Data Quality Assessment - Models

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Session III - F
Purpose

• Review some models of organizations
• Review best practices for data quality

• So that you can conduct self assessments of processes and systems
Premises

• Imposing management controls
• Internal controls
• Control self-assessment
• Governance
Control Self-Assessment (CSA)

• A generic term that covers risk self-assessment (RSA), control and risk self-assessment (CRSA), and other processes whereby an organization's personnel evaluate their own risks and controls with the help of facilitators from the internal audit department.

• Assessments can be performed through a series of workshops or meetings or through questionnaires and can be applied to projects, processes, business units, and functions - basically any area of a company.

• Whatever format is used, the goal is the same: to help organizations assess the likelihood of achieving their business objectives by using the knowledge of the workers responsible for meeting them.
Agenda

• COSO Internal Control Model
• COBIT®
• Weibord’s Six-Box Model
• Data quality attributes
What is COSO?

- Control environment
- Risk assessment
- Control activities
- Information and communication
- Monitoring
## How might you use it

<table>
<thead>
<tr>
<th>Component</th>
<th>Evaluation</th>
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</thead>
<tbody>
<tr>
<td>Control environment</td>
<td>Everyone understands the mission – useable data for decision making</td>
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<tr>
<td>Risk assessment</td>
<td>Monthly risk meeting with “real” participation</td>
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<tr>
<td>Control activities</td>
<td>ECRB to approve changes</td>
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<tr>
<td>Information and communication</td>
<td>Weekly meetings&lt;br&gt;Shared access to documents&lt;br&gt;Weekly review of escalated tickets</td>
</tr>
<tr>
<td>Monitoring</td>
<td>Monthly PIMS performance measures</td>
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</tbody>
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Resources - Free

Resources

Articles
Struggling to incorporate the COSO recommendations into your audit process? Here's one audit shop's winning strategy.
Following the report’s publication, The Boeing Company adopted the COSO principles partly as the basis for its internal control policies and procedures. As a result, our internal audit department began to rate the quality of internal controls covered in each audit. We soon discovered that incorporating these standards into actual practice proved challenging.
FULL DOCUMENT > >

"Putting COSO Threats into Practice: Tone at the Top, The Institute of Internal Auditors, November 2005 (PDF)"

"Bringing EFQM into Focus: Christy Chapman, Internal Auditor, June 2003"

"Managing Risk from the Mailroom to the Boardroom: Tone at the Top, The Institute of Internal Auditors, June 2003 (PDF)"

"What is COSO? Defining the Alliance that Defined Internal Control," by Financial Executives Research Foundation, April 2003


"Beyond Traditional Audit Techniques," Paul E. Lintow and Jill D. Race, Journal of Accountancy, July 2002

"Does Your Control System Pass the COSO Test?" Tone at the Top, The Institute of Internal Auditors, March 1998. (PDF)

"COSO-Based Auditing," by Mark R. Simmons, The Internal Auditor, December 1997

Resources

COSO

Comprising the professional associations listed above, the Committee of Sponsoring Organizations (COSO) is a voluntary private-sector organization. COSO is dedicated to guiding executive management and governance toward the establishment of more effective, efficient, and ethical business operations on a global basis. It sponsors and disseminates frameworks and guidance based on in-depth research, analysis, and best practices.
COSO Checklist: Is Your Organization’s Internal Control Effective?

1. How Do the Board of Directors and Management Establish and Maintain a Strong Ethical Environment and Culture?
   - The control environment sets the tone of an organization and provides the foundation for an effective system of internal controls.
   - Do board members and senior executives set a day-in, day-out example of high integrity and ethical behavior?
   - Is there a written code of conduct for employees, and is it reinforced by training, top-down communications, and requirements for periodic written statements of compliance from key employees?
   - Are performance and incentive compensation targets reasonable and realistic, or do they create undue pressure on achievement of short-term results?
   - Is it clear that any fraudulent financial reporting will not be tolerated?
   - Are ethics woven into criteria that are used to evaluate individual and business unit performance?
   - Does management react appropriately when receiving bad news from subordinates and business units?
   - Does a process exist to resolve close ethical calls?
   - Are business risks identified and candidly discussed

2. How Does the Organization Assess Its Internal Control System To Ascertain That It Is Effective?
   - Internal controls should be monitored by line management on an ongoing basis and subject to periodic evaluation.
   - Do senior and line management executives demonstrate that they accept control responsibility rather than just delegate that responsibility to financial and audit staff?
   - Does management routinely monitor controls in the process of running the organization’s operations?
   - Does management clearly assign responsibilities for training and monitoring of internal controls?
   - Are periodic, systematic evaluations of control systems conducted and documented?
   - Are such evaluations carried out by personnel with appropriate responsibilities, business experience, and knowledge of the organization’s affairs?
Resources - Free

Standards for Internal Control In the Federal Government (Supersedes AIMD-98-21.3.1)
AIMD-00-21.3.1 November 1, 1999
Full Report (PDF, 25 pages)

Summary
The Federal Managers’ Financial Integrity Act of 1992 requires GAO to issue standards for internal control in government. Rapid advances in information technology have underscored the need for updated guidance on internal controls over modern computer systems. At the same time, the management of human capital is increasingly recognized as an important part of internal control. Moreover, the private sector has updated its guidance on internal controls. This update, which supersedes GAO’s earlier “Standards for Internal Controls in the Federal Government,” recognizes these three developments. The standards are effective beginning with fiscal year 2000.
What is COBIT®?

How to achieve business objectives using IT resources (people, applications, technology, facilities, and data)

• Planning
• Implement – Build or acquire
• Delivering services – Supporting the IT systems
• Monitoring
How might you use it?

Planning – Manage IT investment

• Budgets to manage financial resources
• Owner of the budget
• Control spending based on budget
• Cost/benefit justifications
• Alignment with business strategy
• Asset management
How might you use it?

Implementation – Managing changes

• Change request process
• Changes assessed for impact on the system
• Integrated into configuration management
• Automated process to track requests
• Emergency change process
• Documentation updated as part of process
How might you use it?

- Process to analysis, implement, and follow-up on all changes requested
- Identification of changes
- Categorize and prioritize
- Impact assessments
- Change authorization
- Release management
- Business process design
Resources – Free and some $
What is Weisbord’s Six-Box Model
How might you use it?

Purpose

• Formal
  – Govern, Acquire, Validate, Improve Usage

• Informal
  – Extent of support and understanding
How might you use it?

- **Structure**
  - Formal - How is the work organized
  - Informal – What is actually getting done

- **Rewards**
  - Formal – salary, promotions
  - Informal – growth, recognition
How might you use it?

• Relationships
  – Types
    • People to people
    • People to technology
  – Connections
    • Interdependencies
    • Build in conflicts
    • Conflict management
How might you use it?

Leadership

- Defining purpose
- Embodying the purpose into programs
- Defending institutional integrity
- Managing internal conflict
How might you use it?

Helpful mechanisms

• Formal – What is established?
  – Budget
  – Meetings
  – Records
  – Activities, for example, onboarding

• Informal – Are they used?
Resources - Free

www.marvinweisbord.com ·
Data quality attributes

1. **Data Profiling** *(determining what we have)*
2. **Data Monitoring** *(communicating what problems we have)*
3. **Data Cleansing** *(fixing the errors we have)*
4. **Resources** *(defining our organizational commitment)*
5. **Data Governance** *(setting the rules)*
Data quality attributes

6. Data Stewardship *(accepting responsibility for the data)*

7. Metadata Management *(managing the data about the data)*

8. Data Usage *(putting the data to work)*

9. Data Currency *(getting the data at the right time)*

10. Education *(teaching everyone about their role in data quality)*
Data quality cornerstones

**Data Quality Assessment**
- Data Profiling
- Data Currency

**Data Quality Improvement Process**
- Data Monitoring
- Data Cleansing

**Metadata Repository**
- Metadata Management
- Data Usage

**Data Governance and Transformation Management**
- Data Governance Resources
- Data Stewardship Education
Control Self-Assessment (CSA)

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- Assessments can be performed through a series of workshops or meetings or through questionnaires and can be applied to projects, processes, business units, and functions -- basically any area of a company.
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COSO Internal Control Model

- COSO is recognized the world over for providing guidance on critical aspects of organizational governance, business ethics, internal control, enterprise risk management, fraud, and financial reporting.
- www.coso.org
- www.gao.gov
- Standards for Internal Control in the Federal Government (AIMD-00-21.3.1, November 1, 1999)

COBIT®

- The comprehensive IT governance framework that addresses every aspect of IT and integrates all of the main global IT standards
- http://www.isaca.org/Knowledge-Center/cobit/Pages/Downloads.aspx

Weisbord Six Box Model

- “For several years I’ve experimented with “cognitive maps” of organizations. These are labels that would help me better describe what I saw and heard and understand the relationships among various bits of data. I started this endeavor when I realized that though I knew a lot of organization theory, most theories are either (1) too narrow to include everything I wished to understand, or (2) too broadly abstract to give much guidance.”
- “These notes represent a progress report on my efforts to combine bits of data, theories, research, and hunches into a working tool which anybody can use. For want of a more elegant name, I call this tool the “Six-Box Model.” This model (Fig. 1) has helped me to rapidly expand my diagnostic framework from interpersonal and group issues to the more complicated contexts in which organizations are managed.”
- www.marvinweisbord.com