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Defining IT Portfolio Management

by Chip Gliedman
EXECUTIVE SUMMARY

Business cases for IT investments are now the norm rather than the exception. However, projects are still considered individually as discrete investments. Likewise, there is often a segmentation between new application spending, the realm of project portfolio management (PPM), existing application maintenance, the realm of application portfolio management (APM), and infrastructure investment. As of yet, few, if any, organizations are looking holistically at the entire IT budget as a unified suite of investments. IT organizations can apply many of the same tools the financial community uses to build and manage financial portfolios to maximize benefits, mitigate risks, and better meet the needs of its constituent customers. Although the science of IT portfolio management is in its infancy, understanding the concepts and laying the groundwork now will allow for quicker adoption later as the tools and tenets become better defined over the coming years. The ultimate goal is delivering to the organization predictable and higher returns at the appropriate level of risk. Following, Forrester lays out the basic concepts and definition of IT portfolio management, its relationship to other management processes, and Forrester’s research agenda for coverage of these areas.

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WHAT IT MEANS

2 Changing The Way IT Makes Investment Decisions

NOTES & RESOURCES

Forrester Research has worked with numerous firms in developing and improving their financial analysis of IT investments, establishing project initiation and evaluation frameworks, and developing their project and application portfolio management processes.

Related Research Documents
“Processes And Tools: The Nuts And Bolts Of Project Portfolio Management”
April 11, 2003, Planning Assumption

“Maximizing IT Value: Portfolio Management Options For 2003”
January 6, 2003, Planning Assumption
IT PORTFOLIO MANAGEMENT

Creating the right mix of investments to properly use limited resources while providing the maximum business benefit is the ultimate challenge for IT leaders. This is the world of IT portfolio management — balancing resources, technology, business needs, and changing situations while simultaneously maximizing returns and minimizing risk. It may seem that meeting these goals would require the rhetorical talents of Socrates to understand the nuances of current and future business demands. Add to this the instinct of Nostradamus to foresee the potential for existing and nascent technologies to meet these demands. Throw in the cunning of a chess grand master to anticipate and position resources across the IT chessboard to turn plans into actions as the environment keeps moving. However, deconstructing this overall challenge into a set of smaller problems lets us bring multiple tools to the task and make the problem less daunting.

The IT portfolio is the tangible manifestation of IT’s plan to support the business in meeting its strategic goals. This portfolio is composed of:

- **A suite of current investments.** Existing application, programs, and processes are investments that must be managed, optimized, retired, or enhanced as appropriate over their life cycle.

- **A suite of new initiatives.** These investments are added to the portfolio to add incremental value to the organization through cost savings, productivity gains, or business advantage.

- **A suite of externally mandated initiatives.** In addition to the above, there are initiatives mandated by regulatory, governmental, or industry rules that, although required, consume resources that could otherwise be spent on higher-value projects or initiatives.

- **A suite of infrastructure investments.** Underlying many of the applications is a set of shared infrastructure assets. The degree of segregation of these assets or their linkage to associated applications or business processes varies to a wide degree by organization. However, they are part of the IT investment portfolio and must be evaluated and managed as such.

To craft the IT portfolio, a series of “buy, sell, or hold” decisions needs to be made, balancing the needs, resources, and risk tolerance of the organization. What makes IT portfolio management different is the unified view of IT spending in its entirety. As such, IT portfolio management is a new and nascent field, but one that will grow in awareness and importance over the next five to 10 years.
THE PORTFOLIO MANAGER

Perhaps the best example to use when considering the issues around portfolio management is a stock or mutual fund manager. The fund manager is chartered with tailoring a suite of investments to meet the needs of a specific customer set. Because each customer is different — with one willing to assume more risk for the chance of greater returns, while another looks for safety, and a third for diversity — the manager’s investment decisions must reflect the specific needs of each customer. This responsibility corresponds to the modern CIO, who must manage the suite of technology investments to meet the specific needs of the client organization. Both will be judged on their ability to meet the customers’ needs by creating the maximum value, within the bounds of available resources and within the bounds of acceptable risk.

Continuing with the example, the fund manager cannot be expected to deliver positive returns for every investment. For anyone other than a manager chartered with investments in fixed-income securities, such a performance, while laudable, is both highly unlikely and perhaps not in the client’s best interest. To maximize return, one must often inject a level of risk. Therefore, some percentage of investments will lose value, offset by the investments that gain in value. This performance is expected.

Unlike a fund manager, the success of the CIO may hinge on a single failed investment. Every project is expected to be on time and on budget. Every project is expected to deliver on expected returns. Most likely, this is due to ill-defined and ill-measured performance metrics and communications. The stock fund manager communicates the overall performance of the investments on a regular basis (and with “rolling average” information available at all times). The IT portfolio manager must likewise perform post-investment analysis to determine the delivered value of previous investments and communicate the results of the unified suite of investments in financial terms that the customer organization easily understands.

Here’s where IT and financial investments vary: A stock fund manager segments investments into different classes. The amount of each class of investment is balanced against the needs and desires of the customer. Different criteria are used to measure the success of each class, and investments are made as components of the whole.

IT investments are considered discretely. Return on investment potential may be considered for an individual investment, but the impact on the portfolio as a whole is often ignored. Investment allocation across segments is not targeted in advance, but is rather an outcome of project funding. Resource utilization and optimization, rather than outcome, may drive decisions. And perhaps most importantly, all investment classes are evaluated with the same set of criteria.

While no organization will consciously fund a project with its goal being cancellation or failure, changes in business, economic, or market conditions may render some projects
non-viable. When viewed as a component of an investment portfolio, the decision to cancel such projects and reallocate funds to better opportunities becomes the same as selling an underperforming stock.

This cancellation does not make the initial decision to fund the project any less correct. At the time, the investment made sense. However, each investment must be evaluated in the context of current business conditions and evaluated as to whether it advances the organization toward its goals.

IT portfolio management then becomes the process of making “buy, sell, or hold” decisions — the same decisions made by a financial planner. This change in the way that investments are viewed — as components of a unified portfolio — is the first step to realizing IT portfolio management.

**IT PORTFOLIO MANAGEMENT IN CONTEXT**

IT portfolio management is the superset of the various portfolio management subspecialties required to develop, execute, and allocate the IT resources of the organization. Together, these subspecialties provide the information needed for ongoing management and optimization, providing information up and down the reporting structure and creating the feedback loops required for optimal performance (see Figure 1).

**Figure 1** Interrelating IT Processes

- **Initiate project**
  - Create IT strategic plan and project portfolio
  - Plan project

- **Implement project**
  - Corporate/business unit strategic plans
  - Select approach
  - Deploy metrics

- **Operate project**
  - Maintain IT strategic plan
  - Measure results
  - Optimize results

Source: Forrester Research, Inc.
Within this context, IT portfolio management sits between the strategic planning functions and the project arbitration, project management, and project optimization processes (see Figure 2). Included within and feeding up into IT portfolio management are:

**Project Portfolio Management**

Projects that are under consideration or currently underway are the domain of project portfolio management (PPM). By using techniques like categorization, financial, inventory, and risk and benefits analysis combined with tools, companies can prioritize which projects best fit their goals.¹

Within PPM, common evaluation criteria allow for project arbitration and project-to-strategy alignment. Resource management and productivity management tools ensure that approved projects are adequately staffed with the right numbers of the right people, and project management tools ensure that schedules are met and expected benefits delivered. Key goals of PPM include:

- **Elimination of redundancy.** Collecting information about projects underway or under consideration can identify redundant or overlapping efforts.
• **Better resource allocation.** Maintaining a single repository for projects and their requirements can let the organization better allocate and schedule resources, avoiding the need to bring in external, and potentially more expensive, resources to deliver on committed schedules and goals.

• **Common repository for business value metrics.** Associated with each initiative or project will be a set of business-oriented metrics and a business case outlining expected business value. These goals can be reviewed by all appropriate participants in the initiative, maximizing continued focus on value and a higher likelihood of value realization.

The initiatives managed by the PPM organization become the engine of value growth, the way that the organization rebalances the IT investment portfolio, and the way that the IT reacts to changes in business focus or market dynamics.

**Application Portfolio Management**

Forrester defines application portfolio management (APM) as:

> A set of technologies that reads source code artifacts from across the enterprise, records the relationships between them in a knowledge base, and augments the knowledge base with business information to develop management intelligence about applications.

Application portfolio management provides a way to create business-oriented metrics around our existing applications by linking existing applications and components with concurrent costs to manage and maintain current business processes, business value, and business metrics. The repository of information created by application portfolio management tools and processes feeds into overall IT planning so that:

• **Maintenance and renewal decisions are made with sound business backing.** Overlaps can be identified, systems can be consolidated, and opportunities for savings through application sunset can be identified, freeing funds to be spent on new business-enhancing applications.

• **Proper disaster recovery and business continuity planning can occur.** Critical applications are identified and prioritized over less critical ones. Service levels can be defined based on business impact and business value supported. Resources are used both most efficiently and most effectively.

• **Better outsourcing agreements — for both sides.** APM repositories, as a source of truth about applications in use, will allow better visibility by both a potential or current outsourcing partner and by the application-owing client. Such an inventory can be used
to establish a fair and equitable base for contract pricing, to set quality and complexity benchmarks at contract inception that will aid year-over-year comparisons to note improvement/declines and to answer strategic, ad hoc questions about the applications.

**IT Asset Management And Infrastructure Management**

Much in the way that APM inventories existing applications and ties them to business processes, IT asset management (ITAM) inventories network-attached hardware and installed licensed software and links them to underlying contracts, depreciation schedules, and maintenance agreements. The potential benefits of ITAM include:

- **License compliance.** Tracking installed software (also using autodiscovery technology) and matching it against records of licensed software. This can both mitigate the risk of unexpected costs resulting from a compliance audit and help reduce costs by identifying unused licenses.

- **Better maintenance and replacement requirements.** Aging hardware or software that is approaching the end of its useful life and needs replacement can be identified.

- **Improved utilization.** Identifying existing assets is the first step to better capacity and utilization planning. Underused assets can be identified avoiding redundant purchases. Options to scale or reuse assets can be exercised.

As the underlying infrastructure and the architecture behind it are part of the IT investment portfolio, they must be managed as such. Investment decisions must be made based not solely on cost and cost savings possibilities but also on the infrastructure as a component that can reduce IT risk, increase business flexibility, or enable business value through better execution of new application development and rollout.

**IT PORTFOLIO MANAGEMENT AND STRATEGIC PLANNING**

The strategic plan for the organization lays out the basic goals and direction for that organization over a coming period of time. To implement that plan, individual goals are apportioned to various departments in the organization. These departments, in turn, define strategies and tactics to let them meet their part of the whole. The IT organization will receive its marching orders from two fronts:

- **General business management.** The goals of the organization as a whole will be apportioned to different departments. Specific goals for IT defining its direct contribution to the corporate strategic plan are communicated. The corporate goals are typified within the key performance metrics for the CIO.
• **Departmental business management.** Individual departments or business units will define specific IT initiatives required to support the business unit’s attaining its individual goals. These departments will incorporate the availability or use of specific technologies in their own contributions to the organization’s goals.

Very often, these two sets of orders will be in conflict. General business will want to reduce IT spending at the same time that the departments are looking to implement multiple new systems. From the competing set of demands, an IT strategic plan will be crafted.

**The IT Strategic Plan**

The following broad steps should be taken as IT and the business work together to create a shared vision through the IT strategic plan:

• **Gather relevant business factors.** These factors should come from the corporate and business unit level strategic plans that use techniques like balanced scorecard; strengths, weaknesses, opportunities, and threats (SWOT) analysis; or Porter’s 5 Forces model. The purpose is to identify those business factors that can and should be impacted by IT.²

• **Gather relevant IT factors.** Similar to the previous group, these are IT factors that have an impact on the investments in IT. Examples include resource availability and complexity of the infrastructure.

• **Determine the key value proposition for the overall IT portfolio.** Different organizations with different expectations of IT and IT’s role will require different-looking IT investment portfolios. Understanding the role IT will play in executing the organization’s strategic plan will set the stage for crafting the individual investment elements.

• **Prioritize.** An initial pass at prioritizing goals can now take place, with the result being a target allocation of spending (see Figure 3). This creates an initial target for project spending. When starting, looking at new investments provides a more manageable domain rather than trying to grasp the enormity of the entire IT budget.³

Determining the basic relationship and business expectations about IT’s proper role within the context of the corporate strategic plan is the key first step in thinking holistically about IT investments. Portfolios will vary based upon an organization’s position in the market, the dynamics of the market, the state of current IT investment, and the organization’s tolerance for risk.⁴ Such considerations perfectly mirror those found in crafting a personal investment portfolio to meet a specific customer’s investment or retirement needs. As such, many of the same tools can be applied to IT investment considerations.
Linking The Portfolio To The Strategic Plan And Investment Allocations

Once the strategic plan is developed and spending priorities established, potential investment options are analyzed to ensure that they contribute to one or more of the goals. With this basic analysis completed, the portfolio manager can then:

- **Allocate spending by goal.** Investment choices can be related to goals. Projects that do not support corporate goals can be evaluated for fit and goals reassessed. Should an investment contribute to multiple goals, project costs and benefits can be allocated proportionately (see Figure 4).

- **Validate the relevancy of the strategic plan.** Comparing the results of top-down planning, in which the goals and allocations are defined by management, and bottom-up planning, in which desired projects are proposed and submitted, can show IT/business alignment or disconnect. The initial alignment exercise can point out discrepancies between strategic planning and tactical suggestions.

- **Develop trial portfolios based on resource limitations.** Every project probably won’t be funded, owing to capital, developer, resource, and business limitations. Combining different sets of projects into trial portfolios points out the tradeoffs that need to be made.5

- **Communicate IT plans in business terms.** Before final adoption, the proposed IT investment portfolio must be communicated to both management and relevant stakeholders in the business (see Figure 5). Projects that are not going to be funded or that are going to be delayed must be communicated so the business groups can adjust expectations and goals. Agreement that the proposed suite of investments is the best for the business must be reached before investment.
### Figure 4 Allocate Projects To Strategic Goals

<table>
<thead>
<tr>
<th>Project</th>
<th>Budget</th>
<th>Goals supported</th>
<th>Percent per goal</th>
<th>Budget per goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project 1</td>
<td>$200K</td>
<td>1</td>
<td>100%</td>
<td>1: $200K</td>
</tr>
<tr>
<td>Project 2</td>
<td>$50K</td>
<td>1,2</td>
<td>1: 50% 2: 50%</td>
<td>1: $25K 2: $25K</td>
</tr>
<tr>
<td>Project 3</td>
<td>$112K</td>
<td>3</td>
<td>100%</td>
<td>1: $112K</td>
</tr>
<tr>
<td>Project 4</td>
<td>$75K</td>
<td>4</td>
<td>100%</td>
<td>1: $75K</td>
</tr>
<tr>
<td>Project 5</td>
<td>$280K</td>
<td>2,3</td>
<td>1: 25% 2: 75%</td>
<td>1: $210K 2: $70K</td>
</tr>
<tr>
<td>Project 6</td>
<td>$95K</td>
<td>1</td>
<td>100%</td>
<td>1: $95K</td>
</tr>
<tr>
<td>Project 7</td>
<td>$300K</td>
<td>3</td>
<td>100%</td>
<td>1: $300K</td>
</tr>
<tr>
<td>Project 8</td>
<td>$167K</td>
<td>1</td>
<td>100%</td>
<td>1: $167K</td>
</tr>
</tbody>
</table>

Source: Forrester Research, Inc.

### Figure 5 Comparing Top-Down With Bottom-Up Planning

<table>
<thead>
<tr>
<th>Allocation by goals</th>
<th>Allocation by budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve flexibility</td>
<td>Improve flexibility</td>
</tr>
<tr>
<td>10%</td>
<td>6%</td>
</tr>
<tr>
<td>Grow revenue</td>
<td>Grow revenue</td>
</tr>
<tr>
<td>25%</td>
<td>36%</td>
</tr>
<tr>
<td>Improve user productivity</td>
<td>Improve user productivity</td>
</tr>
<tr>
<td>35%</td>
<td>40%</td>
</tr>
<tr>
<td>Reduce costs</td>
<td>Reduce costs</td>
</tr>
<tr>
<td>30%</td>
<td>18%</td>
</tr>
</tbody>
</table>

Source: Forrester Research, Inc.
• **Manage the portfolio as a portfolio.** As with any portfolio, investments are made to meet specific needs. In some cases, investments may appear to be at odds with one another. However, such investments may be designed more to mitigate risks than to provide direct benefits. For example, investments in business continuity, future system scalability, and future business flexibility do not produce immediate business benefits. Such investments will reduce the overall ROI but are critical nonetheless. However, as components of a portfolio, they serve an important role. If these investments are not used, one might consider them “failed.” However, just as with a stock portfolio, the performance of an individual investment should not be over-emphasized if the portfolio is producing the desired overall returns.

• **Expand the coverage.** Full IT portfolio management is more than project and resource allocation. Over time, additional investment choices should be rolled into the portfolio analysis until all IT spending is considered.

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**THE ROLE OF PORTFOLIO MANAGEMENT IN DISTRIBUTED IT ORGANIZATIONS**

IT portfolio management within a centralized IT organization is fairly straightforward. One organization is responsible for planning and execution for the organization as a whole, and a portfolio management function, whether within the office of the CIO or managed through the PMO, can maintain oversight over multiple spending priorities. However, within a distributed, federated, or shared-services organization, IT portfolio management is both more difficult and more critical.

When disparate groups can select and fund projects and allocate budgets based on specific business unit or regional goals, the strategic may be sacrificed for the tactical. Investments that would benefit the organization as a whole, such as those for future options, reusable components, or infrastructure improvements, are often deferred or subjugated.

Within such organizations, the role of portfolio management maps closely to that of enterprise architecture. As with enterprise architecture, an organization that can collect and collate strategic directions, investment overlaps, unfunded mandates, and project synergies in a distributed organization can unify the series of individual investments into a unified collection. The advantages of such an organization within a distributed organization can include:

• **Fewer investment overlaps.** Multiple projects addressing similar business needs can be unified and consolidated into a single initiative with potentially reduced costs for greater benefits.
• **Shared funding for infrastructure.** Distributed organizations often defer infrastructure investments, as no single organization wishes to fund any investment that does not positively contribute to its own goals. Consolidating an organizational view of IT spending into a potential portfolio on at least an annual basis identifies such gaps in planning and commitment.

• **Risk mitigation.** As with infrastructure, the organization can identify gaps in risk management planning and take steps to mitigate them. A unified portfolio view with potential central funding of certain components will benefit the organization.

• **Unified reporting.** Asset allocation in distributed organizations occurs piecemeal. Unified reporting through a portfolio view lets the organization evaluate its investment allocations and ensure that overall IT spending, although distributed, is in line with organizational goals.

**ADVANCED IT PORTFOLIO MANAGEMENT CONCEPTS AND FUTURE REPORTS**

Once the concepts of IT portfolio management are embraced, the process of evaluating and communicating the components and goals of the portfolio can be layered in. Future reports will cover such topics as:

• **Visualizing the IT portfolio — classifying and categorizing IT investments.** IT investments, just like financial investments, can be classified in multiple ways. A framework for evaluating potential investments can ensure the proper balance of investments.

• **Metrics and measurements for the IT portfolio.** Few organizations measure and report the results of their investments and fewer still consider these results as components of the portfolio. Developing the proper metrics and measurement processes to ensure that the initial motivation for the investment carries through implementing and optimizing the results is critical to move from project-based to portfolio-based thinking.

• **Risk and return and their relationship to the IT portfolio.** Modern portfolio theory, as defined by Harry M. Markowitz, shows that a well-defined portfolio of investments can produce the greatest return at the lowest risk. Some of the techniques of modern portfolio theory can be applied to the development of an IT portfolio to optimize investment choices.

• **The role of architecture in maintaining the IT portfolio.** IT architecture is about creating standards and components to minimize costs, increase business benefits, maximize flexibility, and reduce risk. Within the architecture function, creating and
managing the architectural elements are a portfolio unto themselves. Applying many of the same portfolio management concepts to IT architecture can change this function from one of “standards police.”

WHAT IT MEANS

CHANGING THE WAY IT MAKES INVESTMENT DECISIONS

Most IT organizations are currently structured around projects. Investment decisions are evaluated individually. Projects are compartmentalized and managed discretely. Success and failure are each evaluated individually, rather than on the whole. Moving to a portfolio approach to IT planning and spending will lead to:

- **Better investment choices.** Fear of failure on an individual project leads to picking the safest choice, rather than the one with the best balance of risk and return. A portfolio approach allows funding for projects that together deliver the best combination of risk and return, potentially at the expense of an individual project success. This is especially true for investments in which standards have not yet solidified. An organization may fund projects based upon competing standards to build experience and knowledge knowing well that one of the two investments will become orphaned once a technology direction is standardized.

- **Better funding for infrastructure and architecture.** A project focus may sacrifice multiproject synergies. Investments that will benefit multiple projects, like those for infrastructure and architecture, can be funded out of the portfolio, rather than buried within individual investments.

- **An elevation of IT’s role within the organization.** When IT can report that “we spent $x$ and delivered $y$ for an overall return of $z$, the discussion changes. IT moves from being considered a cost center to a contributor to business goals by producing a return on investment and return on invested capital.

ENDNOTES

1 Although maturity levels are still quite low, the potential audience for portfolio management is sizable. Only eight of 27 of the companies Forrester interviewed for this report use commercial applications; only 14 use standard criteria for analysis. These numbers should change rapidly, as many of those interviewed plan to have formal processes firmly in place within the next two years. Implementing PPM is a project, and it must be planned the same way that a strategic project is planned: Develop goals and scope, then communicate that information to manage expectations. Once the foundations of PPM are in place, consider tools. See the April 11, 2003, Planning Assumption “Processes And Tools: The Nuts And Bolts Of Project Portfolio Management.”
Developing an IT strategic plan is difficult, but should not be a mystery. After reviewing hundreds of strategic plans and assisting in the creation of many, Forrester has determined some common elements in good strategic plans as well as some common mistakes. See the February 13, 2003, Planning Assumption “Best Practices And Common Mistakes In Creating The IT Strategic Plan.”

Evaluating new project spending is the realm of project portfolio management (PPM) and provides a good starting point for full portfolio management. See the April 11, 2003, Planning Assumption “Processes And Tools: The Nuts And Bolts Of Project Portfolio Management.”

In general, we believe financial firms should have a mixture of technologies at different maturity levels — few if any firms can or should be leading-edge in all technologies, or fast follower across the board, or a conservative investor in every area. See the July 7, 2003, Planning Assumption “Using Technology Effectively In Financial Services Requires The Right IT Portfolio Strategy.”

An organization beginning the portfolio process should not immediately invest in tools to help with portfolio development. See the March 11, 2004, Market Overview “Portfolio Management Tools, When Excel Is Not Enough.”

The process of implementing IT portfolio management may take up to five years, depending upon an organization’s current processes and maturity. See the March 22, 2004, Best Practices “Moving Up The Portfolio Management Ladder.”

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