What is a Conceptual Framework?

The boundaries you want to stay within as you build standards or a model.

What Might a CF tell us?

• Balance Sheet or Income Statement focus
• Which customer’s information needs have priority?
• Basis of Accounting – i.e. Accrual, Cash, other
Agenda

• Introduction –
  ‣ Necessity for a Conceptual Framework for managerial costing
  ‣ What is a CF?
  ‣ What is managerial costing?
  ‣ Action Needed

• Objective, Scope, Principles—
  ‣ Framework Objective
  ‣ Framework Scope
  ‣ Framework Principles

• Concepts and Constraints
  ‣ Overview
  ‣ Explanation
  ‣ Airline Examples to illustrate concepts
Here is Part of the Problem.
Which managerial accounting system should we use?

Even most cost accountants do not understand what the differences are!
By Dr. Tachai Ono, inventor of the Toyota Production System:

“You have touched on my biggest problem – the thing I have fought against for 40 years. Cost accountants in Japan think just like they do in the Western hemisphere. Exactly. They believe in EOQs; they believe in efficiencies … and in variances. Somehow my system, ‘Just-in-time,’ is at odds with those things. I manufacture things in very small batches. I don’t keep my workers busy all the time producing product. I don’t always run things on the lowest cost machine. That’s at odds with cost accounting rules … the people who are killing you in the Western hemisphere are the people who have copied my system. And I am telling you, my system is at odds with cost accounting rules … I not only kept the cost accountants out of my factories; I tried to keep the knowledge of cost accounting principles out of the minds of my people.”

Fox, R.E., “Coping with Today’s Technology: Is Cost Accounting Keeping Up?”; Cost Accounting for the 90’s: The Challenge of Technological Change; the National Association of Accountants (now www.imanet.org); 1986; p. 20.
Six Eras of Managerial Accounting

Stage Of Costing Maturity

Ancient
- Rocks and stone piles.

Medieval
- Precious metal and paper money piles, ultimately leading to double-entry bookkeeping (Luca Pacioli, 1492).

Industrial
- Standard cost accounting (to reflect Frederick Winslow Taylor’s manufacturing scientific methods, 1910).

Consumer
- “Causal” cost tracing of increasingly diverse types of products, services, channels and customers.

Regulatory Compliance
- The USA’s Great Depression resulted in regulatory reforms to protect investors (1930s).

Predictive Analytics
- A shift of emphasis from a historical to a predictive view of strategy and operations.

20,000 BC 1492 1910 1930 1980 2015
Managerial Costing

Enterprise Financial Management

- Tax Accounting
- Financial Accounting
- Managerial Accounting

Cost Measurement

- Cost Accounting
  - External financial Reporting e.g. GAAP, IFRS
  - Costs of goods sold
  - Inventory valuation

- Performance Evaluation & Analysis
  - Assessment of current strategy & plans
  - Integrated cost/operational performance measures (e.g. cost variance, capacity measurement, process efficiency, etc.)
  - Profitability reporting
  - Process analysis
  - Learning & corrective actions

- Planning & Decision Support
  - Fully absorbed and incremental costing
  - Adaptive operation & cost based planning, budgeting & forecasting
  - What-if analysis & planning
  - Product, process, channel, & customer strategic adaptations
  - Enterprise optimization (e.g. make vs. buy, outsource, etc.)

Historical → Predictive

Lower → Value-added to managerial decisions → Higher
The shift to predictive accounting

Descriptive

Past

Now

Future

Predictive

unused

used

sunk

unused

Unavoidable Costs

Avoidable Costs

Traceable to products, channels, customers, sustaining
Methods

Roots in Accounting Profession

1920
MA’s Golden Age
GPK
Std. Costing

1935
ABC
RCA

1980
TD-ABC

2008

Roots in Other Disciplines

Production Scheduling
Theory of Constraints
Lean Thinking
Lean Acc

Production Method Centric
Accounting Method Centric
Principle-based
Costs from Sales & Marketing are not Products

- Customer
  - +
  - Channel
  - +
  - Product

- Direct material, Direct labor & Equipment
- Indirect expenses
- Distribution, Sales & Marketing
- Sales, general, and administration (S,G&A)
What is a Conceptual Framework?

• IASB/FASB Conceptual Framework
  - Objective and Qualitative Characteristics
  - Elements and Recognition
  - Measurement
  - Reporting Entity
  - Presentation and Disclosure, including Financial Reporting Boundaries

• IPSASB – International Public Sector Accounting Financial Standards Board
What is Managerial Costing?

• Statement of Federal Financial Accounting Standard 4, Para 42: Managerial cost accounting, therefore, is the servant of both budgetary and financial accounting and reporting because it assists those systems in providing information. Also, it provides useful information directly to management.

• Cost Accounting
  ▪ Tool for Financial Reporting

• Management Accounting
  ▪ Activities of Professional Accountants in Business

• Managerial Costing
  ▪ Tool for Managerial Decision Support
What is a Conceptual Framework?

• What about managerial accounting/costing?
  ▶ Financial Accounting/Reporting Standards provide guidance guidance to meet their goals.
  ▶ Textbooks teach methods to support specific applications
    ▪ Traditional Standard Costing
    ▪ Variable Costing
    ▪ Activity Based Costing

• Where do you go for the principles to build a better cost model to manage your organization?
Moving Beyond Methods

Conceptual Framework for Managerial Costing

- Objective
- Scope
- Qualitative Characteristics
  - Principles
  - Concepts
  - Constraints
- Framework in Operation
- Call to Action
- Appendix: Truth in Managerial Costing
Agenda

• Introduction –
  ▹ Necessity for a Conceptual Framework for managerial costing
  ▹ What is a CF?
  ▹ What is managerial costing?
  ▹ Call to Action

• **Objective, Scope, Principles**–
  ▹ Framework Objective
  ▹ Framework Scope
  ▹ Framework Principles

• Concepts and Constraints
  ▹ Overview
  ▹ Explanation
  ▹ Airline Examples to illustrate concepts
What is the Objective of Managerial Costing?

• What differentiates FA info from MA information?

• Target customer for Managerial Costing information?

• Most important result of Managerial Costing information?

• What do managers make decisions about? What drives cost?
• The objective of managerial costing is to:
  ▶ Provide a monetary reflection of the utilization of business resources and
  ▶ Provide cause and effect insights into past, present, or future enterprise economic activities.

• Managerial costing aids managers:
  ▶ In their analysis and decision making and
  ▶ Supports optimizing the achievement of an enterprise’s strategic objectives.
What is the Scope of Managerial Costing?

- **Scope:**
  - What Managerial Costing must achieve to meet the stated objective.
  - The boundaries of the application of Conceptual Framework for Managerial Costing.

- **What would be “out of scope”?**
Scope Statements
Managerial Costing Conceptual Framework

1. Provide managers and employees with an accurate, objective cost model of the organization and cost information that reflects the use of the organization’s resources.

2. Present decision support information in a flexible mold that caters to the timeline and insights needed for internal decision makers.

3. Provide decision makers insight into the marginal/incremental aspects of the alternatives they are considering.

4. Model quantitative cause and effect linkages between outputs and the inputs required to produce and deliver final outputs.
5. **Accurately values all operations** (support and production) of an entity (i.e. the supply and consumption of resources) in monetary terms.

6. Provides **information that aids in** immediate and future economic decision making for optimization, growth, and/or attainment of enterprise strategic objectives.

7. Provides information to **evaluate performance and learn from results**.

8. Provides the basis and baseline factors **for exploratory and predictive managerial activities**
Qualitative Characteristics

Conceptual Framework for Managerial Costing

- Objective
- Scope

**Qualitative Characteristics**
- Principles
- Concepts
- Constraints

- Framework in Operation
- Call to Action
- Appendix: Truth in Managerial Costing
Foundation of Principles

• What must form the foundation for a set of principles?

Truth

• What is “True Cost”? 
Correspondence Definition of Truth
Truth corresponds to facts.

*Resources in operation create a factual situation.*
Example

- More Accounting Transactions – 12,000/yr
- Finance Operations Center:
  - Personnel Cost $30,000,000
  - Operating Cost $15,000,000
  - Transactions/year: 3,000,000

- Calculated Full Cost:
  - $15/transaction \times 12,000 = $180,000

- Judgmental Marginal Cost:
  - 1 Accounting Technician = $50,000
• **Causality**
  
  The relation between a managerial objective’s quantitative output and the input quantities that must be, or must have been, consumed if the output is to be achieved.

• **Analogy:**
  
  The use of causal insights to infer past or future outcomes.
Principles & Concepts

Qualitative Characteristics

MODELING VIEW
Resources, Operational Quantities and Costs

CONCEPTS
Causality

Operational Model Providing Attributable Cost

INFORMATION
USE VIEW
Managers’ Analogous Activities

CONCEPTS
Analogy

Baseline Optimization Information
Conceptual Framework for Managerial Costing

- Objective
- Scope
- Qualitative Characteristics
  - Principles
  - Concepts
  - Constraints
- Framework in Operation
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The Framework Outline

- Concepts

- Principles

- Selection Process

- Constraints

- Adopted Concepts
Modeling Concepts

Qualitative Characteristics

- Resource
- Managerial Objective
- Cost
- Responsiveness
- Traceability
- Capacity
- Work
- Attributability
- Homogeneity
- Integrated Data Orientation

Modeling View
- Resources, Operational Quantities and Costs

Information Use View
- Managers’ Analogous Activities

Concepts
- Causality
- Analogy

Operational Model Providing Attributable Cost

Baseline Optimization Information
Information Use Concepts

**Qualitative Characteristics**
- Avoidability
- Divisibility
- Interdependence
- Interchangeability

**Concepts**
- **Modeling View**
  - Resources, Operational Quantities and Costs
- **Information Use View**
  - Managers’ Analogous Activities

**Analogy**
- Operational Model Providing Attributable Cost
- Baseline Optimization Information

**Causality**
Outline Scenario - Airline
Managing An Airline!
Outline Scenario - Airline
One Way – Nickel & Diming

There's an airline fee to get your shoes, belt and laptop back....
Another Way...

In the event of a sudden loss of cabin pressure, an oxygen mask will drop from the compartment above your head. For $15.00 you can activate it....
Apply the Framework: Six Steps

1. Identify the Resources
2. Identify the Managerial Objectives
3. Understand Cause and Effect Relationships
4. Capture Managerial Objectives and Their Relationships in a Cost Model
5. Document Scope, Intent, Required Inputs, Outputs and Underlying Assumptions and Limitations
6. Apply and Maintain the Model
Modeling Objects

Resource -

Work/Activity -

Product/Service -
Scenario 1

The Airline Managers Wants to Know What It Costs to Produce Flight 123.

- Resource
- Homogeneity
- Capacity
- Traceability

Managerial Objective?
Scenario 1

The Airline Managers Wants to Know What It Costs to Produce Flight 123.

- Resource
  - Aircraft
  - Homogeneity
  - Capacity
- Traceability

Flight 123
Pilots
The Airline Managers Wants to Know What It Costs to Produce Flight 123.

- Resource
  - Aircraft
  - Flight Hours

- Homogeneity
  - Pilots
  - Block Hours

- Capacity
  - Flight 123

- Traceability
  - Gallons
## Scenario 1

### The Result:

**Quantity-based Cause and Effect Relationships**

To Produce 1 x Flight 123 the managers needs...

<table>
<thead>
<tr>
<th>Flight 123:</th>
<th>Output: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inputs</strong></td>
<td><strong>UoM</strong></td>
</tr>
<tr>
<td>Jet Fuel</td>
<td>Gallons</td>
</tr>
<tr>
<td>Pilot Block Hours</td>
<td>Hours</td>
</tr>
<tr>
<td>Aircraft Flight Hours</td>
<td>Hours</td>
</tr>
</tbody>
</table>
## Scenario 1: Add Money

### Flight 123:

<table>
<thead>
<tr>
<th>Inputs</th>
<th>UoM</th>
<th>Fixed Qty</th>
<th>Proportional Qty</th>
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</thead>
<tbody>
<tr>
<td>Jet Fuel</td>
<td>Gallons</td>
<td>-</td>
<td>100,000</td>
</tr>
<tr>
<td>Pilot Block Hours</td>
<td>Hours</td>
<td>-</td>
<td>6.5</td>
</tr>
<tr>
<td>Aircraft Flight Hours</td>
<td>Hours</td>
<td>-</td>
<td>6</td>
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</table>

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Fixed $'s</th>
<th>Proportional $'s</th>
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<tbody>
<tr>
<td>Jet Fuel</td>
<td>$50,000</td>
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<tr>
<td>Pilot Block Hours</td>
<td>$975</td>
<td>$1,625</td>
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<tr>
<td>Aircraft Flight Hours</td>
<td>$12,300</td>
<td>$11,400</td>
</tr>
</tbody>
</table>

Total: $13,275 = $63,025
Scenario 1: Application

Flight 123:

- Aircraft
- Pilots
- Block Hours
- Flight Hours
- Gallons
- Divisibility
- Avoidability
Scenario 2: Fuel Supply

Flight 123

Aircraft

Pilots

Flight Hours

Block Hours

Fuel

Gallons

50
Scenario 2: Application

Flight 123:

- Aircraft
- Pilots
- Fuel
- Block Hours
- Flight Hours

- Divisibility
- Avoidability
Scenario 3

Pilot Excess/Idle Capacity

- Homogeneity
- Capacity (FAA Limitations – 720 Block Hours/Year)
- Output for 10 Pilots
- Excess/Idle Time
- Divisibility
- Avoidability
## Scenario 3: Pilot Resource Pool

|-----------------------|-----------------|---------------|

<table>
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<tr>
<th>Inputs</th>
<th>UoM</th>
<th>Fixed Qty</th>
<th>Proportional Qty</th>
<th>Fixed $'s</th>
<th>Proportional $'s</th>
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</thead>
<tbody>
<tr>
<td>Pilot Salaries Productive</td>
<td>Hours</td>
<td></td>
<td>6,800</td>
<td>$1,020,000</td>
<td>$1,700,000</td>
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<tr>
<td>Pilot Salaries PTO</td>
<td>Hours</td>
<td>1600</td>
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<td>$640,000</td>
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<td>Pilot Salaries Excess/Idle</td>
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<tr>
<td>Uniforms</td>
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<td>Training</td>
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<tr>
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<td>$17,472</td>
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</tbody>
</table>

**Rates:**
- Pilot Salaries Productive: $300
- Pilot Salaries PTO: $250
## Scenario 3

### Resource Pool: Pilots

<table>
<thead>
<tr>
<th>Inputs</th>
<th>UoM</th>
<th>Fixed Qty</th>
<th>Proportional Qty</th>
<th>Fixed $'s</th>
<th>Proportional $'s</th>
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<tr>
<td><strong>Total</strong></td>
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<td></td>
<td></td>
<td><strong>$2,159,972</strong></td>
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<tr>
<td><strong>Rates:</strong></td>
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<td></td>
<td></td>
<td><strong>$300</strong></td>
<td><strong>$250</strong></td>
</tr>
</tbody>
</table>
Scenario 2

Flight 123

- Divisibility = 720 Block Hours
- Avoidability = >720 Block Hours
Scenario 3

Pilot Time – Analytical Insight

- Capacity
- Work
Scenario 3

Pilot Time – How to Assign?

- Work
- Attributability

Pilots

Hours

- Deadheading
- Standby
- Excess/Idle
- Productive

Flight 123
Scenario 4

Customer Dimension, Attributable Cost & Relative Margins

<table>
<thead>
<tr>
<th>Business Class</th>
<th>Marginal</th>
<th>Attributable</th>
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<tbody>
<tr>
<td>Revenue</td>
<td>$30,000</td>
<td>$30,000</td>
</tr>
<tr>
<td>Meals</td>
<td>750</td>
<td>750</td>
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<tr>
<td>Entertainment</td>
<td>2,000</td>
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<tr>
<td>Cabin Crew</td>
<td>960</td>
<td>2,080</td>
</tr>
<tr>
<td>B/Class Margins</td>
<td>$28,290</td>
<td>$25,170</td>
</tr>
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<table>
<thead>
<tr>
<th>Coach Class</th>
<th>Marginal</th>
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</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>$120,000</td>
<td>$120,000</td>
</tr>
<tr>
<td>Snacks</td>
<td>750</td>
<td>750</td>
</tr>
<tr>
<td>Entertainment</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>Cabin Crew</td>
<td>2,880</td>
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<tr>
<td>Coach Margins</td>
<td>$116,370</td>
<td>$112,010</td>
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<table>
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<tr>
<th>Freight</th>
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<td>Revenue</td>
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<td>Freight Margins</td>
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<tbody>
<tr>
<td>Fuel</td>
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</tr>
<tr>
<td>Navigation</td>
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<td>5,000</td>
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<tr>
<td>Landing Fees</td>
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<td>Maintenance</td>
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<tr>
<td>Flight Margins</td>
<td>$127,510</td>
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</table>

Allocate?
### Scenario 4

**Customer Dimension & Relative Margins**

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<td>$44,750</td>
<td>$42,350</td>
</tr>
</tbody>
</table>

### Flight 123

<table>
<thead>
<tr>
<th>Category</th>
<th>Marginal</th>
<th>Attributable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel</td>
<td>50,000</td>
<td>50,000</td>
</tr>
<tr>
<td>Navigation</td>
<td>5,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Landing Fees</td>
<td>2,500</td>
<td>2,500</td>
</tr>
<tr>
<td>Flight Crew</td>
<td>2,000</td>
<td>4,400</td>
</tr>
<tr>
<td>Maintenance</td>
<td>2,400</td>
<td>8,000</td>
</tr>
<tr>
<td>Aircraft Depreciation</td>
<td></td>
<td>19,200</td>
</tr>
<tr>
<td>Flight Margins</td>
<td>$127,510</td>
<td>$90,430</td>
</tr>
</tbody>
</table>

Standby

- Route Margins

Excess/Idle

- BU Margins (Domestic/International)
**Scenario 4**

**Why: Divisible Insight, Actionable Information**

### Business Class

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Revenue</td>
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<tr>
<td>Meals</td>
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<tr>
<td>Entertainment</td>
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<tr>
<td>Cabin Crew</td>
<td>960</td>
<td>2,080</td>
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<tr>
<td>B/Class Margins</td>
<td>$28,290</td>
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### Coach Class

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<tbody>
<tr>
<td>Revenue</td>
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<td>$120,000</td>
</tr>
<tr>
<td>Snacks</td>
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<tr>
<td>Cabin Crew</td>
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<td>Coach Margins</td>
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### Freight

<table>
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<tr>
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<td>Revenue</td>
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<tr>
<td>Pallet</td>
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<tr>
<td>Loading</td>
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</tr>
<tr>
<td>Freight Margins</td>
<td>$44,750</td>
<td>$42,350</td>
</tr>
</tbody>
</table>

### Flight 123

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<thead>
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<tr>
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</tr>
</tbody>
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**Standby** - Route Margins

**Excess/Idle** - BU Margins (Domestic/International)
Constraints
Qualitative Characteristics

Cost Modeling Constraints

• **Objectivity**: A characteristic of a cost model that show it to be free of any biases.

• **Accuracy**: The degree to which MA information reflects the intended concepts modeled.

• **Verifiability**: A characteristic of modeling information that leads independent reviewers to arrive at similar conclusions.

• **Measurability**: A characteristic of a causal relationship enabling it to be quantified with a reasonable amount of effort.

Cost Modeling Constraints

• **Materiality**: A characteristic of cost modeling that would allow for simplification without compromising managers’ decision making needs.

Information Use Constraints

• **Impartiality**: The unbiased consideration of all resource application alternatives.

• **Congruence**: The interdependence of individual managerial actions to attempt to achieve both individual and enterprise objectives in an optimal manner.
Questions?

Thank You

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