

September 25, 2006

Measuring The Business Value Of IT

by Craig Symons

BEST PRACTICES

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A Survey Of IT Value Methodologies

by **Craig Symons**

with Laurie M. Orlov and Lauren Sessions

EXECUTIVE SUMMARY

There's an old management axiom: You can't manage what you don't measure. Yet many organizations do a very poor job (or no job at all) of measuring the business value of their IT investments; but maximizing the business value of IT investments is the primary objective of good IT governance. A number of formal measurement methodologies exist for measuring the business value of IT. Simple ROI or other financial metrics are not good enough. By employing a consistent, repeatable, credible methodology that both the business users and IT are held accountable for and that measures projected business value as well as the actual value delivered, organizations can significantly improve their IT investment returns. Four existing methodologies can be adopted as is or customized to suit specific needs. Firms should pick one, institutionalize it as part of an overall governance framework, and embed it in IT portfolio management.

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NOTES & RESOURCES

Forrester interviewed a number of vendor and user companies in preparing this report.

Related Research Documents

["Optimizing The IT Portfolio For Maximum Business Value"](#)

September 30, 2005, Best Practices

["The Economics Of IT"](#)

June 6, 2005, Best Practices

["IT Governance Framework"](#)

March 29, 2005, Best Practices

TARGET AUDIENCE

Chief information officer, IT operations/engineering professional, enterprise architecture professional

THE BUSINESS VALUE OF IT CAN BE MEASURED

Many IT organizations are under increasing pressure from the board of directors, executive management (CxOs), and business unit managers to demonstrate and improve the business value of their IT investments. But IT organizations still struggle to measure business value. Many of the attempts to do so have been focused on ROI measures at the front end as part of developing a business case for the IT portfolio's proposed investments — but these are only estimates of *expected* business value.¹ Actual delivered business value can only be measured by taking a life-cycle approach, working with the business to measure actual benefits after the project is complete. This practice is beginning to gain traction but is not done consistently or broadly (see Figure 1-1).

Firms that strive for best practice in IT portfolio management need to apply a credible standard methodology across the enterprise to measure the business value of investments, both when proposed and when delivered. The good news is that a number of IT value methodologies have emerged that can be employed in the portfolio management process. The key is to adopt one and begin using it.

Getting Started With IT Value Management

Organizations that obtain the maximum benefit from their IT investments recognize that, today, most IT investments involve not just technology but business change as well. They are really business investments with a technology component. The implications of this are profound for IT and its business peers. Success with IT value management starts with joint accountability between IT and business executives. Successful organizations observe the following best practices:

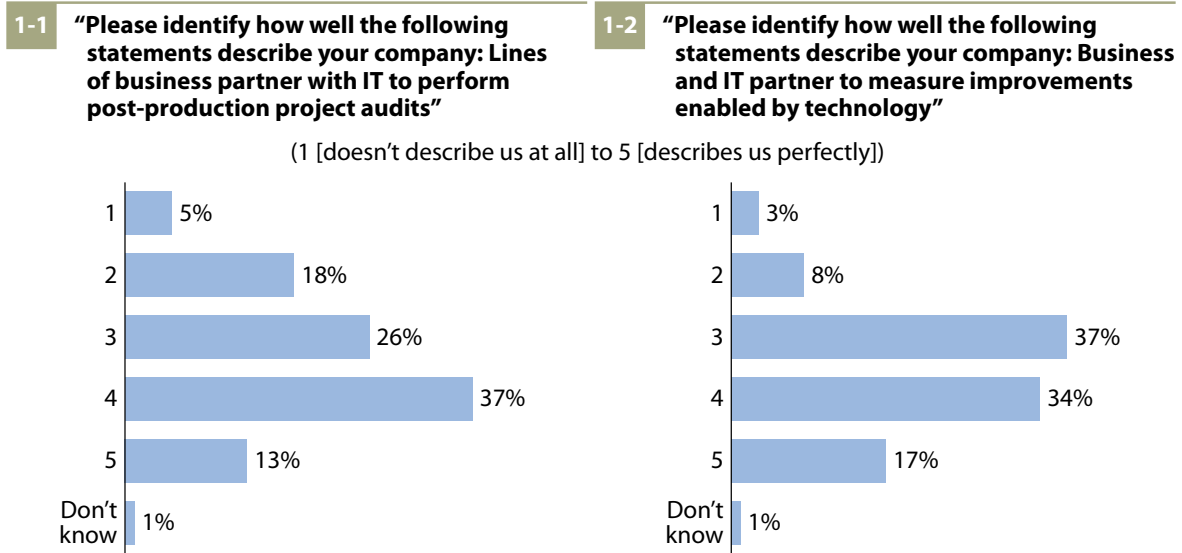
- **Have an active IT steering committee.** Business and IT executives interface through a steering committee comprised of senior managers from all constituent organizations. These executives meet regularly, do not send delegates in their place, discuss the important issues around IT investments, and make tough decisions.²
- **Implement portfolio management.** The steering committee uses an established portfolio management process to evaluate, approve, fund, prioritize, and monitor IT investments.
- **Use a standard IT value methodology.** At the heart of the portfolio management process is a standard IT value methodology which is used within a business case to determine the expected business value of all proposed IT investments. Using a standard methodology enables the steering committee to compare different project proposals from across the enterprise to make fact-based decisions. Furthermore, the methodology can be applied to measure the actual value during the entire life cycle. These methodologies go beyond calculating a return on investment (ROI).

Why Pure Financial Measures Aren't Enough

Forrester's research indicates that a growing number of organizations are making an effort to try to measure the expected benefits from IT investments (see Figure 1-2). However, the majority appear to be using standard financial measures such as ROI, net present value (NPV), internal rate of return (IRR), or similar metric. While this is certainly an improvement over not measuring anything, exclusively using financial measures has serious flaws:

- **There are too many to choose from.** There is a wide variety of financial measures in use today including ROI, NPV, IRR, payback period, and economic value added (EVA) to name a few. The problem is that some of these have multiple interpretations, leading to inconsistency — and the sheer number often results in different groups using different measures within the same organization.
- **They imply a precision that doesn't exist.** Because the measures are calculated by a formula and produce a number, they generate a false sense of credibility. For proposed investments, we can only estimate the benefits. These estimates are the result of a number of assumptions, so the accuracy of the calculated measure is only as good as the underlying assumptions.
- **They often fail to account for intangible benefits.** IT investments typically provide both direct (tangible) and intangible benefits. Intangible benefits, like improved customer satisfaction are often difficult to measure so, they are ignored completely.
- **They don't account for future opportunities.** Sometimes IT investments not only produce immediate benefits but they provide opportunities for future benefits. An example would be implementing an ERP system for financials which would provide future opportunities to layer on human resources, supply chain, analytics, etc., or provisioning infrastructure for a system that could also be used for additional systems.
- **They fail to incorporate risk.** Perhaps the biggest flaw in most financial calculations of benefits from IT investments is significantly underestimating risks or the failure to incorporate any risk at all. For example, an IT organization may have a track record of delivering projects, on average, 20% over budget, yet when business cases are proposed for new projects, they always assume the project will be delivered on budget. Or in cases where some estimates of risk are used, they tend to be very subjective and not consistently applied.

Figure 1 IT Investment Governance Trends



Base: 922 US technology decision-makers

Source: Business Technographics® August 2005 United States Enterprise Governance Survey

40267

Source: Forrester Research, Inc.

This is not meant as a condemnation of financial metrics: they can serve a useful purpose in evaluating the financial attractiveness of IT investments. Our criticism is of the way they are currently applied: inconsistently and in isolation. The answer is to use a more robust methodology that overcomes many of these flaws.

SELECT FROM CREDIBLE IT VALUE METHODOLOGIES

Forrester reviewed a number of IT value methodologies that were developed during the past few years and employed in actual IT investment analysis. This review was not meant to be exhaustive nor is there an implied endorsement of any of these methodologies; the purpose is to expose their existence and encourage IT executives to pick and use the methodology most appropriate for their organization. Measuring the value of IT-enabled business change will be critical to almost every organization as technology becomes embedded in virtually every business process. They are:

1. Business Value Index (BVI)
2. Total Economic Impact™ (TEI)
3. Val IT
4. Applied Information Economics (AIE)

All four methodologies provide a set of tools to help organizations more accurately predict returns from their IT investments and overcome many of the weaknesses in using simple financial metrics. Most of the methodologies have some common themes. All but AIE are organized around the concept of a business case, incorporate methods for quantifying both tangible and intangible benefits, and have some mechanism for risk assessment. They differ mainly in terms of their complexity and quantitative rigor.

BVI Trades Off Business Value And IT Efficiency

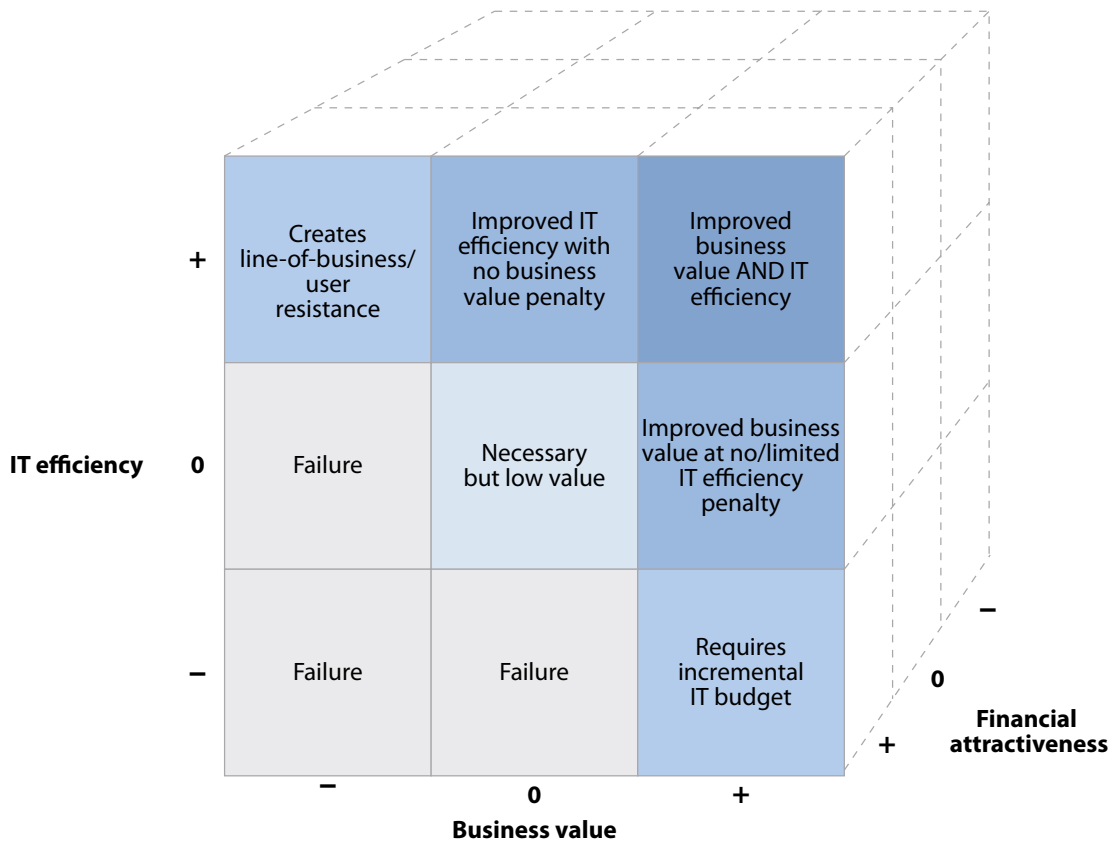
IT organizations that are looking for a straightforward methodology for valuing IT investments should take a look at the BVI methodology developed by Intel's IT organization. Intel, the world leader in silicon innovation, is one of the most technology intensive organizations in the world and IT plays a critical role in its success. In 2005, Intel spent \$1.1 billion on IT and, to ensure that it receives maximum business value from this investment, Intel IT developed the BVI methodology for measuring the business value of IT in 2001.

The BVI methodology helps Intel prioritize investment options, make data-driven decisions, and monitor progress. It goes beyond using purely financial criteria to encompass business value and what Intel calls "IT efficiency":

- **Business value measures both tangible and intangible benefits.** Benefits are assessed based on a set of weighted criteria that include such things as customer need, business and technical risks, strategic fit, revenue potential, level of required investment, and quantification of innovation and learning generated. Each project is given a numerical score for each criterion and the weighted totals are summed to give a single quantitative number for its business value. Weightings are assigned based on each criterion's importance given the ongoing business strategy and business environment.
- **IT efficiency measures its impact on the IT organization.** In an effort to reduce costs and become more agile, IT organizations are increasingly developing enterprise architectures, establishing standards, and acquiring core competencies in key skill areas. How well a project complies or "fits" within this framework establishes its IT efficiency. A project that does not conform to the architecture and/or standards will be more costly to implement and support and will also entail greater risks. Using a set of weighted criteria enables Intel to quantify the IT efficiency of each project.
- **Financial criteria measure financial attractiveness.** Intel clearly distinguishes business value from financial value. There are some projects which have significant business value (e.g., responding to a competitor's threat) but may not be financially attractive. Other investments may be costly but required as a result of regulatory or compliance purposes (Sarbanes-Oxley). Intel typically uses at least three financial metrics in determining financial attractiveness to avoid some of the problems outlined earlier. Using NPV, IRR, and payback period together gives a more robust assessment of a project's true financial attractiveness.

- Scores enable visual comparison of projects.** Each proposed project in the portfolio receives three scores, one for each of the vectors (business value, IT efficiency, financial attractiveness) enabling all projects to be compared with one another. Intel typically uses the Business Value Chart to provide a visual tool to help in the decision-making process (see Figure 2). BVI provides Intel IT with a common language and framework for discussing IT investments, assessing business value and IT efficiency contribution based on common criteria, and prioritizing diverse investments based on the environment and IT strategy. The BVI process enables continued and proactive alignment of the IT project portfolio with corporate and IT business strategies.³

Figure 2 Intel IT’s Business Value Chart



Source: Intel and Forrester Research

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Source: Forrester Research, Inc.

BVI Considerations And Example

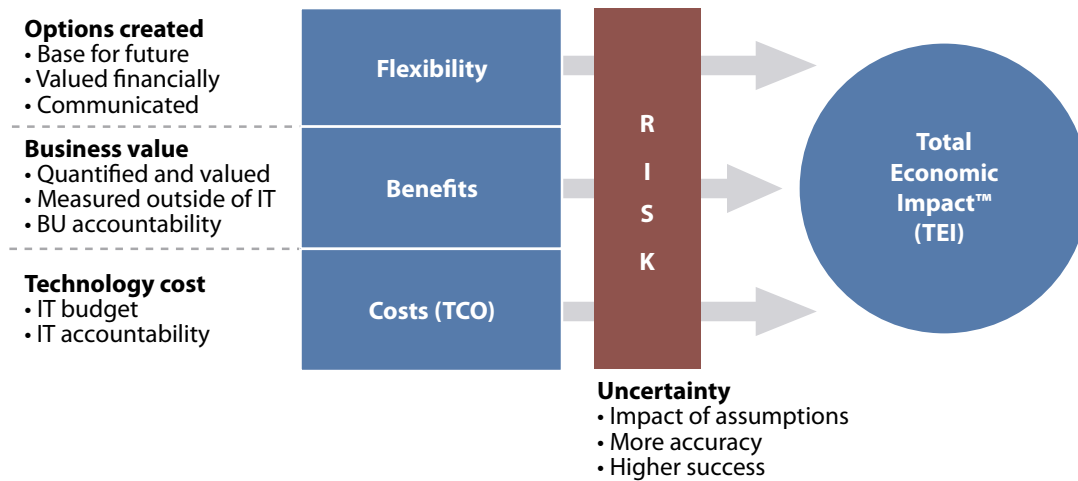
Intel has used BVI internally as part of its portfolio management process since 2002, and Intel documents the business value that it delivers in its annual performance report on IT, the most recent of which is for 2005.⁴ Consider that:

- **It was developed by practitioners.** Unlike some methodologies, BVI was developed by the IT organization, which brought years of experience to its creation and was refined through repeated use.
- **It has a long history.** BVI was developed in 2001 and has been used since 2002 as part of Intel's portfolio management process. Several billion dollars worth of proposed IT investments have been evaluated using this methodology.
- **It is well documented and freely available . . .** The BVI methodology has been documented in a white paper and other materials on the Intel IT Web site and is freely available to all.
- **. . . But you are on your own for deployment.** Intel IT does consult with its customers (568 engagements in 2005), conducts CIO workshops, and speaks at events, however, it does not provide for hire consulting services to assist organizations in implementing BVI.
- **Example:** BVI was used by Intel to prepare a business case for WLANs. BVI helped determine the value of soft benefits, which included faster decision-making through real-time accessibility to information, more accurate information from real-time capture, and increased staff flexibility from anywhere connectivity. A pilot study was conducted on more than 160 users to collect both qualitative and quantitative data which was then analyzed and translated into dollar benefits from productivity gains. Benefits ranged from \$2,165 per year per sales person to a high of \$5,816 per year for marketing staff. The project had an ROI of 8.84 times its original investment, an IRR of 255%, and a payback period of 1.4 years.⁵

TEI Values Flexibility

TEI is Forrester's methodology for valuing IT investments. It fits between the simpler and more qualitative BVI methodology and the more complex and highly quantitative AIE. While containing a number of the aspects of BVI — including the use of a business case, valuing intangibles, and calculating financial returns — TEI adds a methodology for quantifying risk and the value of flexibility. The TEI methodology embraces traditional cost analysis and a best practice approach to minimizing costs, extends it by explicitly incorporating analysis and quantification of both business benefits and flexibility, while tempering these three categories with an analysis of the risk effects. TEI includes (see Figure 3):

- **Costs — the impact on IT.** The TEI cost category contains the changes in IT costs compared with maintaining the status quo. Some cost models look to capture all of the potential cost areas, with the goal appearing to be the “conclusive” determination of the total costs for performing an IT function. TEI, on the other hand, is more concerned with the changes to IT spending that a project under consideration will involve. These cost changes, usually higher for a period of development or implementation and then potentially decreasing over time, can be considered as the required investment to bring this new initiative, application, or technology online. The impact on IT, as quantified in the cost category can be positive, when money is saved, or negative, when money is spent.
- **Benefits — impact on the business.** TEI’s benefit category captures the quantified data relating to changes in the non-IT departments. With many systems, the initial implementation will require changes to personnel or behavior in the effected user departments. Marketing people will either be unavailable or less productive in their marketing tasks. Sales people will be in training, instead of performing their chartered tasks. Therefore, new systems may have a negative initial benefit, as reflected in the goals of these departments. This will hopefully be compensated for by an improved long-term productivity gain, or other positive impact.
- **Flexibility — future options.** Future options, or flexibility, can be looked at as the value of the option to take a second or third action in the future. In this regard, it is much like a financial purchase option. With a financial option, one can purchase the right to acquire a stock or property for a price negotiated today. In the same regard, investing in additional infrastructure in excess of today’s needs, for example, can enable the deployment of future applications. In many cases, these applications may not yet be identified or budgeted, but their right to take these actions in the future still has value to the organization and the scale of that value should be monetized and communicated.
- **Risk.** In TEI, the risk analysis translates the initial estimates for cost and benefits into a range of potential outcomes. Once this range has been determined, by either adjusting the final estimates or by evaluating the effect of risk on the individual components of the cost and benefits, an expected value for this range of possible outcomes can be determined. This provides “risk-adjusted costs” and “risk-adjusted benefits” which can be used to communicate a “risk-adjusted ROI.”

Figure 3 Total Economic Impact™ (TEI)

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Source: Forrester Research, Inc.

TEI Considerations And Example

TEI is a more rigorous methodology than BVI but can be customized based on clients' specific requirements. Consider that:

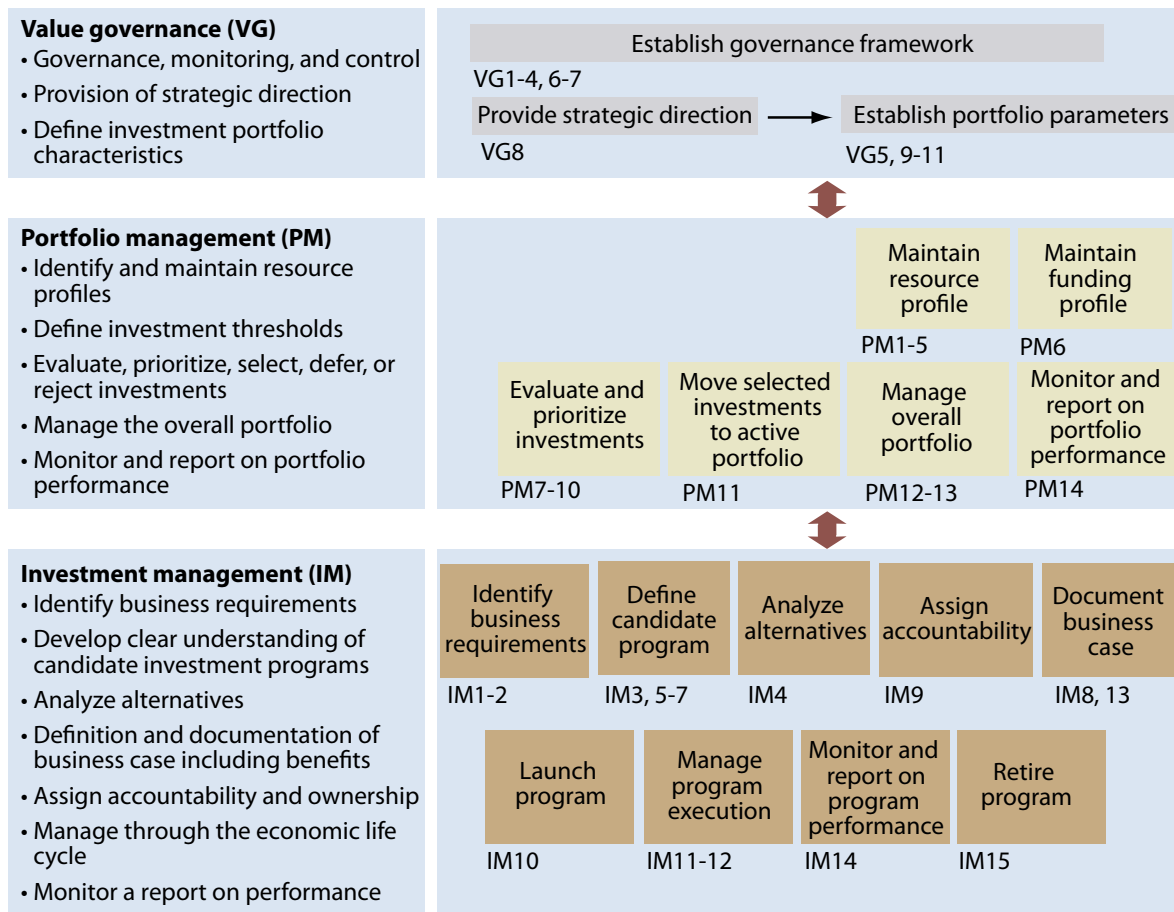
- **TEI requires a commitment.** The depth and scope of TEI requires a significant commitment of effort on the part of both IT and the business sponsor to use effectively. Bringing the methodology in-house requires an investment of time and money to learn the methodology and acquire the tools and templates.
- **TEI helps build a history of benefit quantification.** Quantifying and valuing business benefits can be a challenge, especially if the organization does not have a previous history of benefit quantification. While features of a new system may be well defined, benefits are often described qualitatively. The benefits analysis requires an “exchange rate” to be defined which translates the expected impacts on the business into financial terms.
- **Example:** Forrester worked with a US university that spent more than \$120 million on technology within two years but did not know the value it generated. The CIO wanted a repeatable project governance process to ensure that projects were valued consistently and that only well-documented projects were approved. A review of the university's current project initiation and charter process was performed. A modified process was deployed, incorporating TEI methodology to determine metrics, links to strategic goals, quantification of costs, benefits, flexibility, and risk; and documentation of various scenarios. As a result of TEI methodology use, the CIO implemented a new project approval system with two main steps: 1) project initiation, where the metrics and initial impact (cost, benefit, flexibility, and risk) of an idea are quantified and communicated, and 2) project charter, where the full analysis, costs, and benefits are documented along with various scenarios that are summarized and presented for funding.

Val IT Complements COBIT For Expanded IT Governance

The IT Governance Institute (ITGI), the originators of the COBIT governance framework, recently released a complementary framework for measuring IT value called Val IT. According to the ITGI, Val IT “adds best practices for the end, providing the means to unambiguously measure, monitor and optimize the realization of business value from investment in IT.”⁶ Over time, the ITGI expects to supplement the current Val IT material with leading practices and risk drivers for value management. Currently Val IT is focused on new IT investments future releases will expand its scope to include all IT services and assets. Val IT is comprised of three key processes containing 41 key management practices as follows (see Figure 4):

- **Value governance optimizes the value of IT investments.** Value governance consists of 11 key management practices that cover the establishment of a governance, monitoring, and control framework, provides strategic direction for investments, and defines the investment portfolio characteristics.
- **Portfolio management ensures that the overall portfolio is optimized.** Portfolio management consists of 15 key management practices that cover the identification and maintenance of resource profiles; define investment thresholds; provide for the evaluation, prioritization and selection, deferral or rejection of investments; manage the overall portfolio; and monitor and reports on portfolio performance.
- **Investment management optimizes individual IT investment programs.** Investment management consists of 15 key management practices that cover the identification of business requirements; develop a key understanding of candidate investment programs; analyze alternatives; define and document detailed business cases for programs; assign clear accountability and ownership; manage programs through their full economic life cycle; and monitor and report on program performance.

Figure 4 Val IT Processes And Key Management Practices



Source: IT Governance Institute

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Source: Forrester Research, Inc.

Val IT Considerations And Example

The heart of Val IT is the business case, an operational tool that must be continually updated throughout the economic life cycle of an investment and then used to support the ongoing implementation and execution of a program including its benefits realization. A business case is used initially at the individual program level to determine if it is strong enough to be evaluated at the portfolio level. At the portfolio level, the business case is evaluated against other active and proposed programs. Consider that:

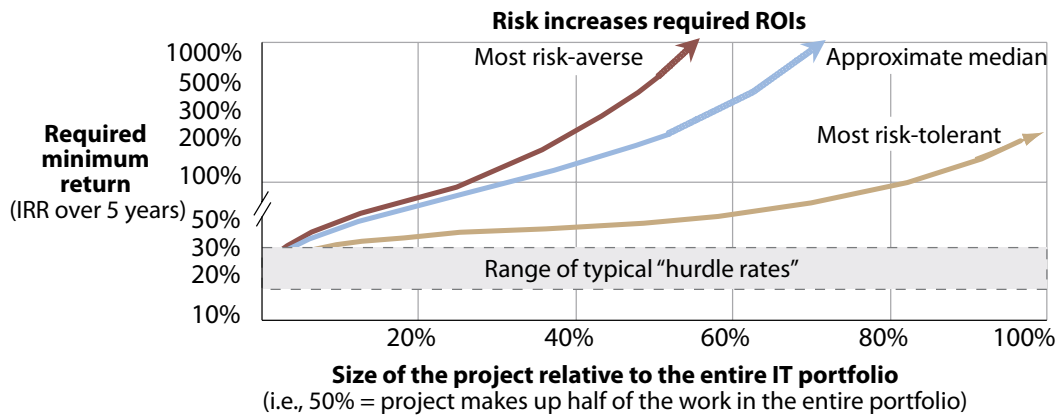
- **Val IT is new.** Outside of the ING case study cited below there has been very little practical experience with Val IT. Although the framework has been completed and published, the entire methodology remains a work in progress.

- **Val IT is tightly coupled with COBIT.** Val IT does not require COBIT, however, because its roots lie in COBIT. Organizations that have an understanding and commitment to COBIT will have an easier time assimilating and using Val IT.
- **Example:** Because Val IT is so new, there has been little practical application of it to form the basis for case studies. However, experience in value management by the Dutch financial services firm ING was used to contribute and validate much of Val IT's content. ING is so successful at IT performance and investment management that it has spun out the group into a separate company called SeaQuation. SeaQuation assists Fortune 2000 companies to help them gain a better understanding of their IT portfolio and investments using financial, actuarial, and insurance risk-based technologies. Its work with ING is documented by ITGI and published as "The ING Case Study," which is available at the ITGI Web site.⁷

AIE When Quantitative Rigor Is Required

AIE synthesizes elements of economics, operations research, modern portfolio theory, software metrics, decision/game theory, actuarial science, and options theory into a very rigorous, highly quantitative methodology for valuing IT investments. AIE uses a "clarify, measure, optimize" approach to assessing IT investment alternatives even when there are "intangibles." AIE's strength lies in its ability to conduct a true risk/return analysis based on proven methods that have a known statistical validity. AIE has been in use for about 10 years to (see Figure 5):

- **Improve cost/benefit analysis.** Using mathematical models, AIE can be used to improve the cost/benefit analysis for better decisions at all levels of IT investment.
- **Develop quality assurance measurements.** Financially based quality assurance measurements can be developed to ensure that the implementation of IT decisions are effective.
- **Strategic plan development.** An IT strategic plan can be developed based on identifying the best opportunities for economic contribution by information systems.

Figure 5 AIE's Risk-Adjusted Return

Source: Hubbard Decision Research and Forrester Research

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Source: Forrester Research, Inc.

AIE Basic Techniques And Tools

AIE consists of a number of basic techniques that make it a powerful tool for valuing IT investments as part of an investment portfolio. These same methods are used by financial services firms to create financial products and by insurance companies to calculate premiums. These tools include:

- **Unit of measure definitions.** AIE removes ambiguity from intangibles such as “customer satisfaction” and “strategic alignment” by focusing on definitions that can be expressed as units of measure.
- **Systematic uncertainty analysis.** All investments have a measurable amount of uncertainty or risk. AIE’s ability to quantify the risk of a given IT investment and compare its risk/return with other non-IT investments is a differentiator.
- **The calculation of the economic value of information.** AIE is based on the premise that the value of information can be calculated as a dollar amount. Information reduces uncertainty, less uncertainty improves decisions, better decisions result in more effective actions, and effective actions improve profit or mission results. All of these can be mathematically calculated.
- **IT investments as an investment portfolio.** AIE incorporates methods of modern portfolio theory and treats IT investments as another type of investment portfolio. AIE can find the optimum combination of investments by identifying the contribution or impact of multiple investments separately and together.

AIE Considerations And Example

AIE has been in use for more than 10 years and it has been used to calculate the value of 55 significant investments. Consider that:

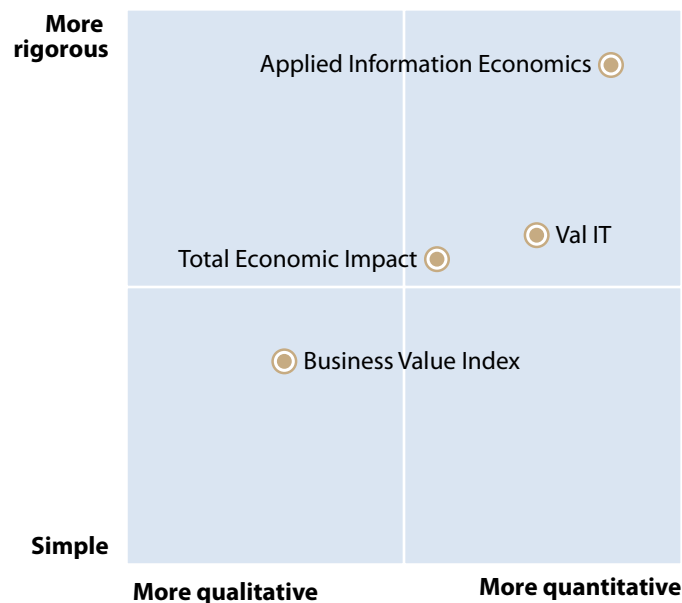
- **AIE is the most rigorous of the four.** AIE is the most rigorous and quantitative of the four methodologies and requires considerable expertise to employ. However, its foundation in mathematical and statistical methods and its robust approach to measuring risk may provide a higher degree of comfort around very large investments.
- **AIE has not gained widespread use.** Despite being available for 10 years, AIE has not been widely used, although it has begun to gain some traction, especially in the government sector.
- **Example:** Recently the Environmental Protection Agency (EPA) used AIE for several large projects including analyzing its desktop replacement policy, which was currently at five years or more.
- **The desktop replacement approach.** The investment consists of changing the agency's de-facto five year (or higher) desktop replacement cycle to either a three-year replacement policy, a four-year replacement policy, or a four-year replacement policy with "catch-up." The "catch-up" is the immediate replacement of all desktops older than four years in the first year before falling into a regular four year replacement strategy.
- **The analysis focused on costs resulting from policy change.** The analysis focuses on the additional costs incurred specifically due to the change in policy itself. In other words, if a policy requires an increase in the number of PCs purchased in a given year, the cost of the policy is only the increase in PC purchases — not the total PC purchases.
- **The result.** AIE determined that the approach with the highest return (NPV of \$53.8 million) was to establish a four-year desktop replacement policy and "catch-up" in the first year to replace all machines older than four years. This replacement schedule will enhance the productivity of many thousands of EPA personnel, providing faster processing and reducing time spent waiting for machine repair. This policy can also be stated as "replace all desktops older than four years."

METHODOLOGIES COMPARED

There is no right or wrong methodology or a distinction between good and bad. Organizations that do not have a consistent methodology for calculating the business value of IT investments would see a marked improvement in their decision-making and benefits by adopting any one of these methodologies. The big win comes from having a methodology in place that is used consistently across the enterprise. Which one of these methodologies is best for any particular organization is dependent on a number of factors. They differ from one another in a couple of dimensions including their rigor and emphasis on qualitative or quantitative assessments (see Figure 6).

- **BVI is the simplest.** Organizations with no history of applying value methodologies might find BVI easier to implement. It is well-documented and more qualitative in its assessments of benefits and risks although it does incorporate standard financial measures.
- **TEI values flexibility.** TEI adds more rigor around quantifying intangible benefits, risk, and the value of flexibility or future capability resulting from IT investments. Organizations that are risk-averse or that plan on making large investments in infrastructure or other capabilities might benefit from using TEI.
- **Val IT takes a governance approach.** Organizations that have implemented COBIT as a governance framework may benefit from adopting Val IT as a complementary component. However, due to its relative immaturity, it may be prudent to wait for the methodology to be more fully built out and more experience gained with its use, although much of the Val IT methodology has been in use by ING for a number of years.
- **AIE offers the greatest rigor.** Organizations requiring more quantitative rigor may adopt AIE. With its mathematical, statistical, and economic underpinnings AIE provides investment decision-makers with a high degree of confidence in its results. However, there is a steep learning curve associated with it and it requires significant expertise.

Figure 6 Value Methodologies Compared



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Source: Forrester Research, Inc.

RECOMMENDATIONS

CONSISTENCY, CREDIBILITY, AND ACCOUNTABILITY ARE KEY

Implementing a value methodology is a vital component of a portfolio management process. The business value assigned to IT investments will be used to approve, fund, and sequence them across the portfolio; so, it is important that, regardless of the methodology chosen, it is practiced across the enterprise. Therefore, Forrester recommends that:

- **The chosen methodology is consistent.** An enterprise typically makes other capital investments in addition to IT. Any value methodology chosen for IT investments should be consistent with any existing methodologies used within the enterprise. For example, if hurdle rates are used in other parts of the organization, then hurdle rates should be included in an IT value methodology.
- **The chosen methodology is credible.** Any value methodology must be viewed as credible by those outside of the valuing process itself. The methodologies documented earlier have been developed and applied by reputable organizations in a transparent way, thereby ensuring their credibility. There are other methodologies available, and organizations can always develop their own. However, they must be subjected to some form of objective evaluation and endorsement. This could be performed by the finance or auditing department.
- **Joint business and IT accountability is required.** There are no IT projects, only IT-enabled business change. The benefits of IT investments are typically enjoyed by some entity outside of IT and it is this entity that must also be held accountable for the results of the investment. It is even more effective if individual rewards/compensation are tied to performance changes from the investment.
- **The PMO contains a value methodology center of excellence (COE).** The business case is the centerpiece of most value methodologies. The PMO should be in a position to provide guidelines, templates, tools, and consulting to help sponsoring executives prepare IT investment proposals.
- **IT investments are constantly revisited.** Once an IT investment proposal is reviewed, approved, funded, and sequenced within the portfolio, the work is still not done. As investment programs and projects are executed, they must be periodically reviewed to ensure that they are on track to return their projected benefits. At each review a decision must be made to continue, accelerate, reduce, or eliminate the funding for the investment.
- **Value methodology encompasses the entire life cycle.** Business cases are nothing but estimates of expected business value based on a set of assumptions. The accuracy of these estimates can be significantly improved by conducting post-implementation audits, tracking actual benefits realization over the life cycle of the investment, and feeding this learning back to the organization.

WHAT IT MEANS

IT INVESTMENT DECISIONS ARE FACT-BASED

When an organization implements a value methodology for evaluating IT investments, it enables decisions to be made based on facts rather than politics, emotion, or guesswork. These facts include the degree of strategic alignment, the expected tangible and intangible business value to be realized, as well as the level of risk incurred.

ENDNOTES

- ¹ Maximizing the business value of IT through portfolio optimization is a key governance process. See the September 30, 2005, Best Practices “[Optimizing The IT Portfolio For Maximum Business Value.](#)”
- ² IT steering committees are an essential component of good IT governance; however, they have maximum impact when they follow best practices. See the July 9, 2003, IdeaByte “[IT Governance: Steering Committee Do's And Don'ts.](#)”
- ³ For a more thorough description of Intel IT's Business Value Index, see “Managing IT Investments” – Intel's “IT Business Value metrics program” and other related documentation on Intel IT's Web site at http://www.intel.com/it/it-management/#business_value. Business Value Index is also explored in the book *Managing Information Technology for Business Value* by Martin Curley, Director of IT Innovation at Intel. Source: Martin Curley, *Managing Information Technology For Business Value*, Intel Press, 2004.
- ⁴ The IT organization at Intel publishes an annual report on the state of IT at Intel. It resembles the typical annual report that publicly traded companies provide their shareholders. It has sections on IT spending, IT value delivery, and how Intel IT performed on its key objectives. The annual report for 2005 is available on the Intel Web site at <http://www.intel.com/it/it-management/2005-apr.htm>.
- ⁵ The wireless LAN case study, and a number of other case studies, is covered in considerable detail in the book *Managing Information Technology for Business Value* by Martin Curley. Source: Martin Curley, *Managing Information Technology For Business Value*, Intel Press, 2004.
- ⁶ The ITGI has released the first in what will be a robust set of documents on the Val IT framework. This first document is titled “Enterprise Value: Governance of IT Investments — The Val IT Framework” and it includes an introduction to the framework, a detailed description of the framework and its processes and key management practices. Source: <http://www.itgi.org>.
- ⁷ “Enterprise Value: Governance of IT Investments – The ING Case Study” is a well-documented account of how ING does IT performance and investment management using tools and processes that it has developed and refined during the past six years. Source: <http://www.itgi.org>.

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Helping Business Thrive On Technology Change

Headquarters

Forrester Research, Inc.
400 Technology Square
Cambridge, MA 02139 USA
Tel: +1 617/613-6000
Fax: +1 617/613-5000
Email: forrester@forrester.com
Nasdaq symbol: FORR
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