IT Management Assessment in Federal Agencies

Dr. Chris Strasser
Concurrent Technologies Corporation
Outline

- Exploring IT management issues
- Public Sector Effectiveness
- Developing a Model for Assessment
- Implementation
- Initial Results
IT Management Issue Perspectives

- **Economics**
  - Roach (1986), Loveman (1990)
  - Brynjolfsson, Hitt & Yang (1990-2002)
  - Naverette (2003)

- **Accounting**
  - Earl (1989)
  - Bacon (1992)
  - Weill and Broadbent (1998)

- **IT Management Models**
  - Keen (1991)
  - Mata and Fuerst (1992)
  - Weill and Broadbent (1998)
  - Gartner (Murphy, 2002)
IT Management Models - Keen

Reach (across firm)
- Anyone, Anywhere
- Customers and Suppliers Regardless of Base
- Customers and Suppliers With same base
- Intra -company
- Internal Locations

Range (of services)
- Messaging
- Access to Stored Data
- Independent Transactions
- Cooperative Transactions

Integration path to fully open systems
IT Management Models
Mata and Fuerst

Is the IT or capability valuable?

Is it heterogeneously distributed across competing firms?

Is it imperfectly mobile?

Yes

No

Yes

No

Yes

No

No

Yes

No

No

Competitive Disadvantage

Competitive Parity

Temporary Competitive Advantage

Sustained Competitive Advantage
## IT Management Models – Weill and Broadbent

### Type of Information Technology

<table>
<thead>
<tr>
<th>Size</th>
<th>Strategic</th>
<th>Informational</th>
<th>Transactional</th>
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</thead>
<tbody>
<tr>
<td>Large</td>
<td><strong>Strategy Driven and Pilot</strong>&lt;br&gt;Appraisal based on informed subjective analysis&lt;br&gt;- pilots reduce the risk</td>
<td><strong>DCF Value Analysis</strong>&lt;br&gt;Structured technique combining both certain and estimated benefits</td>
<td><strong>DCF</strong>&lt;br&gt;Positive NPVs based on cash flows using only certain benefits</td>
</tr>
<tr>
<td>Small</td>
<td><strong>Strategy Driven</strong>&lt;br&gt;Small strategic investments require seed funding</td>
<td><strong>Rules of Thumb</strong>&lt;br&gt;Appraise in detail and set heuristics to apply across the firm</td>
<td><strong>DCF</strong>&lt;br&gt;Positive NPVs based on cash flows using only certain benefits</td>
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</table>
IT Management Models – Weill and Broadbent

- Range (of services)
- Reach (across firm)
- Utility
- Enabling
- Dependent
- None
- Few
- Many
- High
- Low
Measurement Models

- Van Der Zee (1999) – Alignment and feedback using Balanced Scorecard
- Martinson Davison and Tse (1999) – Balanced Scorecard for IT
- Duncan (1995) – IT value is in providing flexibility
- Byrd and Turner (2000) – Validation of Duncan with Fortune 1000
Measurement Models – Martinsons, Davison, and Tse

How do we look to management?

How do users see us?

What can we do to meet future user needs?

Are we satisfying users needs?

What technologies and opportunities are emerging?

What must we excel at?

Are we working effectively?

How can we continue to improve and create value?
<table>
<thead>
<tr>
<th>Components</th>
<th>Flexibility qualities</th>
<th>Types of indicators</th>
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<tbody>
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<td>Platform</td>
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<td>Networks/Telecom</td>
<td>Connectivity</td>
<td>IS resource management practices</td>
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<td>Data</td>
<td>Modularity</td>
<td>IT capabilities</td>
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Developing a Model for Assessment

- Combines all IT Value approaches
  - Economics – Overall metrics and alignment
  - Accounting – Direct Payback Methods
  - Models – Architecture/define enterprise plan
  - Flexibility – Business process agility
  - Measurement – Subjectively and still quantifies
  - Focused on Reach and Range with appreciation for strategy
Developing a Model for Assessment

- Mutually exclusive individually exhaustive approach
- Capability Maturity Model flavor
- 6 level scale (0-5)
- Separate questions and definitions for each of 37 criteria to build up score in each of seven areas
Implementation of Assessment

- Criterion ranked by answering standard questions
- All questions and definitions available on CMG Website
- First pillar will be described in detail (questions and definitions)
- Remaining pillars and elements described at criterion level
## Method of Evaluating IT - First Pillar

<table>
<thead>
<tr>
<th>First Pillar – Strategic Alignment</th>
<th>EPA</th>
<th>INS</th>
<th>IRS</th>
<th>FAA</th>
<th>SSA</th>
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Questions and Definitions
- Portfolio Management

Portfolio Management
Does your organization track IT projects in aggregate?
Does it recognize the need to do it?
At what level are these projects managed (CIO, Business Line, IT Div, Program Manager)?
Does your organization use IT portfolio management software?
Does your organization make tactical decisions about project funding to satisfy strategic goals in balancing the IT portfolio?

How is the portfolio management used to drive project direction and funding?
  0 - No portfolio management/No recognition of the need for such management
  1 - Recognized need for Portfolio Management/No evidence of it
  2 - Recognized need for Portfolio Management/Some Evidence
  3 - Plan for implementation of Portfolio Management/Some Evidence
  4 - Plan for Portfolio Mgmt at Enterprise Level
      Some Evidence of Enterprise level implementation
  5 - Plan for implementation of Portfolio Management at Enterprise Level
      Clear Evidence of Enterprise level implementation
Method of Evaluating IT - Process

<table>
<thead>
<tr>
<th>Process – Institutionalize five pillars</th>
<th>EPA</th>
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<th>IRS</th>
<th>FAA</th>
<th>SSA</th>
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## Method of Evaluating IT - People

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Assessment Validity

- Specific evidence of management required in each area
- Interviews conducted to cross-check
- Quantify score as percentage of possible
- Average across all elements
- Blind assessment and reassessment
Public Sector Performance

- Independent Evaluation
- Subjective Survey
- Used Government Executive overall evaluation
  - Peer Review
  - Customer Satisfaction

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<td>Internal Revenue Service</td>
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<td>Social Security Administration</td>
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Analysis

IT Management vs. Overall Performance

Scatterplot

Enterprise Performance

IT Management

SSA
FAA
IRS
EPA
INS
Analysis
IT Investment vs. Overall Performance

Scatterplot

Enterprise Performance vs. Investment Change

SSA, EPA, FAA, IRS
### Analysis – Correlation Matrix

<table>
<thead>
<tr>
<th>Correlation Matrix</th>
<th>Overall (Y)</th>
<th>Effectiveness (V2)</th>
<th>Investment (V1)</th>
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<td>Effectiveness (V2)</td>
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<tr>
<td>Investment (V1)</td>
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<td>0.248</td>
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</table>

- Questionable relationship between performance and IT investment
- Significant relationship between IT management and overall performance
- Multi-colinearitity low
Impact of Results

- Appropriate IT Management Assessment leads to Improved IT effectiveness across enterprise and improved overall effectiveness
  - *WE CAN MEASURE IT!*
- Improved IT effectiveness results in improved flexibility in Standardization.
- Acceleration of Deployment is achieved by increased flexibility of IT platform
- IT management techniques is of interest for all (Public, Private, Outsourcing)
Assessment Potential

- Standard Federal Mechanism
  - More federal agencies
  - More than federal agencies
- Start debate on proper IT management scorecard for public sector
- Outsourcing evaluation tool
Questions?

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Questions and Definitions

- Investment vs. Cost

Investment vs. Cost

Do the Business owners and managers recognize the strategic value of IT?

Do the Business owners and managers fund some IT projects as capital investments rather than as costs?

Is there planning documentation that shows an IT capital investments distinguishes between IT investment & cost?

Who makes the decision of whether and IT project is a cost or an investment?

Does your organization govern investment IT projects different that cost IT projects?

How are business managers involved in IT investment projects?

(Startup, Funding, Requirements, Testing, Deployment)

0  - All IT funding is managed as costs to be minimized with no regard for business need
1  - IT funding is managed as a costs, but business managers are involved in key IT projects or funding decisions
2  - Some IT funding is treated as an investment/business managers are consulted
3  - IT funding is managed as both an investment and as a cost
4  - Clear business rules exist for what IT funding is managed as an investment and how it is different from cost funding
5  - Clear business rules / Rules are followed and driven by business
Questions and Definitions - Executive Rotation

Business Connectivity
Does the organization rotate managers between IT and Line roles?
Does the organization hire IT people for line roles or line experienced people for IT roles?
Does the organizations fund IT through business lines?
Is the head of the organization involved in major IT decisions?
Does the organization reward IT competency in business managers? IT managers?
Does the organization provide a career path for technical IT experts independent of management?

Executive Rotation
0 - No rotation, No recognized benefit
1 - No rotation, Recognized benefit
2 - Some Rotation at lower org levels
3 - Some Rotation at all business levels
4 - Some rotation across enterprise
5 - Rotation is part of grooming for promotion and key positions
Questions and Definitions

- Business Line Funding
  0 - None, No recognized benefit
  1 - None, Recognized benefit
  2 - Some at lower org levels
  3 - Some at all business levels
  4 - Some across enterprise
  5 - All funding is either directed from business lines or set by them across enterprise

- CEO Involvement
  0 - None, No recognized benefit
  1 - None, Recognized benefit
  2 - None, but values for IT projects and general guidance is provided
  3 - Some at highest org levels
  4 - Specific Guidance for all top level projects and funding lines
  5 - System and process to push key decisions to CEO for strategic IT
Questions and Definitions  
- Technical Competency

- Technical Competency
  0 - None, No recognized benefit
  1 - None, Recognized benefit
  2 - Technical competency is valued, but not rewarded
  3 - Technical competency is valued, some rewarded
  4 - Technical competency is valued, usually
  5 - Technical competency is valued, required for most technical management positions
## Method of Evaluating IT - Second Pillar

<table>
<thead>
<tr>
<th>Second Pillar – Business Process</th>
<th>EPA</th>
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Method of Evaluating IT - Third Pillar

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## Method of Evaluating IT
- **Fourth Pillar**

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## Overall Results for IT Management Evaluation

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<th>Overall Scores</th>
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