



Integrating PSM and the Balanced Scorecard

David N. Card

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Agenda

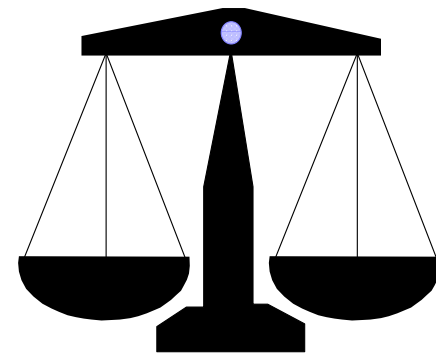
- Problem Statement
- Balanced Scorecard
- Mapping PSM and BSC
- Implementing BSC with PSM
- Summary

Problem Statement

- PSM explicitly addresses only project-management-level measurement
- Increasing interest in gaining an enterprise perspective
- Balanced scorecard widely accepted as basis for enterprise measurement, especially in IT organizations
- Can the two approaches be integrated?

The Balanced Scorecard*

- Executives need a balanced view – more than financial information
- Executives need feedback on achievement of goals
- Executives need a simple easy to understand presentation of results – a scorecard



* Source: Robert S. Kaplan, and David P. Norton. "The Balanced Scorecard – Measures that Drive Performance," *Harvard Business Review*, January 1992.

Balanced Views

Four classes of goals (information needs) are balanced:

Business Perspectives

- Customer demand and satisfaction
- Financial performance

Operations Perspectives

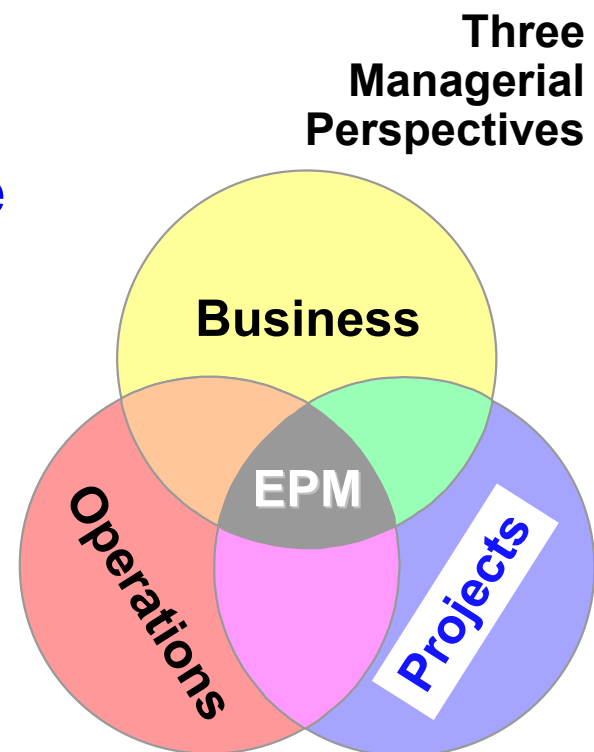
- Learning and innovation
- Internal process performance

Does not directly address project oversight

Project Oversight

Typically, Outside the Scope of the Balanced Scorecard

- Health of large projects critical to business success
- Executive responsibility to ensure effective management
- Key dimensions of oversight
 - Risk exposure
 - Status



Causes of Overruns

Rank by		
General Managers	Project Managers	Problem
1	10	Insufficient front-end planning
2	3	Unrealistic project plan
3	8	Project scope underestimated
4	1	Customer / management changes
5	14	Insufficient contingency planning
6	13	Inability to track progress
7	5	Inability to track problems early
8	9	Insufficient number of checkpoints
9	4	Staffing problems
10	2	Technical complexity
11	6	Priority shifts
12	10	No commitment by personnel to plan
13	12	Uncooperative support groups
14	7	Sinking team spirit
15	15	Unqualified project personnel

Source: H. J. Thambain, and D. C. Wileman. "Criteria For Controlling Projects According To Plan." *Project Management Journal*, June 1986.

Key Elements of PSM

- Information Categories
- Analysis Model
- Information Model
- Process Model

Focused on Measurement for Project Management

Information Categories

- Project-specific information needs can be grouped into categories mapped to measurable concepts and constructs
- PSM defines seven categories
 - Schedule and progress
 - Resources and cost
 - Product size and stability
 - Product quality
 - Process performance
 - Technology effectiveness
 - Customer satisfaction
- BSC perspectives are like PSM information categories

BSC-Based Information Categories

Balanced Scorecard Perspective	Measurable Concepts	Prospective Measures
Financial	Market Growth	Revenue Market Share
	Profit Growth	Earnings per Share before Interest and Taxes
	Price	Unit Price
Customer	Satisfaction Perception	Survey Results
Internal Processes	Time to Market	Engineering Cycle Time
	Cost	Unit Cost Productivity
	Quality	Delivered Defect Rate
Learning and Growth	Innovation	Publications Patents
	Competence	Years of Education
Project Oversight	Risk	Risk Exposure
	Progress	Cost Performance Index Schedule Performance Index

BSC Mapped to PSM

Balanced Scorecard Perspective	Measurable Concept	PSM Information Category Directly Mapped	PSM Information Category Influenced by Perspective
Financial	Market Growth	○	
	Profit Growth	○	
	Price	○	
Customer	Satisfaction	Customer Satisfaction	
	Expectation	○	
Internal Processes	Time to Market	Process Performance	Schedule/Progress
	Cost	Process Performance	Resources and Cost
	Quality	Process Performance	Product Quality
Learning and Growth	Innovation		Technology Effectiveness
	Competence	<i>Personnel Experience</i>	Resources and Cost
Project Oversight	Risk	○	
	Progress	Schedule/Progress Product Quality Product Size/Stability Resources and Cost	
None		Technology Effectiveness	

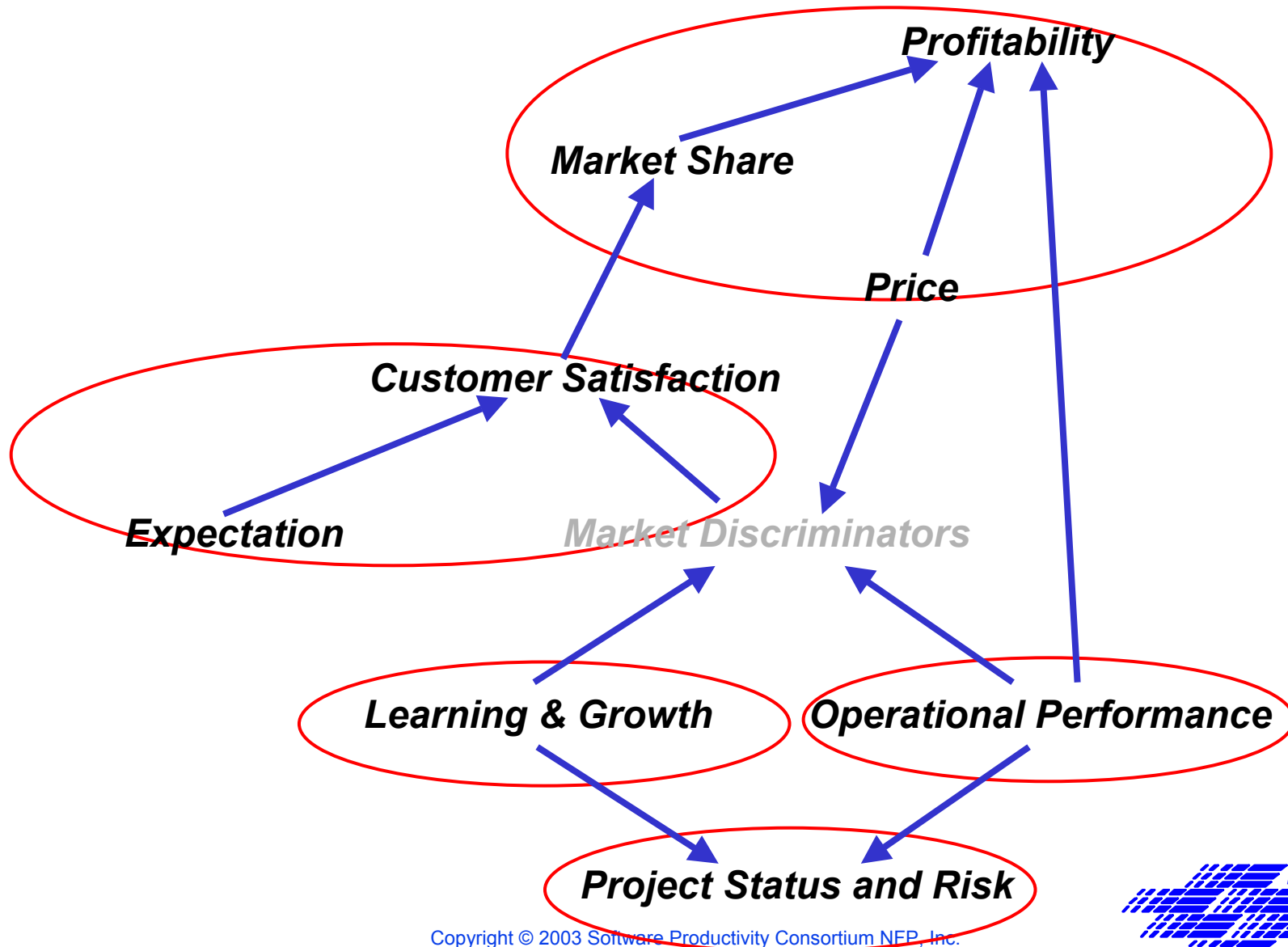
Technology Competence



Analysis Model

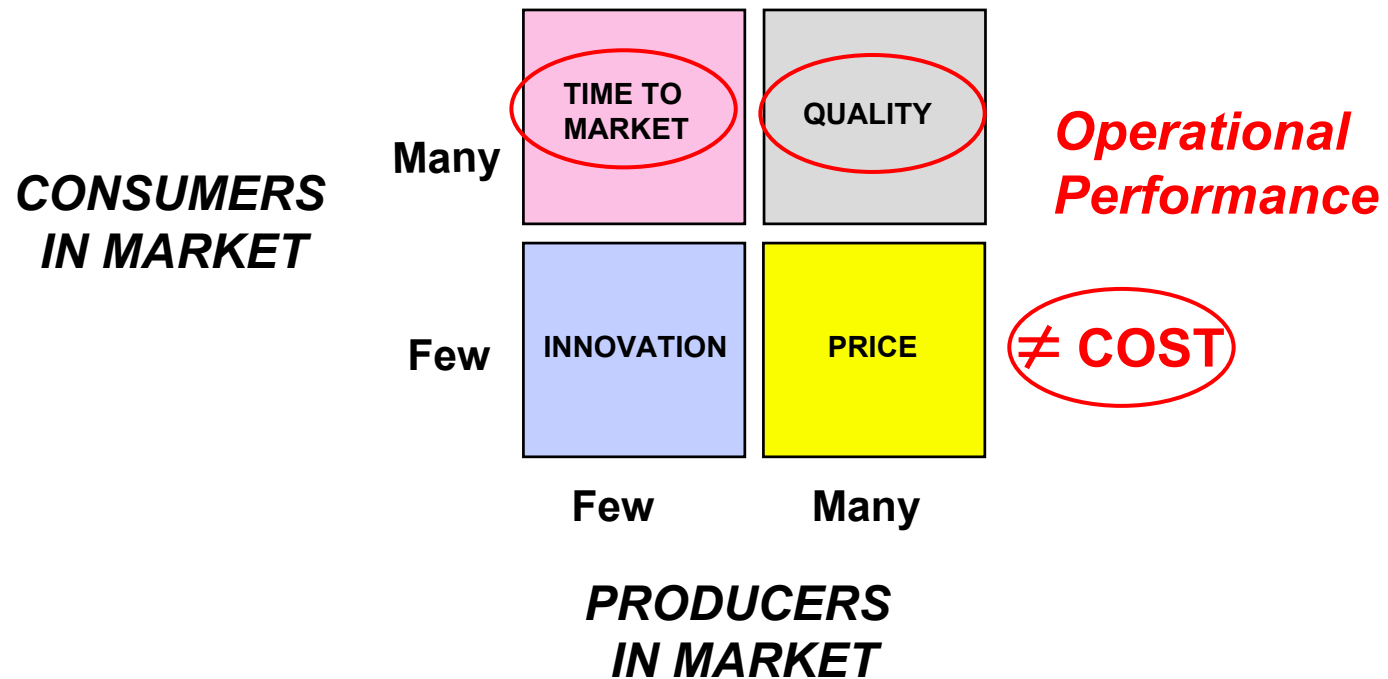
- Shows the relationship among information categories and measurable concepts
- Helps interpret multiple indicators to understand causes and effects
- Enterprise relationships often described in a “value network”

Enterprise Value Relationships



Market Discriminators

Linked to Project Performance

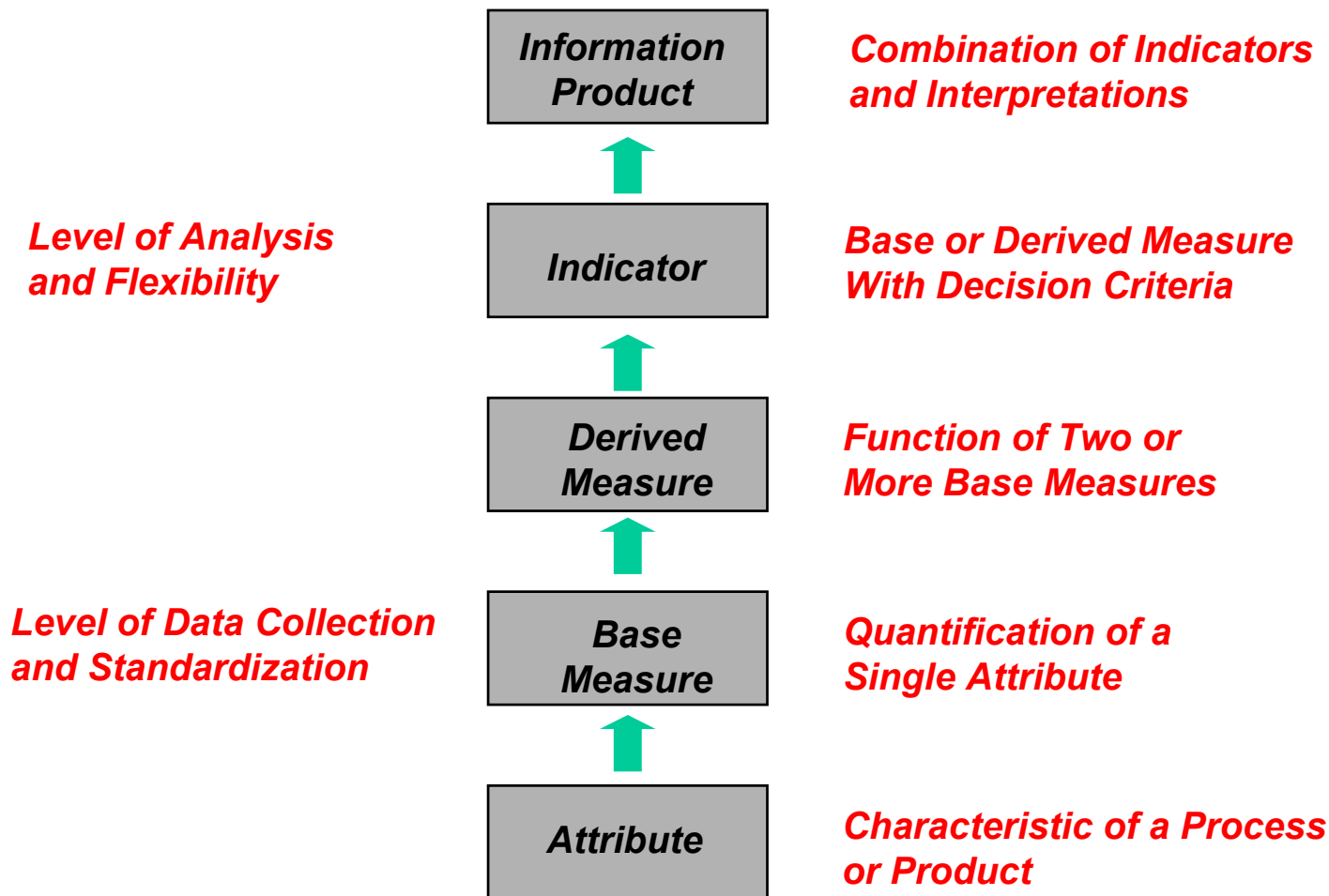


Adapted from D.N. Card, "Is Timing Really Everything?" IEEE Software, September 1995

Measurement Information Model

- Generic model (ISO/IEC 15939) applies unchanged
- Many of the same base measures can be used for project and enterprise measurement
- Different analysis techniques, decision criteria, etc., required to address enterprise level information needs

Measurement Construct



Example Analysis Techniques

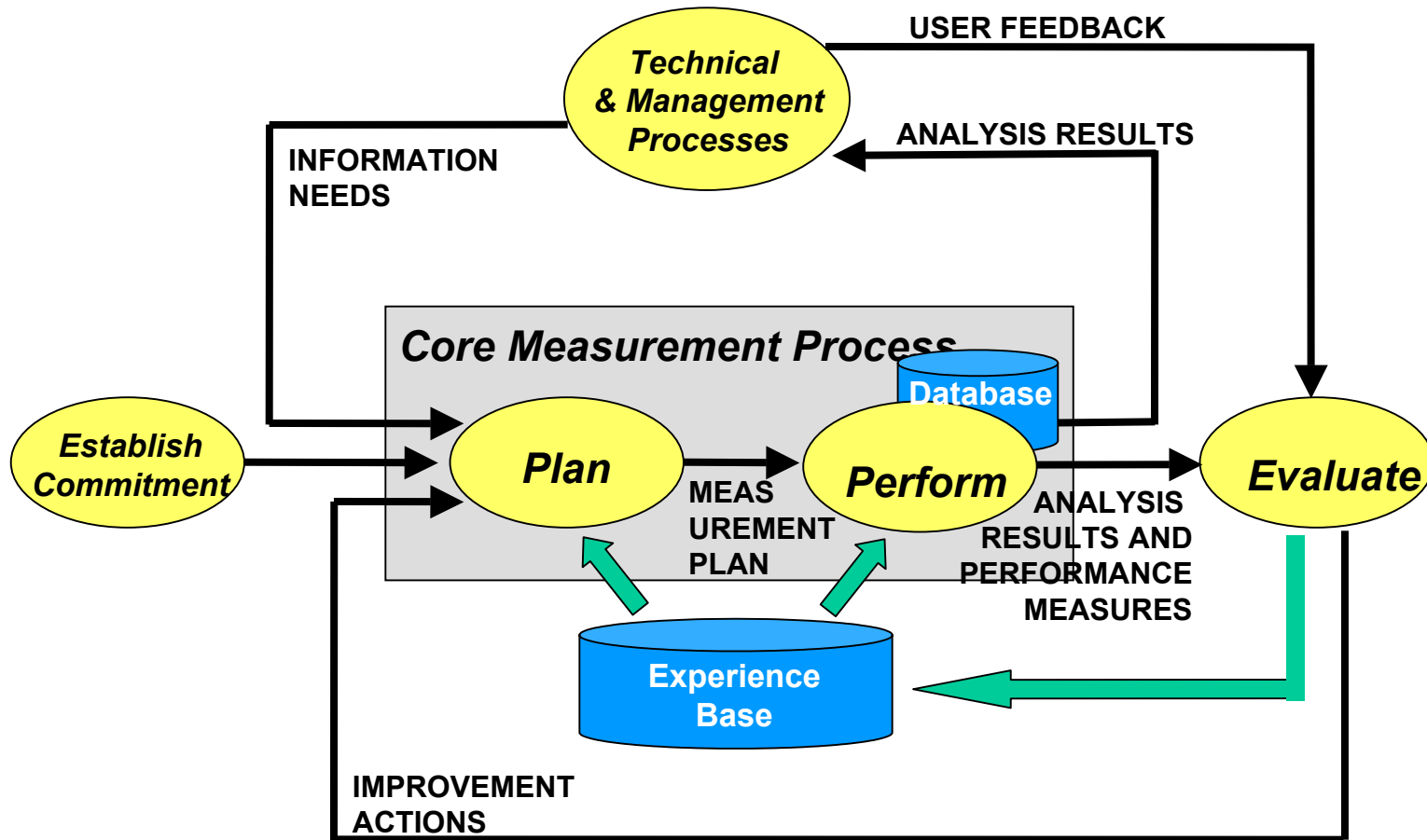
1. UNDERSTAND	2. ANALYZE	3. PLAN	4. DEVELOP	5. EXECUTE	EXAMPLE APPROACHES/TECHNIQUES	USAGE
X	X	X			Environmental scanning	Aids industry and marketplace understanding through “watching” and research.
X	X	X			Five Force analysis	Aids strategic repositioning through analysis of suppliers, customers, and competition.
X	X	X			Seven-S Framework analysis	Aids strategic realignment through assessment of the organization’s internal constitution.
X	X	X			Value Chain analysis	Aids operational assessment through analysis of functional relationships and value added.
X	X	X			Scenario writing	Aids strategic visioning through prediction and critical success factor identification.
X	X	X			Normative Forecasting	Aids strategic planning through determination of prerequisites for desired outcomes.
X	X	X			CSF analysis	Aids strategy operationalization through identification of information needed for executive decision making.
X			X		ABC	Aids operational improvement through analysis of cost allocation by function.
X			X		Process Benchmarking	Aids operational improvement through study of acclaimed best practices.
X			X		Customer Satisfaction analysis	Aids operational improvement through assessment of responsiveness to customers.
	X	X	X		EVA analysis	Aids investment decision making through ROI and other financial analyses.
			X	X	Balanced Scorecard development	Aids management of organizational improvement through the monitoring of key vital signs.
			X	X	Project management	Aids project alignment and successfulness through planning, allocating, and controlling.

Source: D. Card, et al, *Techniques for Enterprise Management*, Technical Report, Software Productivity Consortium, 2000.

Measurement Process Model

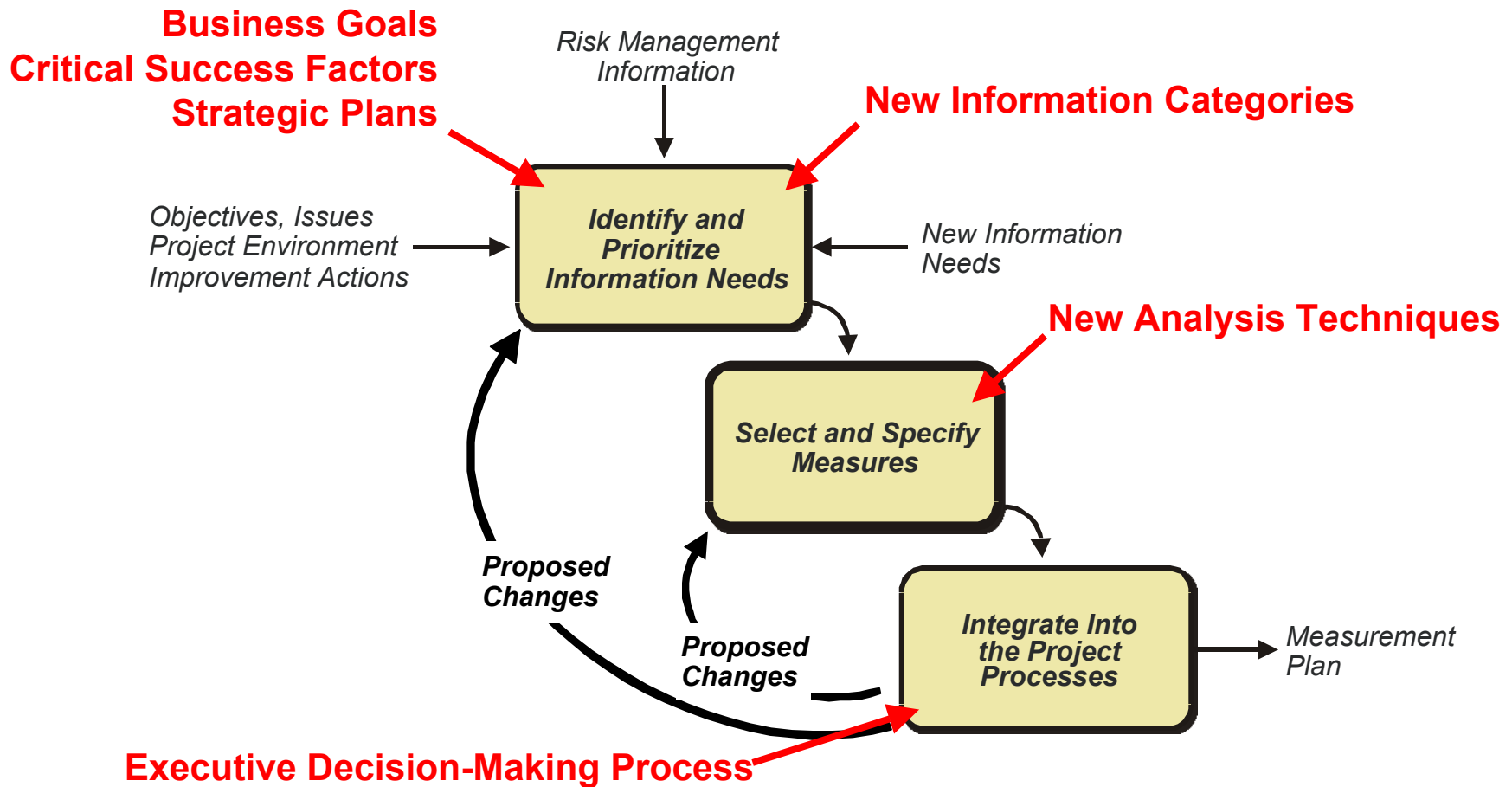
- Generic (ISO/IEC 15939) model applies unchanged
- Detailed PSM implementation guidance requires modification to incorporate enterprise information needs

Measurement Process Model



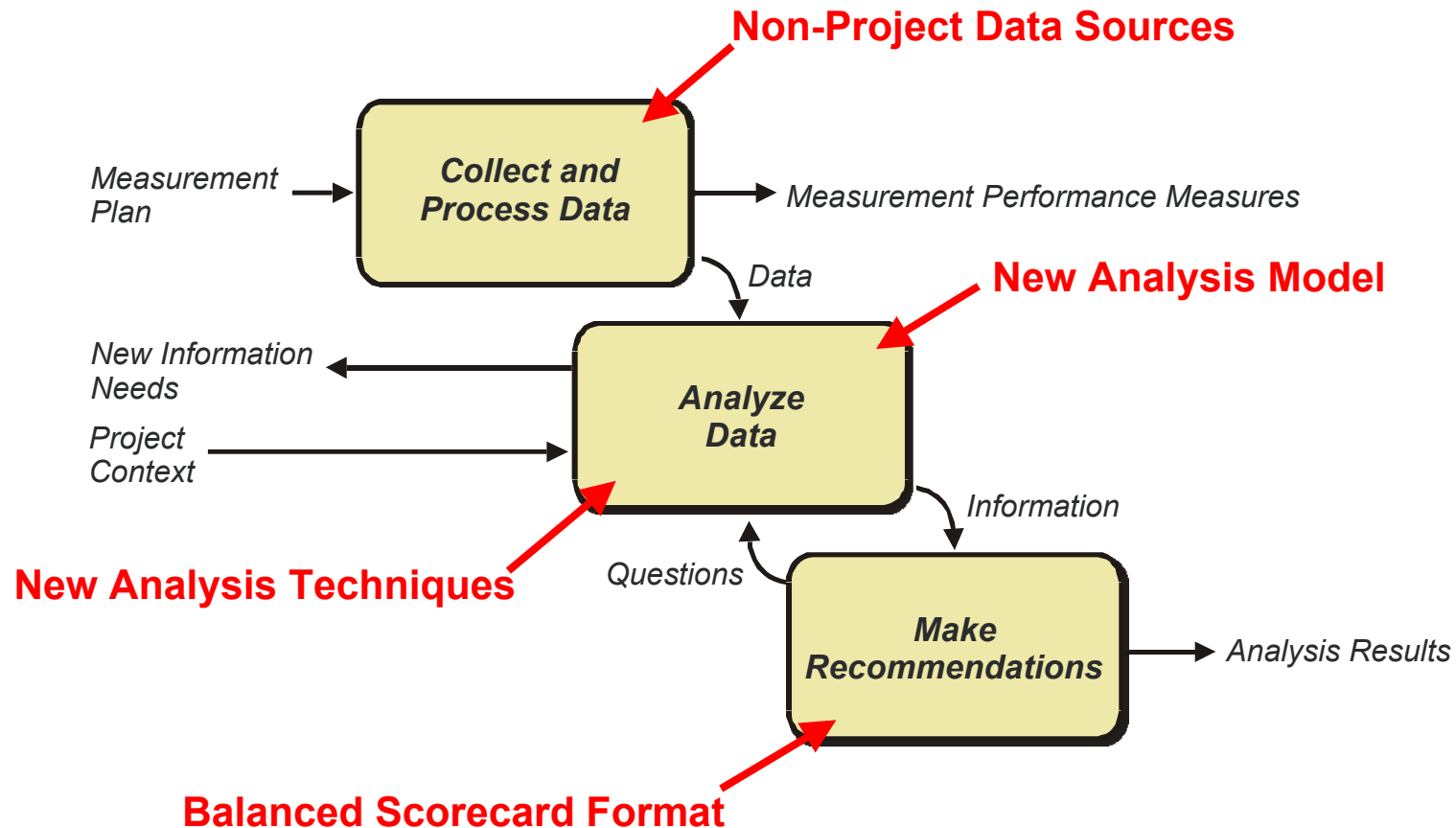
Adapted from ISO/IEC CD 15939, Information Technology – Software Measurement Process

Plan Measurement



Source: J. McGarry, D. Card, et al, *Practical Software Measurement*, Addison Wesley, 2002.

Perform Measurement



Source: J. McGarry, D. Card, et al, *Practical Software Measurement*, Addison Wesley, 2002.

Summary

- PSM and BSC approaches are compatible
- Major differences involve information categories, analysis model, and analysis techniques
- Coordinating enterprise and project measurement can
 - Reduce measurement cost
 - Increase measurement effectiveness
 - Facilitate objective communication between executives and project managers