IT Management Assessment in Federal Agencies

Dr. Chris Strasser
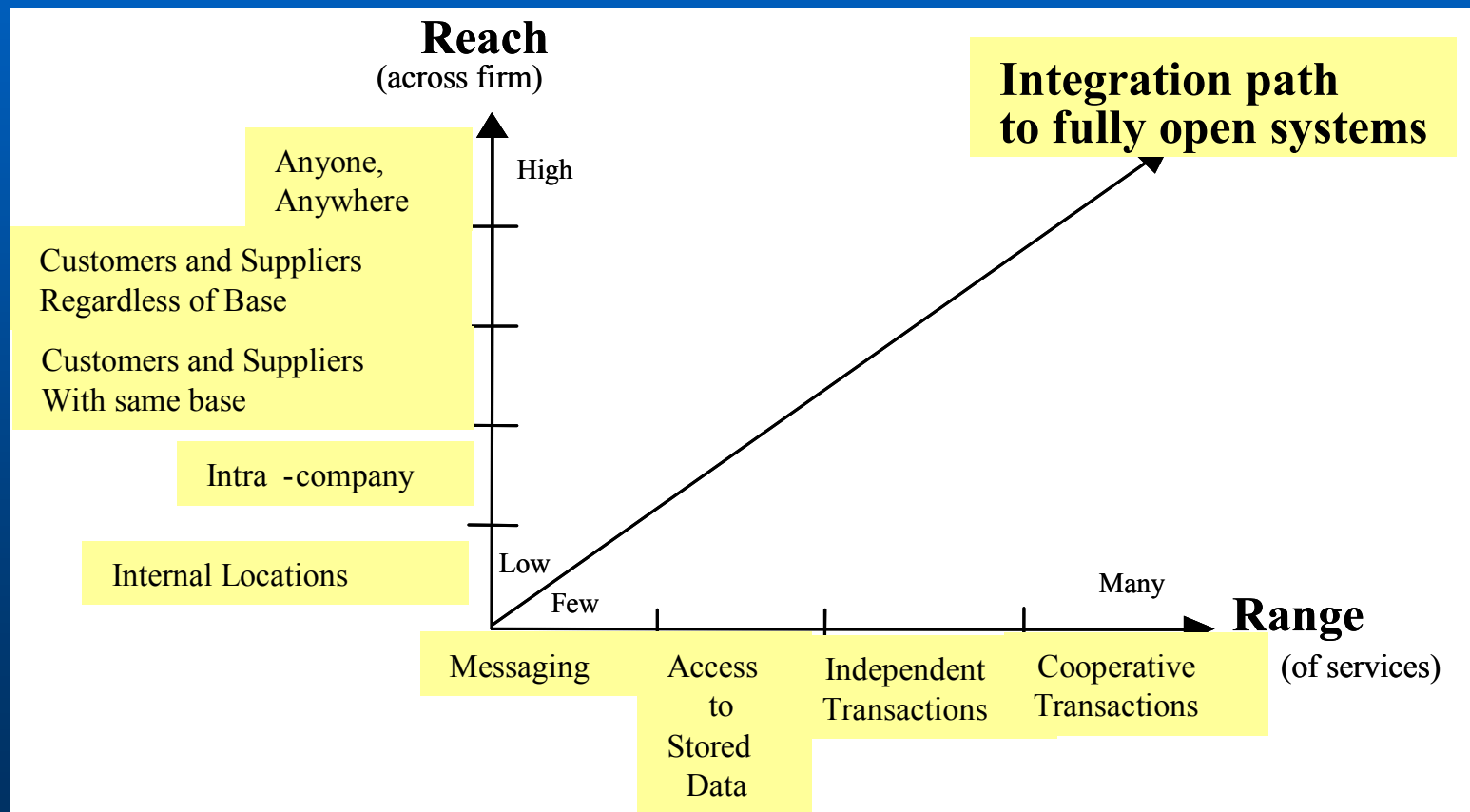
Concurrent Technologies Corporation

Outline

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

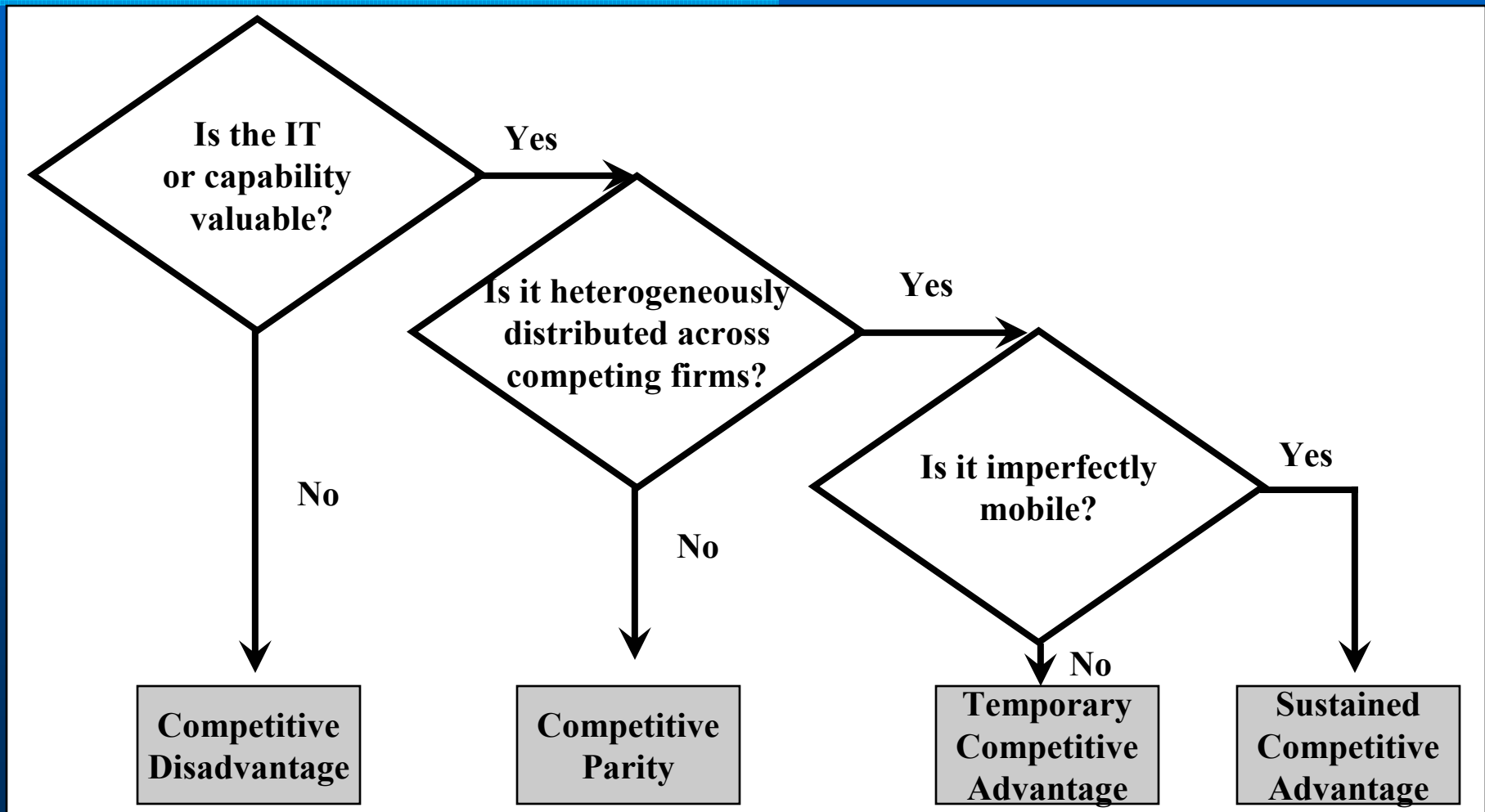# IT Management Issue Perspectives

- **Economics**
  - **Roach (1986), Loveman (1990)**
  - **Brynjolfsson, Hitt &Yang (1990-2002)**
  - **Strassman (1986, 1990, 1997)**
  - **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)

**Integration path
to fully open systems**

Anyone,
Anywhere

High

Customers and Suppliers
Regardless of Base

Customers and Suppliers
With same base

Intra -company

Low

Internal Locations

Few

Many

Range
(of services)

Messaging

Access
to
Stored
Data

Independent
Transactions

Cooperative
Transactions

IT Management Models
Mata and Fuerst

IT Management Models – Weill and Broadbent

Type of Information Technology

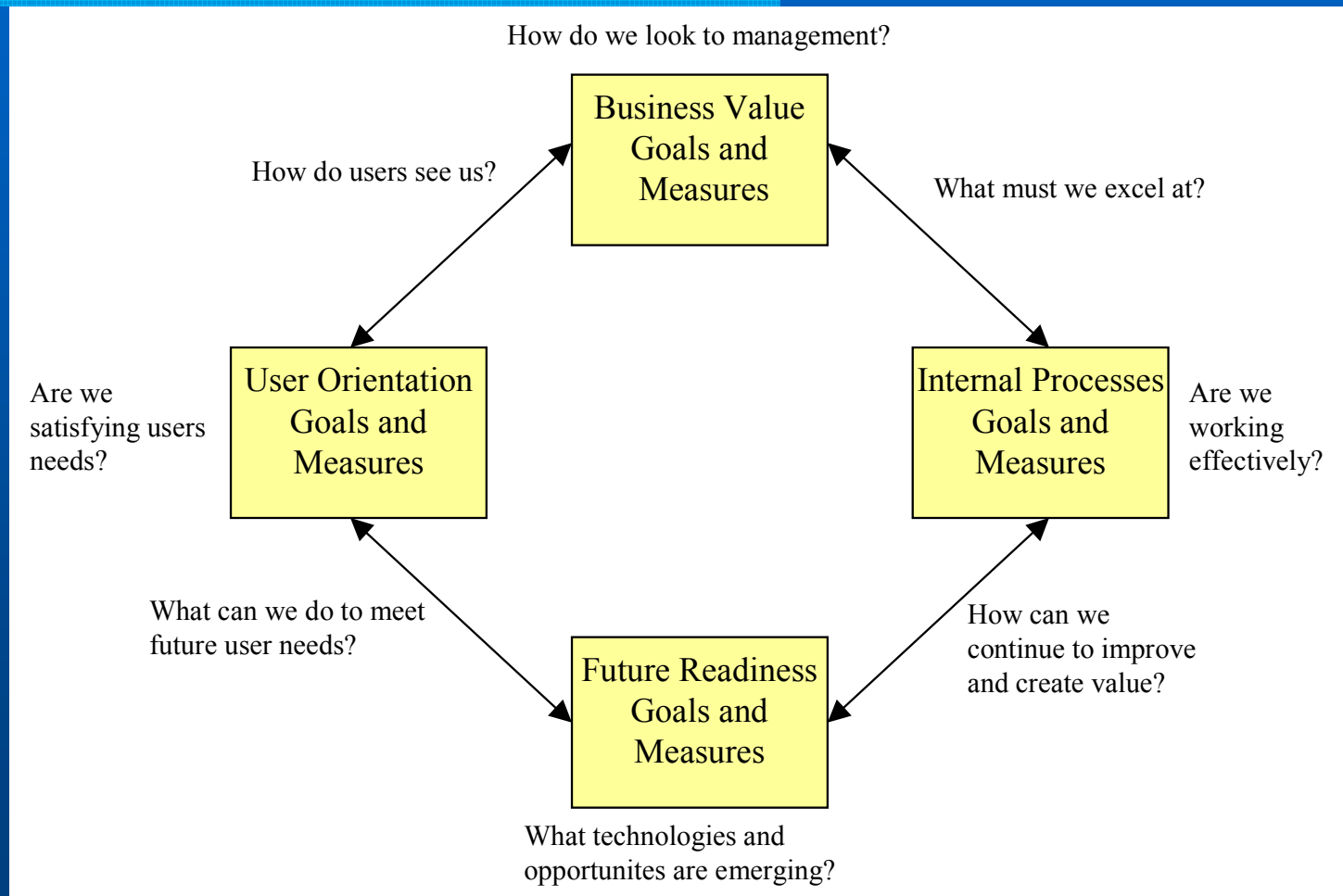| Size	Strategic	Informational	Transactional
Large	**Strategy Driven and Pilot** Appraisal based on informed subjective analysis - pilots reduce the risk	**DCF Value Analysis** Structured technique combining both certain and estimated benefits	**DCF** Positive NPVs based on cash flows using only certain benefits
Small	**Strategy Driven** Small strategic investments require seed funding	**Rules of Thumb** Appraise in detail and set heuristics to apply across the firm	**DCF** Positive NPVs based on cash flows using only certain benefits

IT Management Models – Weill and Broadbent
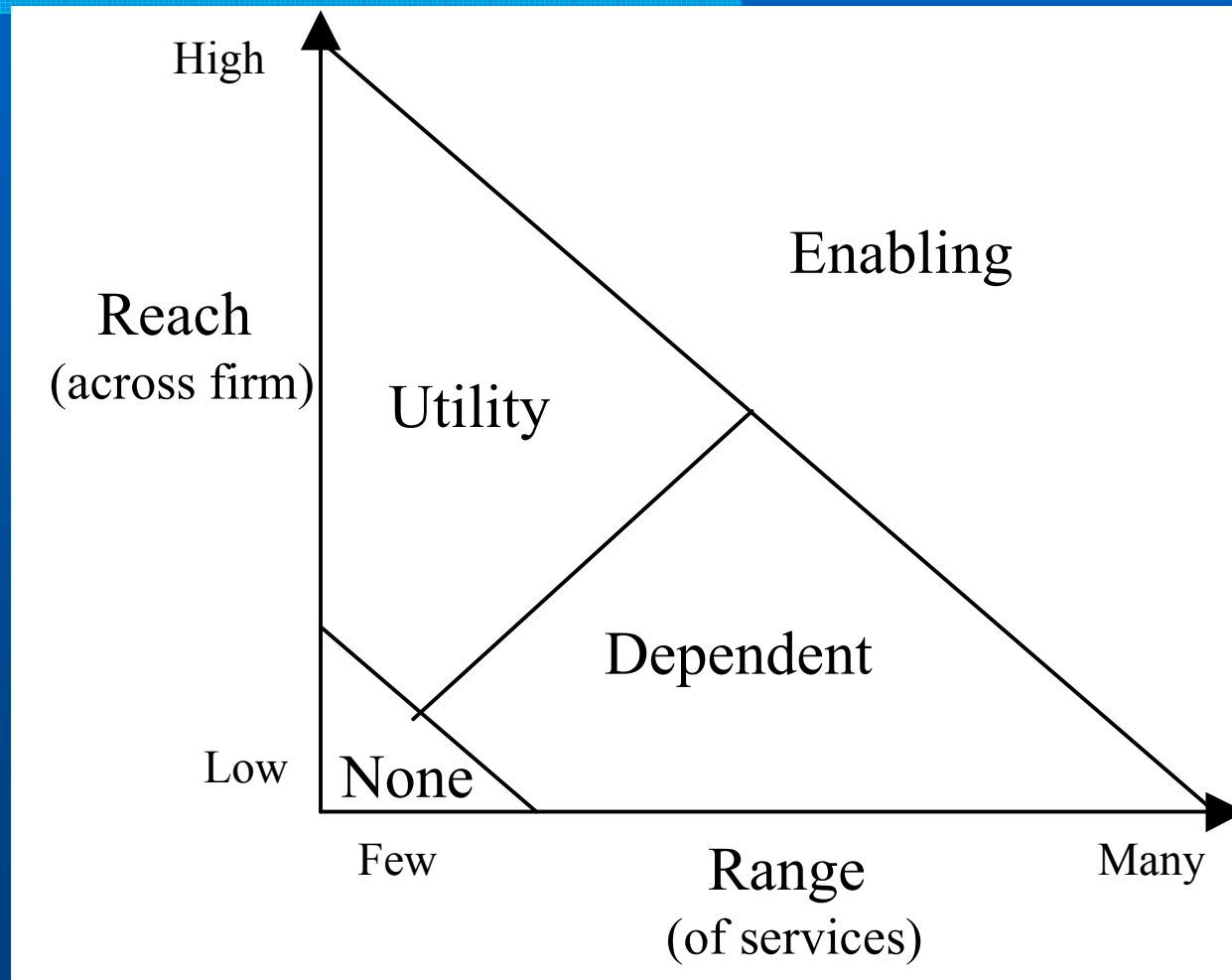
Measurement Models

- **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**
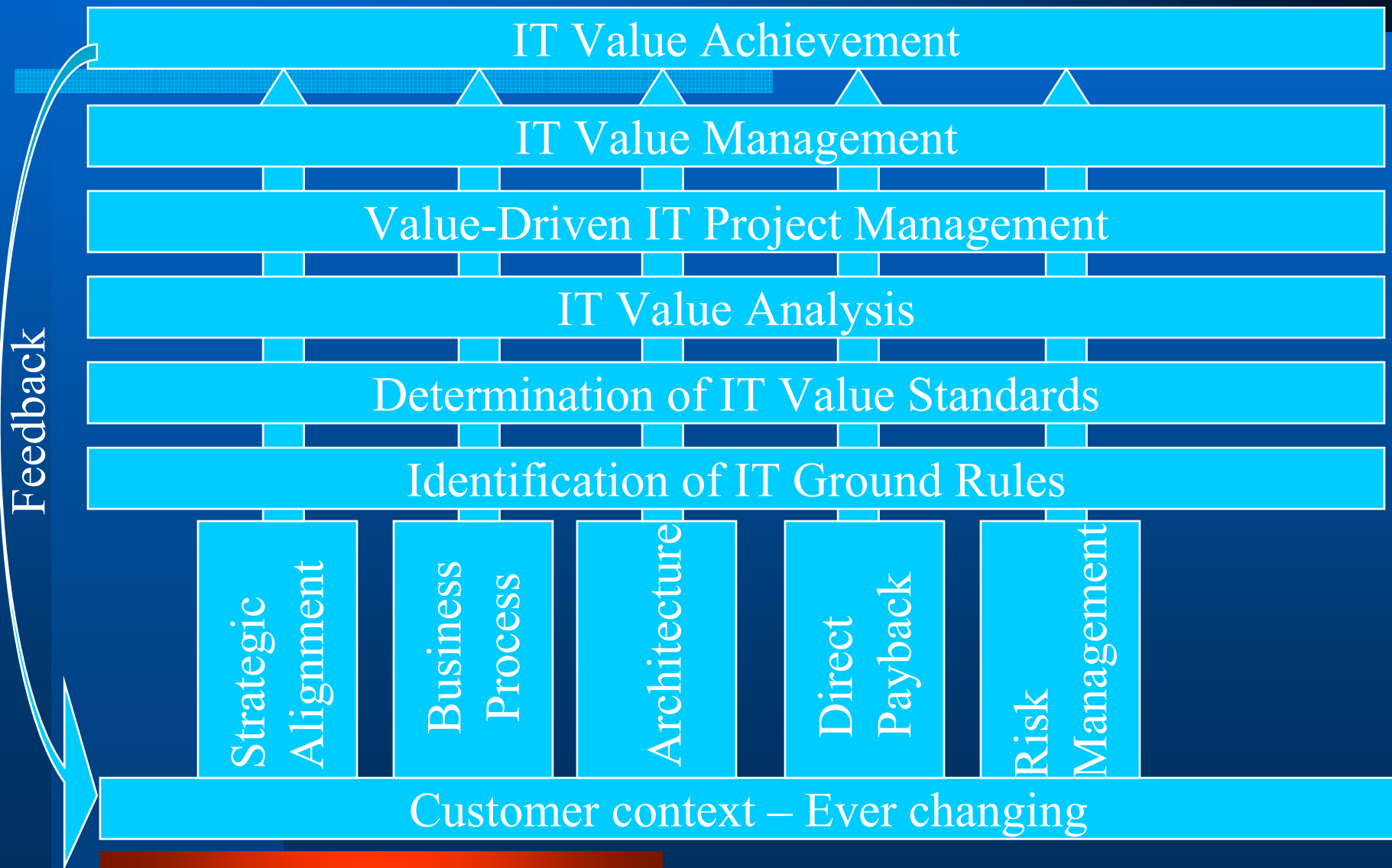- **Byrd and Turner (2000) – Validation of Duncan with Fortune 1000**

Measurement Models – Martinsons, Davison, and Tse

How do we look to management?

How do users see us?

Business Value Goals and Measures

What must we excel at?

Are we satisfying users needs?

User Orientation Goals and Measures

Internal Processes Goals and Measures

Are we working effectively?

What can we do to meet future user needs?

How can we continue to improve and create value?

Future Readiness Goals and Measures

What technologies and opportunites are emerging?

Measurement Models – Duncan

Components	Flexibility qualities	Types of indicators
Platform	Compatibility	Component characteristics
Networks/Telecom	Connectivity	IS resource management practices
Data	Modularity	IT capabilities

Gartner Model - Process

IT Value Achievement

IT Value Management

Value-Driven IT Project Management

IT Value Analysis

Determination of IT Value Standards

Identification of IT Ground Rules

Feedback

Strategic Alignment

Business Process

Architecture

Direct Payback

Risk Management

Customer context – Ever changing

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

First Pillar – Strategic Alignment	EPA	INS	IRS	FAA	SSA
Portfolio Management	1	0	2	4	4
Reach and Range	4	1	3	4	5
Investment vs. Cost	3	4	5	4	5
o Executive Rotation	3	2	3	4	4
o Business Line Funding	2	2	4	4	4
o CEO involvement	5	1	4	4	5
o Technical Competency	3	3	3	5	3
Total	21	13	24	29	30
Alignment Pillar Score	0.60	0.37	0.69	0.83	0.86

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

Process – Institutionalize five pillars	EPA	INS	IRS	FAA	SSA
Ground Rules setting	4	1	4	5	4
IT value Standards	4	1	4	5	5
IT value analysis	4	0	3	4	4
Value driven IT project management	2	0	2	4	4
IT value management	2	0	2	4	4
Total	16	2	15	22	21
Overall Process Score	0.64	0.08	0.60	0.88	0.84

Method of Evaluating IT - People

People – Accountability	EPA	INS	IRS	FAA	SSA
IT Council	2	0	5	5	3
Office of Architecture and Standards	5	1	5	5	4
Project management office	2	2	4	4	4
Standards, Practices and guidelines	5	3	4	4	5
Autonomy versus common	3	3	2	2	5
Total	17	9	20	20	21
Overall People/Governance Score	0.68	0.36	0.80	0.80	0.84
Overall Score	**0.74**	**0.26**	**0.72**	**0.85**	**0.86**

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**

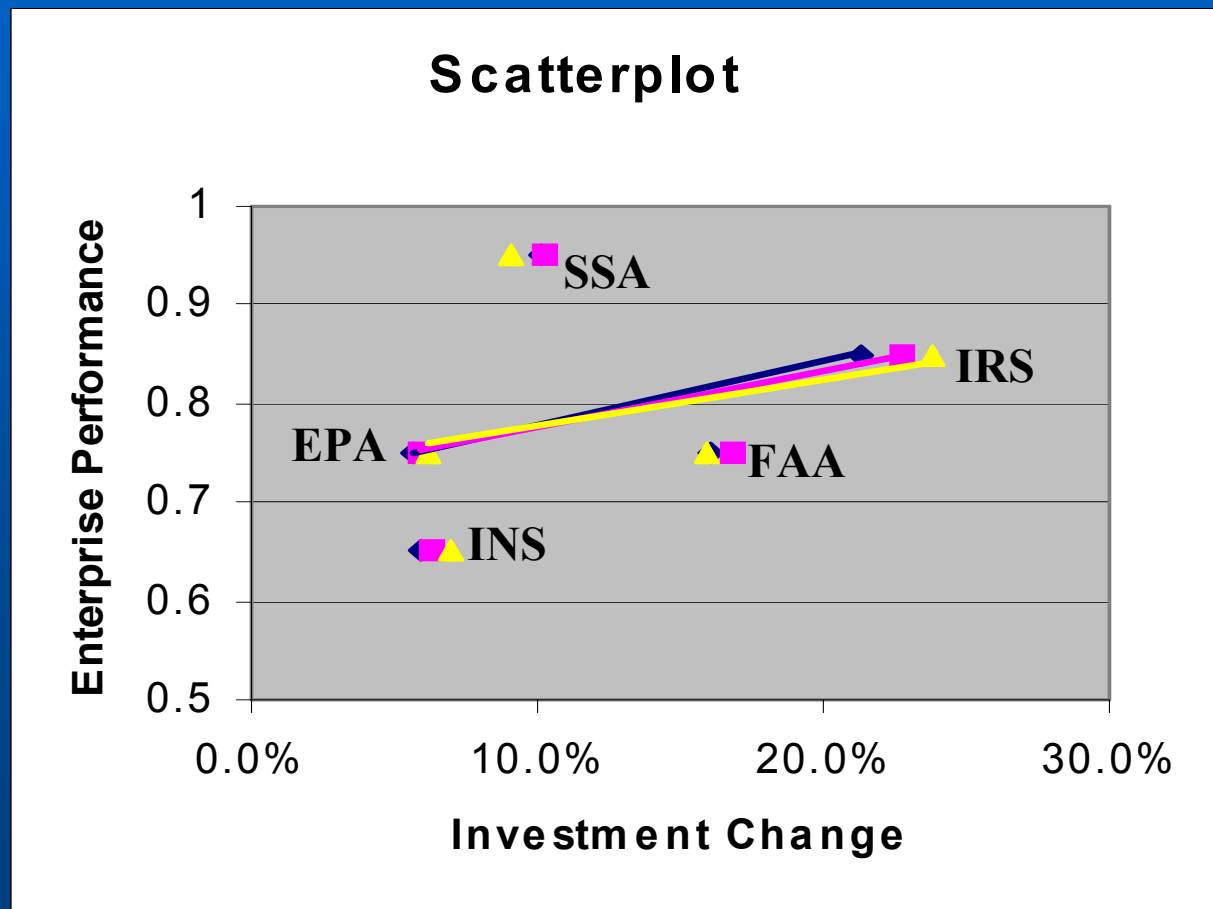| Agency	Govt. Executive Score
Immigration and Naturalization Service	0.65
Evironmental Protection Agency	0.75
Federal Aviation Adminstration	0.85
Internal Revenue Service	0.75
Social Security Adminstration	0.95

Analysis
IT Management vs. Overall Performance
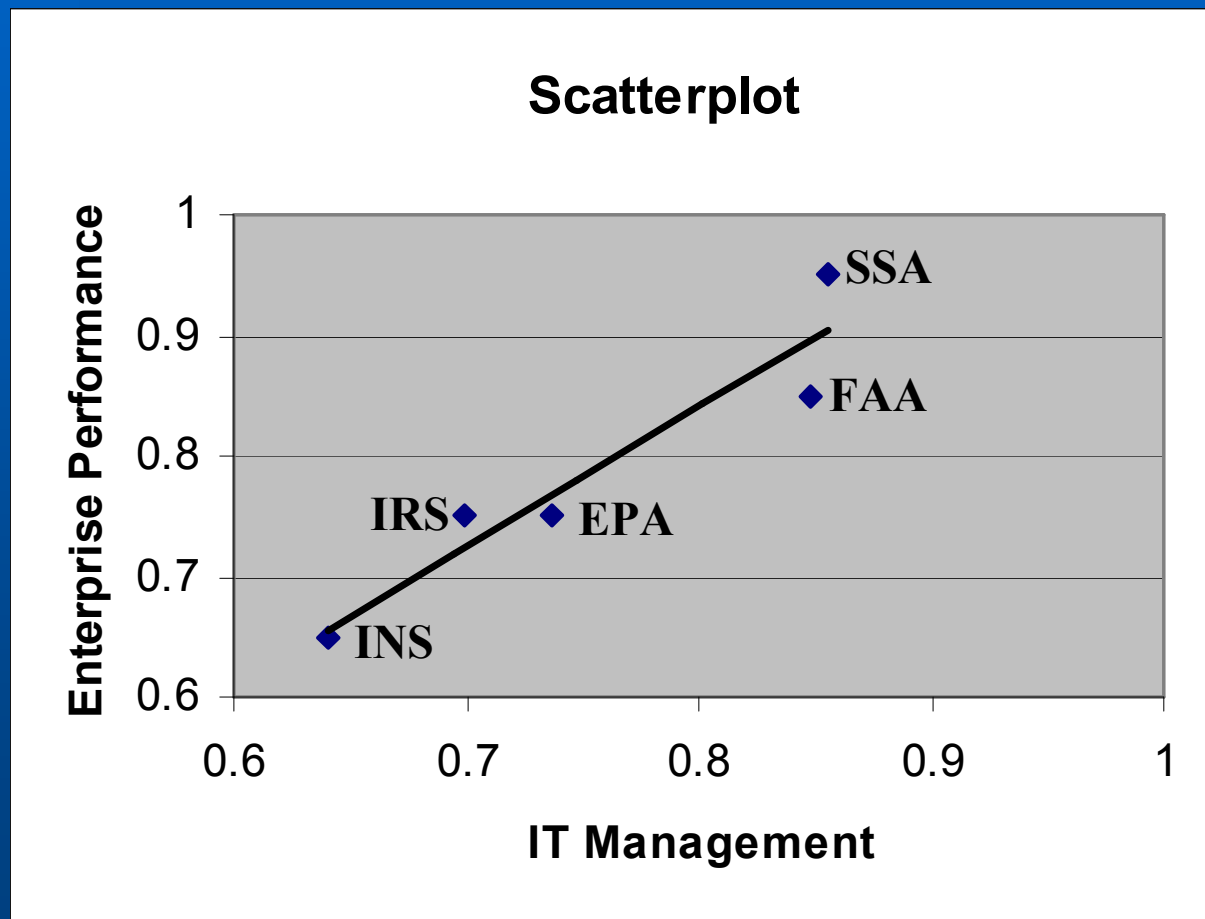
Analysis
IT Investment vs. Overall Performance

Analysis – Correlation Matrix

Correlation Matrix	Overall (Y)	Effectiveness (V2)	Investment (V1)
Overall (Y)	1.000		
Effectiveness (V2)	0.901	1.000	
Investment (V1)	0.094	0.248	1.000

- **Questionable relationship between performance and IT investment**
- **Significant relationship between IT management and overall performance**
- **Multi-colinearity 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?

Dr. Chris Strasser

Concurrent Technologies Corp.

cstrasser@direcway.com

Johnstown, PA

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 distinguises 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?

    o   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 o grooming for promotion and key positions

Questions and Definitions
- Business Line Funding

- CEO Involvement

o   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

o   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 fudning lines
- 5 - System and process to push key decisions to CEO for strategic IT

Questions and Definitions - Technical Competency

o   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

Second Pillar – Business Process	EPA	INS	IRS	FAA	SSA
High Level Process Framework	4	1	4	4	4
Key Senior Leaders/Process Ov	2	0	3	4	4
Voice of the Customer processe	3	0	4	5	5
Baseline assigned processes	4	0	4	4	4
Drive business through process	5	0	3	4	5
Enterprise Wide focus	5	0	4	5	4
Adaptive and efficient processes	4	0	4	4	5
Process Driven Architectures	5	0	3	4	4
Total	32	1	29	34	35
Process (Flexibility) Pillar Score	0.80	0.03	0.73	0.85	0.88

Method of Evaluating IT - Third Pillar

Third Pillar – Architecture	EPA	INS	IRS	FAA	SSA
Flexibility through standardizatio	5	1	3	4	3
Enterprise approach	5	3	5	5	4
Total	10	4	8	9	7
Architecture Pillar Score	1.00	0.40	0.80	0.90	0.70

Method of Evaluating IT - Fourth Pillar

Fourth Pillar – Direct Payback	EPA	INS	IRS	FAA	SSA
Cost Savings (QC, Staff, Lower O&M)	5	1	5	4	5
Revenue/Effectiveness	3	1	3	4	5
Total	8	2	8	8	10
Direct Payback Pillar Score	0.80	0.20	0.80	0.80	1.00

Method of Evaluating IT - Fifth Pillar

Fifth Pillar – Risk.	EPA	INS	IRS	FAA	SSA
Structured Risk Mangement	3	2	3	4	4
Organizational Risks	4	1	3	5	4
Project Risks	3	2	3	4	5
Staff Risks	3	2	3	4	5
External Environment	3	2	3	5	4
Total	16	9	15	22	22
Risk Pillar Score	0.64	0.36	0.60	0.88	0.88

Overall Results for IT Management Evaluation

Overall Scores	EPA	INS	IRS	FAA	SSA
Alignment Pillar Score	0.60	0.37	0.69	0.83	0.86
Process (Flexibility) Pillar Score	0.80	0.13	0.73	0.85	0.88
Architecture Pillar Score	1.00	0.40	0.80	0.90	0.70
Direct Payback Pillar Score	0.80	0.20	0.80	0.80	1.00
Risk Pillar Score	0.64	0.36	0.60	0.88	0.88
Process Score	0.64	0.08	0.60	0.88	0.84
People/Governance Score	0.68	0.36	0.80	0.80	0.84
Overall Score	0.74	0.27	0.72	0.85	0.86