**

***Analytical Methods and Techniques***

The Department of Veterans Affairs "Capital Investment Methodology Report," prepared by Economic Systems, Inc., identifies and examines analytical tools and methodologies that assist government and private industry in capital investment planning and decision-making.<sup>7</sup> The report organized capital investment methodologies into three categories: Cost Benefit Analysis Techniques; Strategic Planning and Related Techniques; and Prioritization and Selection Techniques. The following table shows the various techniques highlighted in the report.

<b>Cost Benefit Analysis Techniques</b>	<b>Strategic Planning and Related Techniques</b>	<b>Prioritization and Selection Techniques</b>
Payback Method	Strategic Planning	Multi-Attribute Decision Methodologies
Net Present Value	Strategic Cost Management Approach	Ad Hoc Techniques
Rate of Return		Optimization Approaches
Economic Value Added		
Risk Analysis		
Portfolio Analysis Model		

The report found that, overall, private businesses tend to utilize sophisticated analyses more than Government or universities. Of the ten public organizations and universities that the report surveyed, only two used any of the techniques for capital decision making. Of the seven private firms interviewed, all but one used the various techniques listed above. Our own research showed similar practices.

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<sup>7</sup> See Appendix G pages 3-1 through 3-21 in The Department of Veterans Affairs "Capital Investments: Survey of Best Practices".

## *Universities and the Public Sector*

While some universities and government organizations use analytical techniques, usually decisions are made using less objective decision making methods. For example, if a net present value calculation shows that it is more cost effective for a campus of the University of California or Maryland to buy rather than lease a facility, that campus may have to act contrary to the analysis due to funding availability. At the state and local levels of government, public interest may supercede analytical techniques as decision-making criteria.

In the Federal community, the United States Coast Guard (USCG) has created a system to manage its capital assets and has identified specific analytical methods to measure its performance.

- **United States Coast Guard**

The USCG is considered to be both an operating agency and a military service. As such, shore facilities are needed to support the operational assets used to accomplish its mission and to provide integrated logistics, training and management functions. Operational support facilities are used: to moor cutters; tie up boats; secure aircraft; protect equipment; and provide safe housing and functional facilities for its personnel. Although included in this study, only 17% of the USCG's 1996 funding dollars were allocated to shore facilities. In other words, approximately 17% of the USCG's capital assets fit within the definition of capital assets used in this study. As of this date, the USCG is currently developing a shore facility capital asset management (SFCAM) plan. This plan will use similar models and concepts described in the Agency Capital Plan discussed in this report.

The Agency Capital Plan (ACP) is the USCG's long-term plan for managing and budgeting its portfolio of capital assets.<sup>8</sup> The ACP details the two tools employed by the USCG to make capital asset decisions. First, Return on Investment (ROI) is used as a tool for quantitative analysis or to determine the degree to which alternative options contribute to performance goals. To maximize ROI, an organization must either maximize the value of outcome achieved, or maximize the number of outcomes achieved, or minimize the cost of achieving those outcomes. Next, the concept of a strategic "lens" or "filter" is used to compare investment alternatives from a qualitative or strategic alignment perspective. This filter is used to describe the key attributes that a capital asset must have in order to be the best capital asset in the envisioned future.

Once the USCG capital plan is created and executed, the assets are managed as outlined in the model below.

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<sup>8</sup> The USCG's capital assets include ships, boats, aircraft, shore infrastructure, and support infrastructure comprised of the Command, Control, Communication, Computers, Intelligence, Surveillance, and Reconnaissance or C4ISR as it is commonly referred.

A "systems of systems" approach is the capital portfolio conceptual model used by the USCG to manage its capital assets. This systems approach allows planners and asset managers to identify the role that each element that the USCG's asset base plays in contributing to individual performance goals and overall service outcomes. By linking assets to outcomes and grouping assets into specific categories (or systems of systems), the multi-mission nature of assets and their contribution to overall service effectiveness is clearer. This also allows the life-cycle management of assets that make up a system to be more rationally tied to the budget process. The timing of mission analysis, facilities planning, investment, divestiture and recapitalization decisions, as well as defining requirements for funding, is managed *from the perspective of maintaining system capability rather than on an asset-by-asset basis*.

- **United States General Services Administration**

The Regional PBS Portfolio Management Division in GSA's Heartland Region contracted with Professor William Beedles of the University of Kansas Business School to design a course on marginal cost analysis for use as a tool to make capital investment decisions. The class considers the present value of the cash flows, and the risks of occupancy and market changes. Marginal cost analysis provides another tool for evaluating the performance of a building versus relying solely on net operating income as the final measure.

### ***Private Sector***

In the private sector, companies have more control over their funding sources and spending behavior. They are not necessarily torn between serving a social mission and the bottom line. As such, private organizations can rely more heavily on analytical methods alone to determine their capital investment decisions. The General Electric Company uses a myriad of techniques in its decision-making process. General Electric follows a complex process it calls the Six Sigma Methodology. This six-step process begins with the internal or external customer identifying a problem or issue and the organization scoping, analyzing, measuring, improving, controlling, and finally continuing to measure it. The problem or issue at hand determines the appropriate analytical tool or measure.

At Ford, the decision to expand or build a new manufacturing facility is entirely dependent upon the introduction or expansion of a product. When Ford is considering bringing a new product on-line, it identifies the production needs of the vehicle. Ford analyzes such factors as the cost of research, development, and parts and estimates the projected life of the new model and the potential cash flow. Real estate costs are only a small component of the total investment required to introduce a new vehicle. As such, the entire project must clear the 30% to 40% IRR hurdle in order to be approved. Calculating the IRR is the analytical method of choice used at Ford and it is relied upon heavily in the capital planning process.

## **RECOMMENDATIONS FOR FUTURE ACTION**

When this research is continued at a future date, our recommendations are to:

1. Focus exclusively on locating tools and models used by the private sector. It is our belief that there is probably more to be learned from the private sector in the mid-term future; and
2. Revisit the Federal community after it has had more time to adjust to this new era of performance based budgeting and has integrated the GPRA and OMB capital planning requirements into its strategic planning and capital budgeting.