

Measuring the Business Value of IT?

Michael Harris

President

David Consulting Group



www.davidconsultinggroup.com

david consulting group

Presentation Objectives

- How should we run our IT Departments to ensure value for money?
- It's a questions that's on everyone's mind
- If we can identify ways to measure value and prioritize the metrics identified then we can build processes that generate the sort of value that business can use.
- All measurements, including IT value measurements, are only useful and worth making if they are used to guide decisions.
- This presentation will try to answer:
 - How do I measure the value of IT?
 - What should business expect from IT?
 - What frameworks should IT use?
 - How do I measure IT performance?
 - What should IT expect from the business?
- This presentation is based upon “The Business Value of IT” by Michael D.S. Harris, David Herron and Stasia Iwanicki (Auerbach, March 2008).



Introduction

- The phrase, “Beauty is in the eye of the beholder,” could equally well apply to value as to beauty.



How do I measure the Value of IT?



What is Value?

- The Merriam-Webster online dictionary offers the following seven definitions for the term “value:”
 - 1 : a fair return or equivalent in goods, services, or money for something exchanged
 - 2 : the monetary worth of something : MARKET PRICE
 - 3 : relative worth, utility, or importance <a good *value* at the price> <the *value* of base stealing in baseball> <had nothing of *value* to say>
 - 4 : a numerical quantity that is assigned or is determined by calculation or measurement <let *x* take on positive *values*> <a *value* for the age of the earth>
 - ~~5 : the relative duration of a musical note~~
 - ~~6 a : relative lightness or darkness of a color : LUMINOSITY b : the relation of one part in a picture to another with respect to lightness and darkness~~
 - 7 : something (as a principle or quality) intrinsically valuable or desirable <sought material *values* instead of human *values* -- W. H. Jones>

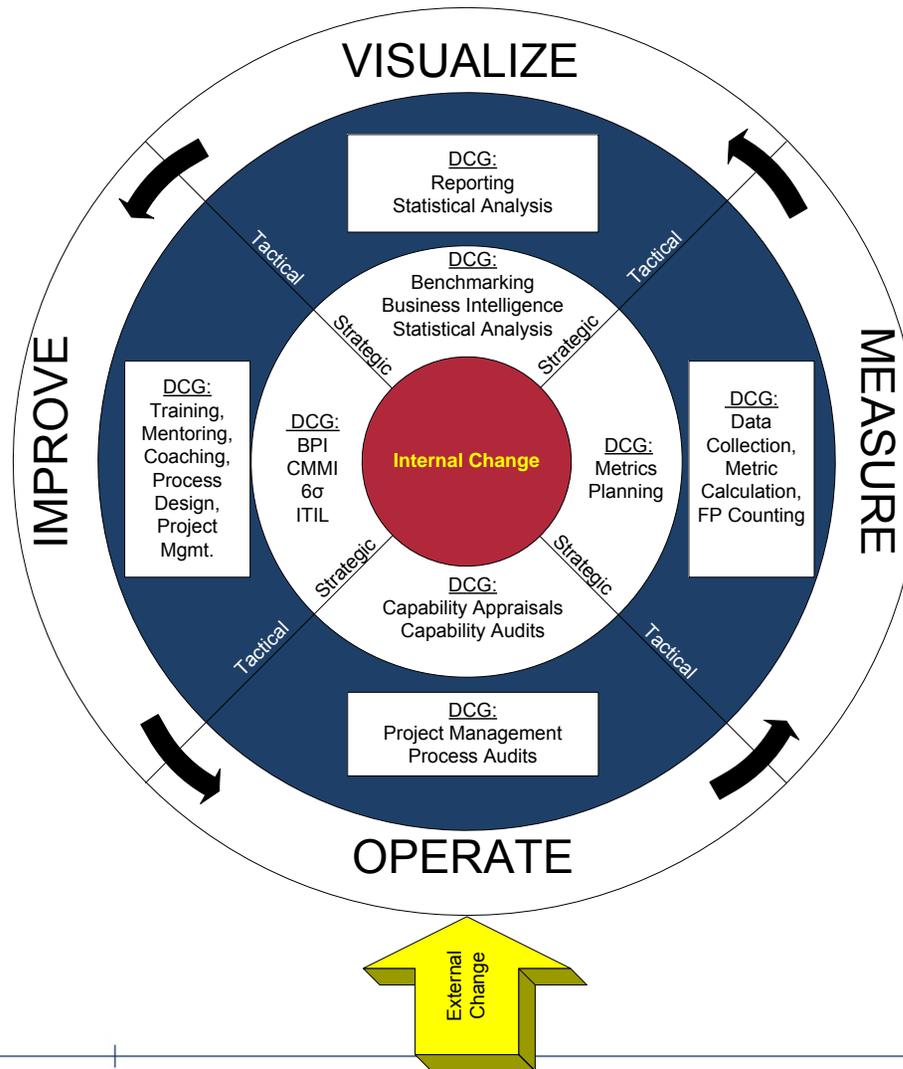
Why is it important to measure IT Value?

- All eyes are on IT investments.
- IT consumes significant resources relative to other functions because of the cost to operate and manage the IT infrastructure and the ubiquity of IT throughout most modern organizations.
- Even if businesses minimize their IT-supported innovation (a risky strategy), there are ongoing costs for networks, systems, applications and a highly skilled workforce.
- How do you know if you are getting value for money from your IT investments?
- How can you maximize the likelihood of success in your IT investment choices?
- How can you tell if you need to make as much investment in IT as you are making now?

Why is it a challenge to measure IT Value?

- The challenge is to characterize how an IT investment - for new capabilities or for “keeping the lights on” - helps the organization that bears the cost to achieve its organizational objectives and financial performance targets .
- IT must consistently deliver value in economic terms that make sense to its organizational customers.
- Smarter IT executives have realized that, generally, IT alone does not create value.
- In truth, value emerges from the impact of IT on business processes.
- Ben-Menachem and Marliss reported in 2005 that:
“Many analysts are inclined to measure corporate maturity by the percentage of revenue spent on IT. This percentage has grown steadily over the past two decades. In fact, IT’s size tends to grow commensurate with the maximum that the organization’s resources can support.”
- This common metric of IT expenditure as a percentage of revenue varies widely by industry with a range in 2004 of 1.7% (Oil and Gas Production) to 7% (Financial Services and Banks).
- Mark Lutchen reminds us that “The reality is that the right IT metrics are neither the same nor relevant for every organization.”

Value VisualizationSM



What Should Businesses expect from IT?

- **Great service at a low cost?**
- **Better service that the competition gets from its IT providers at a lower cost than the competition pays for its IT?**



Six Key Concepts

- **Information for Decisions**
 - How fast can I run? How fast can they run?
- **Value for Money**
 - no need to pay for a Ferrari if a pair of sneakers will do the job
- **Risk Management**
 - Is there one bear or two bears? Having those sneakers ready!
- **Process**
 - Don't trip over untied laces
- **Responsiveness**
 - Does the situation demand that I run? Do I have time to put on my sneakers before the bears reach me?
- **Innovation**
 - What if I am the slowest runner next time even with my sneakers on?

Information for Decisions

- If you cannot measure, you cannot manage
- The business needs clear, concise, relevant information from the IT providers in order to understand whether all of its other expectations are being met.
- Unfortunately, IT providers tend to be much better at generating data than generating information.
- Any discussion must start with identifying the information needed to inform the business if its strategic and tactical goals are being met.
- This should lead to a discussion about what operational performance measurements for the IT providers need to be monitored
- Finally, a set of measurements are required to give the business information about whether the current supplier of IT services is providing value for money compared to their own previous performance and, ideally, the performance of those providers that represent the businesses other options.

Information for Decisions - GQM

- Goal-Question-Metric (GQM) technique:
 1. Develop a set of corporate, division and project business goals and associated measurement goals for productivity and quality.
 2. Generate questions (based on models) that define those goals as completely as possible in a quantifiable way
 3. Specify the measures needed to be collected to answer those questions and track process and product conformance to the goals
 4. Develop mechanisms for data collection
 5. Collect, validate and analyze the data in real time to provide feedback to projects for corrective action.
 6. Analyze the data in a postmortem fashion to assess conformance to the goals and to make recommendations for future improvements

Using IT Value Measurements for Decisions

- Dashboards
- The Business Case
- Value Visualization

Using IT Value Measurements for Decisions – Dashboards

- A useful tool for presenting measurement information to managers at different levels is the “dashboard.”
- This tends to be an on-screen presentation of trend charts, typically showing the four to ten most important measurements for the viewing decision maker.
- Often, the charts represent an aggregation of other measurements so that the decision maker can “drill down” to greater levels of detail if needed.
 - For example, the CEO may start by looking at a dashboard reflecting measurements across the entire organization.
 - If the CEO notices a significant trend change in one of the measurements, say sales revenue has dropped this month, additional detail is available on that chart.
 - By drilling down, an additional, more detailed screen would show sales revenue for each of the business units showing if sales were slightly lower across the board or if one particular business unit had a bad month.
- When businesses look at dashboards at the highest level, it is important to understand that IT value will be only one of a number of measurements that will be displayed.

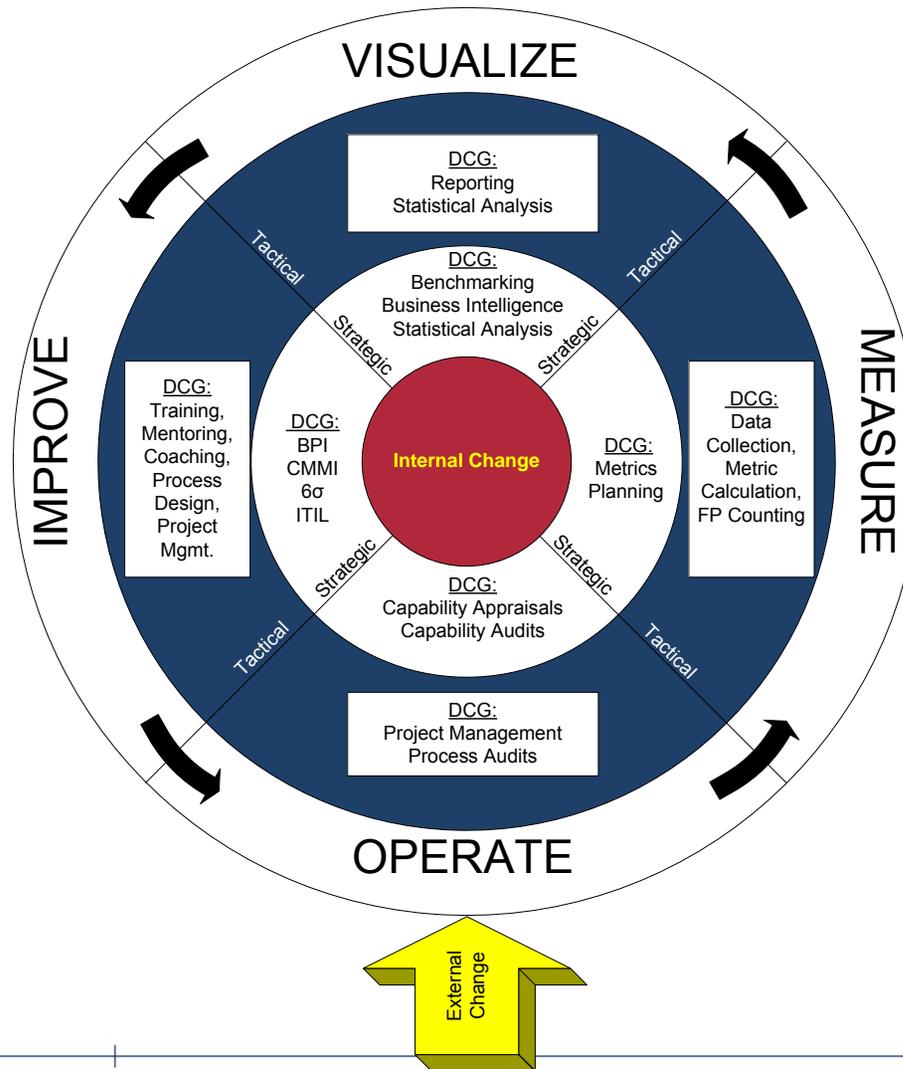
Using IT Value Measurements for Decisions – The Business Case

- The value of IT to the business is very dependent on the business value priorities (e.g. operational excellence, customer intimacy, product/service innovation). Different business units may have different priorities.
- What common management tool applies internally valid measures of value to new investments? The business case.
- The business case for any new project (including non-IT projects) should include quantification of the value of the project to the business in terms of tangible and intangible benefits.
- It should be possible to track the value of these benefits in monetary units against the project costs throughout the life of the project.
- The cost of measuring, monitoring and reporting should be included in the business case at least through to the projected date when the expected and agreed return is achieved.
- This approach to measuring IT value is so simple that it is bound to raise a number of questions:

Using IT Value Measurements for Decisions - Value Visualization

- Over many years, the process and measurement experts at the David Consulting Group have studied, taught, implemented and audited almost all of the process improvement methodologies and best practices that have come, gone and stayed around e.g. Six Sigma, GQM, CMMI, ITIL, and COBIT.
- With such a variety of tools available, how can you ensure continuous improvement, test for effectiveness or, indeed, test for “mission accomplished”?
- DCG has evolved the Value Visualization Framework (VVF). The framework is based on the simple philosophy that any project (in our case, process improvement and measurement projects) must deliver value and that value must be visible.
- The VVF is unique in that it takes a holistic view of the organization and facilitates the selection of the best practices (one or many) to meet the different needs of the current iteration based on clear definition of the value that can be delivered by this iteration.
- This avoids the need to “bet the business” on one particular methodology when maximum improvement, and more specifically, value can only or best be achieved by cherry picking combinations of parts of methodologies (that minimize risk) for this iteration.

Summary – Value VisualizationSM



Value for Money

- CEO should ask their CIO “Do you view IT as an expense or an investment?”
- Investment?
 - Is IT part of what makes your business competitive?
 - Is it a strategic differentiator?
 - Lower tolerance for failure of mission critical system and, hence, higher IT costs.
 - Higher positive impact of IT innovation on your business => higher tolerance for IT experimentation => more failure => higher IT costs.
- Expense?
 - If IT is a “necessary evil” in your business then you can really focus on getting satisfactory services for the lowest possible cost with some acceptance of risk.
- Both?
 - Some environments at some times where IT viewed as an investment and others viewed as an expense.
 - These will change over time
 - Businesses need a clear understanding of the strategies for different parts of their current portfolio.

Two Categories of Value Metrics for IT

- Financial Metrics
 - Total Cost of Ownership
 - Return on Investment
 - Economic Value Added
 - Real Option Valuation
 - Return on Assets
 - Return on Infrastructure Employed
- Non-Financial Metrics
 - Multidimensional Value
 - Strategic Value

 - Note: Net Present Value!

Non-Financial Metrics for IT

- The most frequent criticism of purely financial valuation methods is that they provide no measure of the value of the activities in the context of the business strategic goals.
- For example, the ROI for an IT investment is the same in a business pursuing a customer intimacy strategy whether the investment will improve customer intimacy or destroy it.
- The need for a broader measurement of the strategic and tactical value that IT can bring to the business has led to the consideration of multidimensional IT valuation approaches that include other aspects of value in addition to the financial valuation:
 - Multi-criteria Approaches
 - Portfolio Management Approaches
 - Strategic Framework Approaches

Non-Financial Metrics for IT – Multi-Criteria Value

Method	Description
Information economics (IE)	IE Provides a scoring mechanism taking into consideration 10 variables: 6 business domains and 4 technical domains. Business domain includes enhanced ROI and risk and business alignment issues. Technical domain includes architecture alignment and technical risk factors.
Applied information economics (AIE)	Built around principles of measurement theory, decision theory and actuarial sciences, AIE reduces each variable to a range of ROI outcomes with assigned probability. The impact of all risks is quantified in this way, along with intangible benefits. The result is a probability distribution for ROI e.g. 75% chance of an ROI of 30%.
Total economic impact (TIE)	TEI calculates traditional costs and business benefits using financial methods, adds a quantitative measure of benefits related to future flexibility based on ROV or other techniques and then adjusts the probability distribution based on risk factors. The result is an ROI that has taken into account real options and risk.
Total Value of opportunity (TVO)	TVO combines quantitative and qualitative measures. Costs are derived using a TCO approach. Metrics convert IT benefits into bottom line business results in three main categories: demand management, supply management and support services. The TVO methodology considers four other qualitative measures including risk, architecture alignment, business process impact and strategic business alignment.

Source: McShea, M., *IT Value Management: Creating a Balanced Program*, November/December 2006, IT Professional, IEEE.

Non-Financial Metrics for IT – Portfolio Management Approach

Method	Description
Giga Information Group portfolio framework	This method categorizes projects on two axes: IT impact to operations (low to high) and IT impact to the business (low to high). Quadrants: In terms of IT's role (operational impact and business impact), projects are either support, factory, strategic or turnaround. Allocating IT projects to quadrants reflects IT's role in the organization and strategy.
Ross and Beath investment quadrants	This method categorizes projects on two axes: technology scope (infrastructure or business applications) and strategic focus (short-term profitability or long-term growth). Quadrants: Infrastructure projects are renewal (short-term-profitability focused) or transformational (long-term growth focused). Business applications are process improvements (short-term-profitability) or experiments (long-term growth).
for Information Systems Research portfolio pyramid	In this technique, four defined asset classes focus on risk versus reward and IT projects' varying profiles along these lines. Investment profiles are geared toward agility versus cost-driven strategies. Rather than a quadrant-based approach, a pyramid is constructed with infrastructure investments at the base and supporting transactional projects (internal business process focused) at the next layer. Informational (management decision support) and strategic projects (external market-driven) form the pinnacle.

Source: McShea, M., *IT Value Management: Creating a Balanced Program*, November/December 2006, IT Professional, IEEE.



Non-Financial Metrics for IT – Strategy Value

Method	Description
Balanced Scorecard (BSC)	The BSC has four layers: financial, customer, business process and learning and growth (sometimes referred to as the “people” layer). Each layer has specific, company-unique strategic objectives with defined metrics that are linked to other objectives in other dimensions to reflect strategy. A strategy map is constructed by linking objectives to show cause and effect i.e. “linkage.”
IT Scorecard	Van Grembergan describes four categories: user orientation (user satisfaction), operational excellence (efficiency in development and operations), business contribution (financial) and future orientation (approach to skill-set development and innovation). Critical success factors identified in each are based on business strategy.

Source: McShea, M., *IT Value Management: Creating a Balanced Program*, November/December 2006, IT Professional, IEEE.



Risk Management – The problem

- CEO's and all senior managers hate surprises.
- The business has a right to expect no surprises from its IT providers.
- The only way to avoid surprises is to engage in a dialogue about risk management.
- In IT, there is a certain mystique about the risk management process area and it is generally ignored.
- The IT industry is bedeviled by an incomprehensible optimism, indefensible in the light of the industry's track record for on-time and on-budget delivery that parallels the theaters' "It'll be alright on the night!"
- This optimism and unwillingness to even think about risk management is interesting in that it runs counter to the most common IT reaction to even the most simple request

Risk Management – The environment

- The interest being taken in IT by the external auditors of the organization especially two broad and related risks:
 - An IT operations failure can seriously disrupt or destroy an organizations ability to operate and/or its reputation with its customers.
 - One of the most likely causes of an IT operations failure is the introduction of new software.
- External auditors are now working their way back along the SDLC processes seeking reassurance from evidence of auditability and best practices.
- People risk
 - A lot of IT capital is tied up in the businesses intellectual property that is in people's heads.
 - All too easy to view staff as fungible "resources."
 - In most organizations, there are key individuals whose knowledge and expertise is the difference between success and failure in the short- and medium-term.
 - IT providers must be required to perform the same risk management planning for their people as they do for the hardware!
 - This is a particular risk during merger and acquisition events.
 - The business should expect a succession plan for, and from, the CIO.

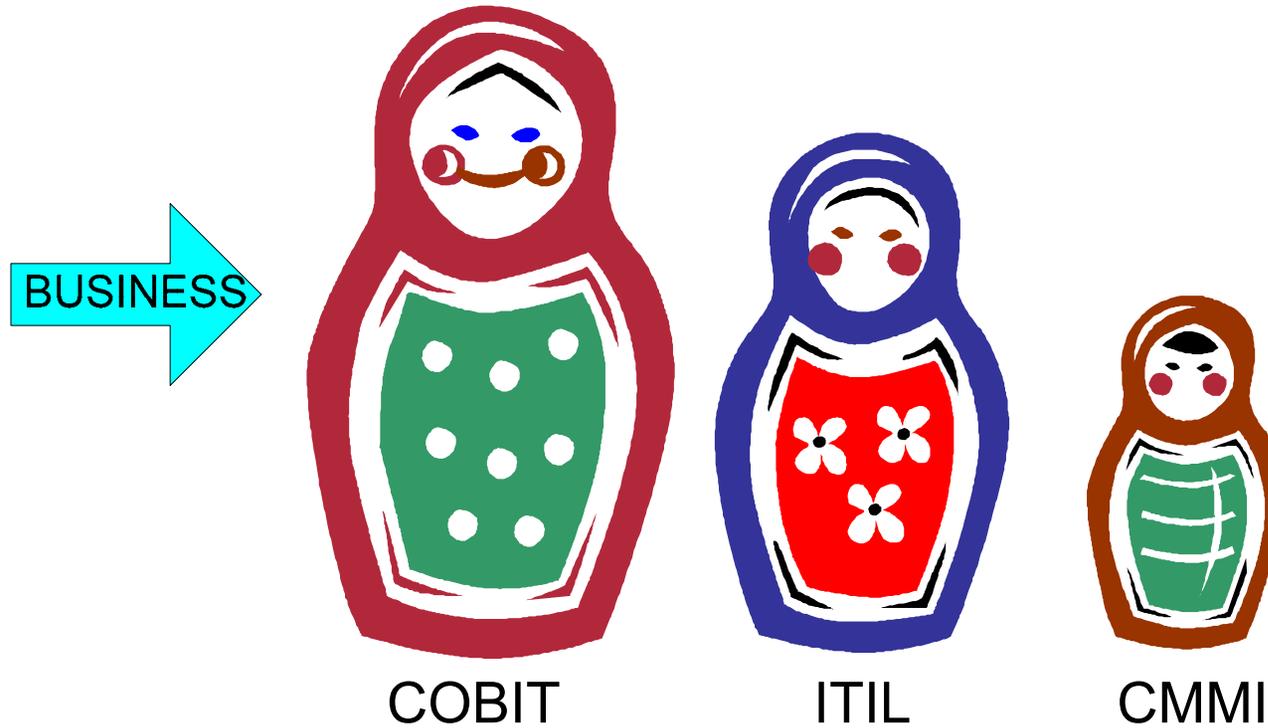
Risk Management – The approach

- It is necessary for businesses to drive their IT providers to enumerate and quantify all possible risks.
- Businesses should expect each risk to be accompanied by one or more mitigation strategies with associated costs.
- Business should then choose the risk management strategies they can tolerate in terms of consequences and expense.
- Essentially, businesses have the right to expect IT providers to be prepared for different failure scenarios by appropriate forward thinking and planning.
- Monitoring of key metrics is an essential part of risk management.
- Businesses should not expect to understand or even receive the data from the monitoring systems but they should expect their IT providers to set performance thresholds that will give early indication of a possible failure situation in the future.
- The appropriate time span for “future” is the time required to have the option of taking corrective action.

Process – What Frameworks should IT use?

- Defined processes ensure repeatability and provide a springboard for continuous improvement.
- Most businesses do not have the time or the knowledge to create best practices for the management of IT.
- Fortunately, much of the work of best practices capture and codification has been done already.
- Businesses should view the implementation of process by their IT providers as a huge step forward in risk management.
- Through the implementation of industry recognized processes, businesses are benefiting from not making the mistakes that other have made to find out what constitutes best practice.
- Your auditors will be much easier people to satisfy if your IT Providers implement these processes BUT you need to implement your own internal audit capability.
- Three major sets of IT Best Practices:
 - COBIT, ITIL and CMMI.

Process – Best Practices



Process - COBIT

Plan and Organize

PO1	Define a Strategic IT Plan
PO2	Define the Information Architecture
PO3	Determine Technological Direction
PO4	Define the IT Processes, Organization and Relationships
PO5	Manage the IT Investment
PO6	Communicate Management Aims and Direction
PO7	Manage IT Human Resources
PO8	Manage Quality
PO9	Assess and Manage IT Risks
PO10	Manage Projects

Acquire and Implement

AI1	Identify Automated Solutions
AI2	Acquire and Maintain Application Software
AI3	Acquire and Maintain Technology Infrastructure
AI4	Enable Operation and Use
AI5	Procure IT Resources
AI6	Manage Changes
AI7	Install and Accredite Solutions and Changes

Deliver and Support

DS1	Define and Manage Service Levels
DS2	Manage Third-party Services
DS3	Manage Performance and Capacity
DS4	Ensure Continuous Service
DS5	Ensure Systems Security
DS6	Identify and Allocate Costs
DS7	Educate and Train Users
DS8	Manage Service Desk and Incidents
DS9	Manage the Configuration
DS10	Manage Problems
DS11	Manage Data
DS12	Manage the Physical Environment
DS13	Manage Operations

Monitor and Evaluate

ME1	Monitor and Evaluate IT Processes
ME2	Monitor and Evaluate Internal Control
ME3	Ensure Regulatory Compliance
ME4	Provide IT Governance

Process – ITIL v3

- ITIL Version 2 focused on processes (described later in this chapter), Version 3 focuses on business value
- The shift in focus is an attempt to improve the linkage between the business needs of the organization and the IT operational processes that enable them
- The Five Books are oriented around the concept of a Service Life Cycle:
 - Service Strategy
 - Service Design
 - Service Transition
 - Service Operation
 - Continual Service Improvement

Process – CMMI™

Capability Maturity Model Integration for Development v 1.2

<i>Process Area</i>	<i>Category</i>	<i>Maturity Level</i>
Requirements Management	Engineering	2
Project Monitoring and Control	Project Management	2
Project Planning	Project Management	2
Supplier Agreement Management	Project Management	2
Configuration Management	Support	2
Measurement and Analysis	Support	2
Process and Product Quality Assurance	Support	2
Product Integration	Engineering	3
Requirements Development	Engineering	3
Technical Solution	Engineering	3
Validation	Engineering	3
Verification	Engineering	3
Organizational Process Definition +IPPD	Process Management	3
Organizational Process Focus	Process Management	3
Organizational Training	Process Management	3
Integrated Project Management +IPPD	Project Management	3
Risk Management	Project Management	3
Decision Analysis and Resolution	Support	3
Organizational Process Performance	Process Management	4
Quantitative Project Management	Project Management	4
Organizational Innovation and Deployment	Process Management	5
Causal Analysis and Resolution	Support	5

Responsiveness

- The business must expect responsiveness from IT to three key stakeholders:
 - Business customers
 - The best form of IT responsiveness is invisibility. The technology should never be the problem and, if it is, the IT providers should get the IT out of the customers' eyes as quickly as possible.
 - Business users
 - IT providers should be expected to share the urgency of the business need
 - IT providers should establish different processes for engaging with the business users. These engagement approaches include participation in requirements gathering, training, support and easy accessibility
 - Business managers
 - IT Providers must be expected to provide information not data.
 - IT providers must be able to report to business managers in context-relevant ways to enable business decision making.
 - IT providers should be required and able to participate in business planning and provide responsiveness leadership to offer the business IT-based opportunities for business growth or cost savings

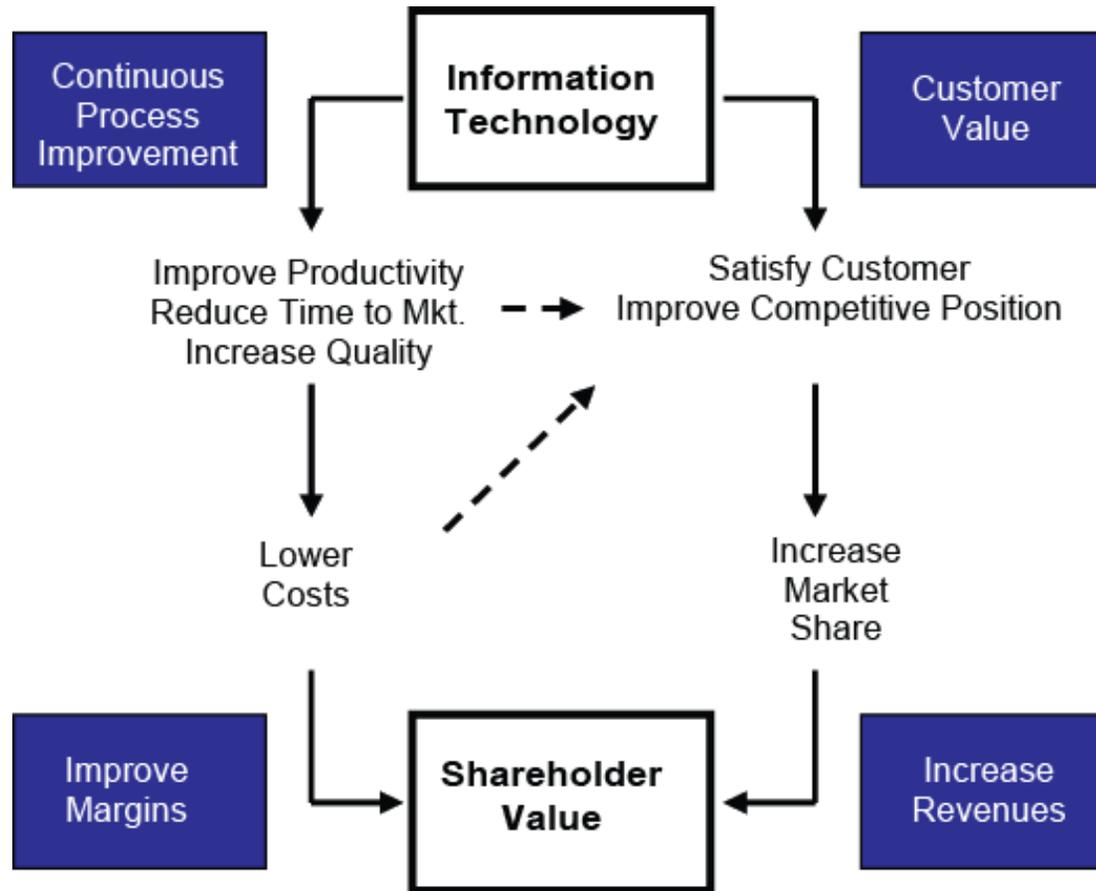
Innovation – driven by IT

- Innovation tends to be thought of as the “introduction of something new”.
- We prefer the “introduction of something new that improves measured performance in desirable ways”.
- In IT, an improvement in the measured performance of one parameter may be at the expense of a reduction in the measured performance of other parameters.
- Businesses need to be mindful that IT providers may be offering innovation on a narrow front. The bigger picture is always needed.
- With a nod to the “Value for Money” slide above, businesses have a right to expect innovation from IT.
- Innovation in and through IT has become such a norm that businesses sometimes forget to think about it in that way - New software or new operating systems or new hardware can become a “pain” that we would rather not deal with – “innovation for innovations sake.”
- Businesses must not forget that the improvement-enabling power of IT endures.
- That any manual process is a candidate for automation is so obvious that it should not need stating but when did you last look around your business for manual processes?

Innovation – controlled chaos

- The business should expect creative energy from their IT Providers e.g. a new idea to make millions, a better, cheaper way to service customer bug fixes or the CIO proposing to save a fortune by combining two different business units' similar needs. These all boil down to finding new ways to deliver value for money.
- IT providers are uniquely qualified to identify potential applications of new technologies to old problems and potential applications of all technologies to new problems.
- Business need to create an environment in which their IT providers can contribute thought leadership, business creativity and process innovation coupled with sound business cases. “Sound” varies but it should not exclude big ideas.
- Return on investment is crucial but the definition of “return” should include consideration of broader value.
- One way to enable but manage innovation in IT, and to make unintended consequences a positive force, is to use some form of Agile Methodology using the principles of the Agile Manifesto.

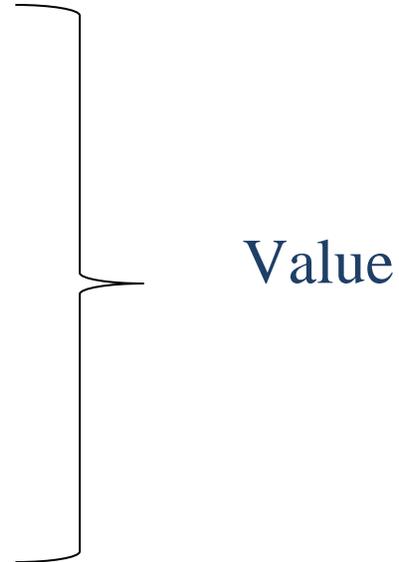
How do I measure IT Performance? IT Value Contribution



How do I measure IT Performance?

Five Key Performance Measures

- Costs
- Benefits
- Quality
- Duration
- Customer Satisfaction
- Size



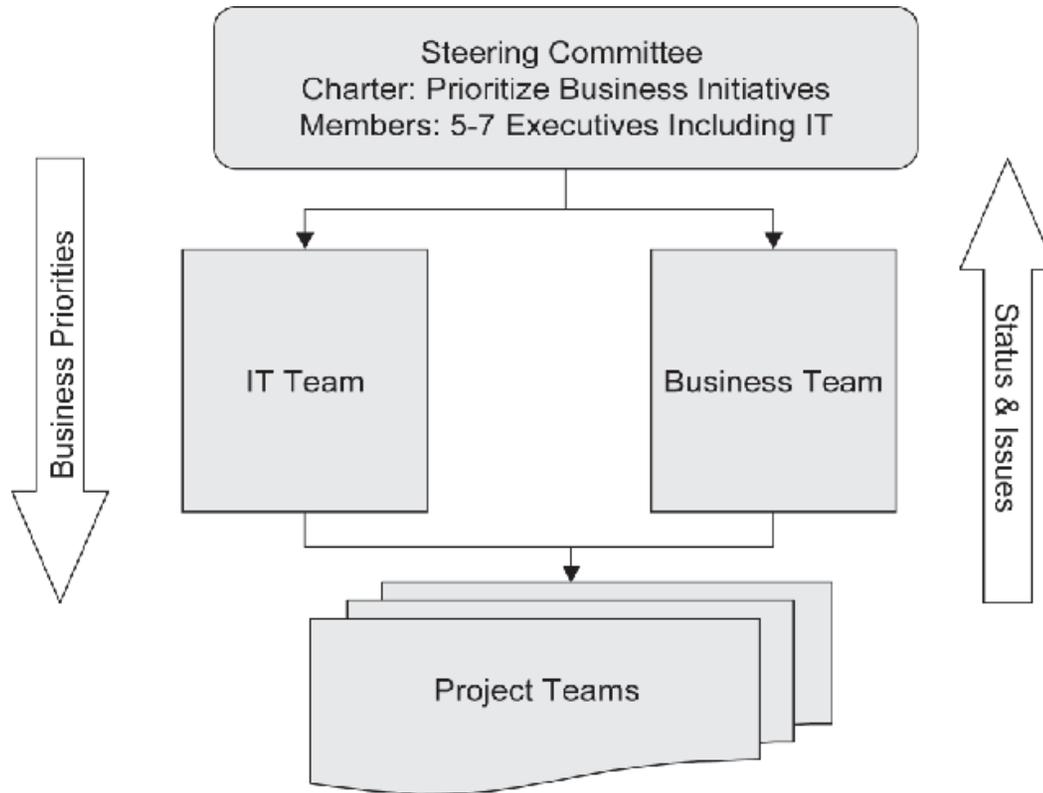
What should IT expect from the business?

- It's the relationship that matters!



- Develop an Operating Model

What should IT expect from the business? Operating Model



What should IT expect from the business?

Operating Model Roles

Business Mission	Mission
Steering Committee Goal	<p>Communicate business goals and objectives</p> <p>Translate business goals into a prioritized list for IT</p> <p>Set expectations related to resource assignments and associated behavior</p> <p>Communicates policies</p> <p>Generate support for IT</p>
<p>Business Managers</p> <p>IT Managers</p> <p>Project Managers</p>	<p>Create awareness of, and support for business priorities</p> <p>Perform in accordance with goals and objectives</p> <p>Communicate resource assignments</p> <p>Communicates policies</p> <p>Communicates project status, provides awareness of risks, escalates issues when necessary and shares success</p> <p>Manage issues and risks</p>

Summary

- Clearly, there are many techniques that can be used for measuring the value of IT.
- The “right” ones are right for a particular business-IT Provider relationship.
- Business cases, or something similar, should be the vehicle for capturing the agreements between business and IT regarding how the value will manifest itself to the business, and how this value will be measured, monitored and reported.
- Steering Committees should be used to govern and monitor value delivery throughout the project life cycle
- Any of the value measurement techniques described in this chapter can be used to facilitate regular value visualization for the business.

Questions?

- For more information:
 - “The Business Value of IT: Managing Risks, Organizing Performance and Measuring Results” by Michael D. S. Harris, David Herron and Stasia Iwanicki (Auerbach, 2008)
 - www.davidconsultinggroup.com