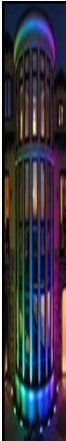


Internal Control in the Work-from-home Environment

Presented by
Steven L. Blake CPA, CFE, CICA, CGMA
SLBCPA@CHARTER.NET 864-680-6191


1



Agenda

- THERE WILL BE 4 2-HOUR SESSIONS
- First 2 Hour Session: Basic Internal Control Understanding.
- Second 2 Hour Session: Responding to the current risk environment
- Third 2 Hour Session: Specific risk response techniques.
- Fourth 2 Hour Session: Continuance of Third Session.
- Live Questions/Comments Period – Must Attend

2



Learning Objectives

- Understand what internal control is
- Increase awareness, assessment and responses to current risks.
- Provide tools to both early detect and potentially deter fraud.
- Discuss risk management techniques to monitor on an on-going basis.

3

Learning Objectives

- Online learning requires Attendance Verification. We use Codes to verify.
- Nestled within this presentation is a 4 Place Alphanumeric Code you will use to “confirm” your attendance. It will appear twice, on two different slides at two different times during each presentation.

4

BASIC INTERNAL CONTROL UNDERSTANDING

5

An Historical Overview

- Foreign Corrupt Practices Act - 1977
 - First used the words “internal control” in the context of improving the reliability of the audit process which constituted the foundation of our system of corporate disclosure and
 - Required companies to have and use internal controls to prevent and detect violations of the FCPA.

6

An Historical Overview

- There was a problem discovered early on in legal proceedings related to prosecution of FCPA violations: what is internal control?
- How much is enough?
- Who is responsible and at what level?

7

An Historical Overview

- Hence the National Commission on Fraudulent Financial Reporting (the Treadway Commission) was formed in 1985
 - Original Chair, James C. Treadway, Jr. a Paine Webber attorney and former SEC Commissioner
 - Released a report on fraudulent financial reporting in October 1987
 - COSO was formed as a result of the report

8

An Historical Overview

- COSO = the Committee of Sponsoring Organizations of the Treadway Commission
 - 5 Original Sponsors: AICPA, American Accounting Association [AAA], Financial Executives International [FEI], Institute of Internal Auditors [IIA] and Institute of Management Accountants [IMA]

9

An Historical Overview

COSO is a voluntary private sector organization dedicated to improving the quality of financial reporting through business ethics, effective internal controls, and corporate governance.

10

An Historical Overview

- In a 2006 CFO magazine poll, 82% of respondents claimed they used COSO's framework for internal control.

11

An Historical Overview

- In no legal way does COSO's framework apply to government or NGO's
- Sarbanes-Oxley does not apply either
- However, as we shall see later, COSO's framework is evaluated by anyone who is required to have a member of the AICPA audit their financial statements

12

Internal Control Timeline

- COSO produced first IC framework in 1992
- Published first ERM framework in 2004
- Reorganized IC in December 2011; expanded into principles and attributes; republished 2013
- COSO 2017 *ERM—Integrating with Strategy and Performance.*

13

• COSO by Definition

14

Internal Control Definition

- 1992 Framework gives us a definition - **a process**, effected by an entity's board of directors, management and other personnel, designed to provide **reasonable assurance** regarding the achievement of **objectives**. [effective/efficient]
- assumes objectives exist

15

Internal Control Definition

- **COSO Components**
 - Control Environment
 - Control Activities
 - Information & Communication
 - Monitoring
 - Risk Assessment

16

THE "CUBE"

COSO Internal Control - Integrated Framework
Guidance on Monitoring Internal Control
Systems, Volume 2, Application © 2008
Committee of Sponsoring Organizations of the
Trustees for the National Commission on
Expenditure Control (COSO). All rights
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17

Another View at the Refresh

The Framework has become the **most widely adopted control framework worldwide** 2013

Original Framework: COSO's Internal Control-Integrated Framework (1992 Edition)

Refresh Objectives:

- Reflect changes in business & operating environments
- Expand operations and reporting objectives
- Articulate principles to facilitate effective internal control

Enhancements:

- Updates Context
- Broadens Application
- Clarifies Requirements

Updated Framework: COSO's Internal Control-Integrated Framework (2013 Edition)

18

COSO 2013 Graphic

Are these part of internal control?

19

Drill Down on Principles

- **Control Environment Principles**
 - Integrity and Ethical Values
 - Board of Directors
 - Management’s Philosophy and Operating Style
 - Organizational Structure
 - Financial Reporting Competencies
 - Authority and Responsibility
 - Human Resources

20

Responsibilities and Objectives

■ "...while effective internal control requires leadership from the top, the responsibility for effective implementation of internal control resides with everyone in the organization, not just the finance function. This includes accountants, compliance officers and those involved in making contracts and supporting operations as well as those working on the production line to ensure that products produced meet quality objectives.

...the individuals that are responsible for achieving the objectives are also responsible for the quality of internal controls."

Larry Rittenberg
Chair Emeritus, COSO

21

Mission

COSO's Mission is "To provide thought leadership through the development of comprehensive frameworks and guidance on enterprise risk management, internal control and fraud deterrence designed to improve organizational performance and governance and to reduce the extent of fraud in organizations."

COSO's Fundamental Principle

Good risk management and internal control are necessary for long term success of all organizations.

22


Internal Control Definition

- **COSO Components**
 - Control Environment
 - Control Activities
 - Information & Communication
 - Monitoring
 - Risk Assessment

23

RISK ASSESSMENT


24



Inherent and Residual Risk

- Inherent risk exists in the system before any type of system/management intervention
- Residual risk exists in the system after system or management actions are taken.


25



Fraud Risk

- The risk/vulnerability an entity has to the possibility that someone can overcome the components of internal controls.
- This risk differs from any other risk because by nature it is intentional misconduct designed to evade detection.

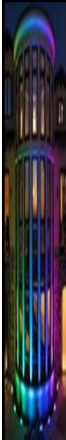
26



Fraud Risk

- INTERNAL: The risk/vulnerability that someone IN THE ORGANIZATION is capable of overcoming the components of internal control.
- EXTERNAL: Someone external to the organization can overcome the components of internal control.

27



Risk Assessment Measurements

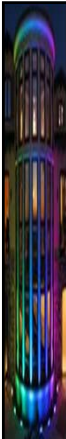
- Impact
- Likelihood
- To measure the impact and likelihood you must have INFORMATION. Herein lies the ultimate problem with uncharted territory; information is sparse and many times contradictory.

28



CONTROL ACTIVITIES

29



Types of Controls

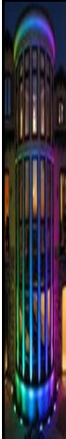
- Preventative
- Detective

30



MONITORING

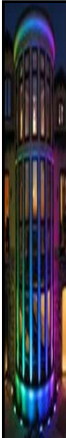
31



Risk Management Frameworks

- COSO ERM Framework
- ACFE Fraud Risk Management
- ISO 31000 *Risk Management Principles and Guidelines*
- IT COBIT Framework


32



What to do with Risk or “Risk Responses”

- Risk Avoidance,
- Risk Reduction,
- Risk Sharing,
- and Risk Acceptance


33



Risk Awareness

- Across departments
- By Type
- Embedded into existing management systems

34



Risk Appetite


- Can be Subjective, Individual and/or Corporate
- Based on Cost Benefit
- Capability Maturity Model

35



THE FUTURE


36



Future COSO/ IC Challenges

- Blockchain
- The Internet of Things [IoT]
- Work-from-Home; BYOD, Social Media
- Big Data/ Open Data
- Artificial Intelligence [AI]/ Smart Contracts
- Digital Assets [i.e. Bitcoin] and Private Keys
- Sustainability Reporting – Triple Bottom Line


37



Sustainability Reporting

- “Internal controls over nonfinancial reporting are relatively weak,” says Brendan LeBlanc, a partner with Ernst & Young’s climate change and sustainability services practice (Herz et al. 2017). “Specifically, there have been precious little resources—people, processes and systems—put against nonfinancial reporting.” Companies lack the types of internal controls that enable consistent, credible reporting on sustainability. Better integration of sustainability and finance may be a key part of clearing the path forward. *Journal of Accountancy – July 2019.*

38

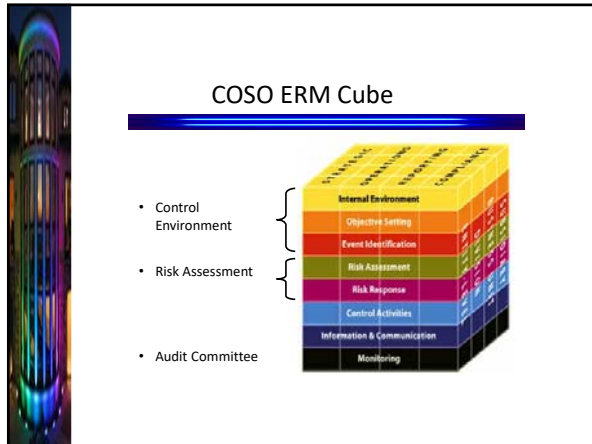


COSO ERM Definition

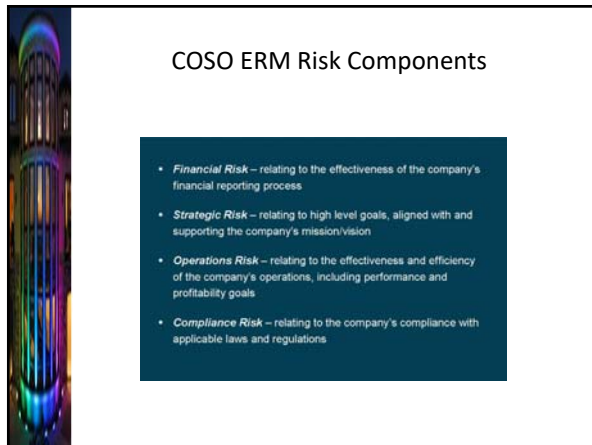
Enterprise Risk Management (ERM) is a process affected by an entity's board of directors, management and other personnel, applied in a strategic setting and across the enterprise.

ERM is designed to identify potential events or situations that may affect the entity, manage risks to be within the company's risk appetite, and provide reasonable assurance regarding the achievement of entity objectives.

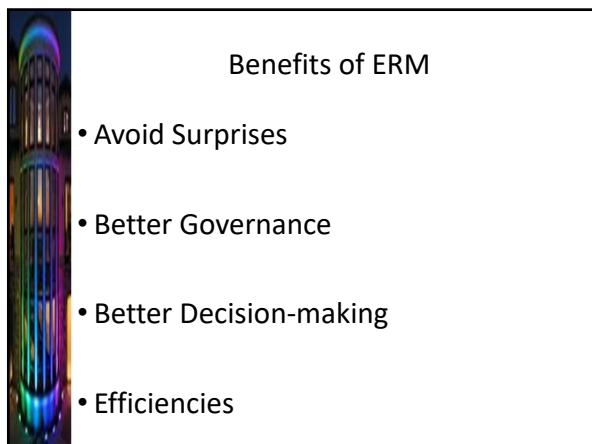
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40



41



42

How Benefits Derived

- Link Goals, Growth and Risk with Resource Allocation in an Organized, Measureable Way
- Across the Entire Entity Focus [Risk Pervades Every Area, Department, Level]
- Coordinate, Define and Align Strategy(ies) with Risk, Risk Appetite and Risk Response

43

What ERM is not:

- It is not your risk assessment
- It is not about business continuity or business succession
- It is not about information security or employee/building insurance

44

Linking Organization Essentials

Who is responsible for each of these important elements?

Who determines the first four elements?

Are these part of internal control?

45

ERM and IC Framework Interaction

- From the Executive Summary of the 2-10-2014 Thought Paper:
 - “It is presumed that the organization’s leaders can articulate its objectives, [vision]
 - Develop strategies to achieve those objectives,
 - Identify the risks to achieving those objectives and
 - Mitigate those risks in delivering the strategy

46

Strategic View With an Enterprise Wide Approach
 Use of the Framework in the context of

- Mission
- Vision
- Values
- Strategy

Entity level objectives: Operations, reporting (financial, non-financial, external, internal), compliance

ERM and IC Framework Interaction


47

Addresses Key Roles and Responsibilities

- Board of directors, board structure, board committees
- C-Suite
- Risk and control personnel
- Internal and external audit (of course!)
- Outsourced service providers
- Supply chain
- Legislators and regulators
- Analysts, bond rating agencies, news media, etc.

ERM and IC Framework Interaction


48



Suitability & Relevance


- COSO views ALL five components as relevant & suitable to ALL entities.
- The 17 principles explain the components and, as such, are presumed relevant & suitable to ALL entities
- If a relevant principle is not present AND functioning, the associated component cannot be present & functioning.
 - In this rare instance, management is required to document how the component can be present & functioning when a principle is not.

49



<p style="text-align: center;">PRESENT</p> <p>COSO defines this as components & principles exist in the design & implementation of the system of IC to achieve the <u>objectives</u>.</p>	<p style="text-align: center;">FUNCTIONING</p> <p>COSO defines this as components & principles continue to exist in the design & implementation of the system of IC to achieve the <u>objectives</u>.</p>
--	--


50



Focus Points


- While points of focus help to design, implement and/or evaluate internal control and assess whether the relevant principles are present & functioning, they are not required for effective internal control.

51




END OF SECTION 1

52



RESPONDING TO THE CURRENT
RISK ENVIRONMENT

53

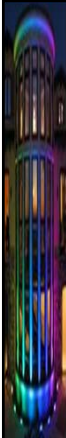


Risk in a Covid-19 Environment

- Every choice we make in the pursuit of objectives has its own risks:
 - How do we stay “open for business”, protect our workforce’s health, continue to accomplish our mission/function during a pandemic with a shelter in place order?

ANSWER: Work-from-home

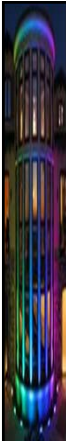
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Risk in a Covid-19 Environment

- Work-from-home risk profile:
 - Network privacy
 - Network vulnerability
 - Work Product Privacy
 - HIPAA
 - Personally Identifiable Information [PII]
 - Productivity
 - Supervision and/or Teambuilding
 - Q&A Issue: what are some of the other challenges you face????


55



2017 COSO ERM Principles

- These principles are different than the 2013 COSO Internal Control Revision
- There are 20 Principles, not 17
- Importance of ERM due to “increasing volatility, complexity and ambiguity of the world.”¹ This was taken from the “*ERM Integrating with Strategy and Performance*” Executive Summary, June 2017

56



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57



World Economic Forum ERM

- Taken from their website mission statement:
 - The Forum engages the foremost political, business, cultural and other leaders of society to shape global, regional and industry agendas.
 - The Forum strives in all its efforts to demonstrate entrepreneurship in the global public interest while upholding the highest standards of governance.
 - Moral and intellectual integrity is at the heart of everything it does.
 - Our activities are shaped by a unique institutional culture founded on the stakeholder theory, which asserts that an organization is accountable to all parts of society.


58



World Economic Forum ERM

- Taken from the 'Davos Manifesto':
 - We should seize this moment to ensure that stakeholder capitalism remains the new dominant model.
 - Companies should pay their fair share of taxes
 - Show zero tolerance for corruption
 - Uphold human rights throughout their global supply chains
 - Advocate for a competitive, level playing field


59



The Club of Rome

- Another like-minded group founded in 1968 at the behest of Dr. Aurelio Peccei, an Italian industrialist, economist and man of vision
- Formed to discuss the subject of staggering scope: the present and future predicament of man


60



The Club of Rome

- Taken from their first major publication “*The Limits to Growth*” published in 1972:
 - “Its purposes are to foster understanding of the varied but interdependent components – economic, political, natural and social – that make up the global system in which we all live; to bring that new understanding to the attention of policy makers and the public worldwide; and in this way to promote new policy initiatives and action”

61



The Limits to Growth Hypothesis

- Ecological Economics
 - Five variables calculated [Population, Food Production, Industrialization, Pollution and Consumption of Nonrenewable Natural Resources]
 - All these variables in the 1970's were increasing exponentially while the ability of technology to increase resource availability was increasing only linearly
- Bottom line: The earth would reach a state of unsustainable growth in the year 2020!

62



The UN 2030 Agenda for Sustainable Development

- Objective Setting in these areas:
 - People
 - Planet
 - Prosperity
 - Peace and
 - Partnership

63

The UN 2030 Agenda for Sustainable Development

- Vision Casting in the Preamble:
 - “All countries and all stakeholders, acting in collaborative partnership, will implement this plan. We are resolved to free the human race from the tyranny of poverty and want and to heal and secure our planet. We are determined to take bold and transformative steps which are urgently needed to shift the world on to a sustainable and resilient path.”

64

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Entity level objectives: Operations, reporting (financial, non-financial, external, internal), compliance


ERM and IC Framework Interaction

65

Work-From-Home

- Should we call this a new strategy?
- What is the optimal balance between sustainable productivity goals and the related risks associated with this strategy?
- How do we efficiently and effectively deploy resources in the pursuit of our objectives in this area?


66



Work-From-Home

- If we have properly vetted this new strategy we will have
 - Increased our range of opportunity
 - Properly identified and managed the risks associated with it on an entity wide basis
 - Increased the positive outcomes and advantages while reducing negative surprises
 - Reduced performance variability while improving resource deployment at the same time enhancing entity resilience


67



Work-From-Home

- The BIGGEST RISK:
 - The possibility that the new strategy does not align with the entity’s mission, vision and core values.
- We saw how the World Economic Forum’s mission and vision casting determine its strategy(ies). Everything must align to maintain integrity
- Mission, vision and core values matter most in managing risk and remaining resilient during periods of change.

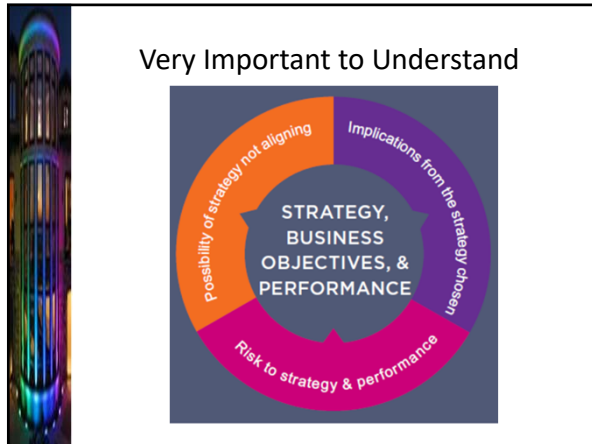
68



Work-From-Home

- The implications from the strategy:
 - See previous “Risk Profile” slide
 - Does this strategy either permanently or temporarily fit within our risk appetite?
 - In what new ways will this drive resource allocation?
 - In what ways does this change/modify our objective(s)?

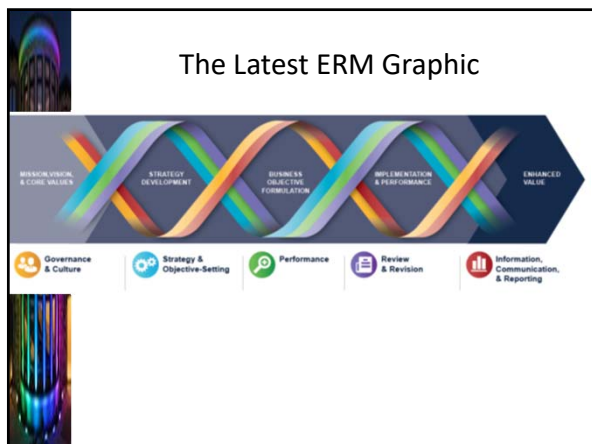
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70

- ### Inherent and Residual Risk
- Inherent risk exists in the system before any type of system/management intervention
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71




72



Five Interrelated Components

- Governance and Culture
- Strategy & Objective Setting
- Performance
- Review and Revision
- Information, Communication and Reporting


73



Governance and Culture

- Governance sets the organization's tone, reinforcing the importance of, and establishing oversight responsibilities for, enterprise risk management. Culture pertains to ethical values, desired behaviors, and understanding of risk in the entity.


74



Strategy & Objective Setting

- Enterprise risk management, strategy, and objective-setting work together in the strategic-planning process. A risk appetite is established and aligned with strategy; business objectives put strategy into practice while serving as a basis for identifying, assessing, and responding to risk.


75



Performance

- Risks that may impact the achievement of strategy and business objectives need to be identified and assessed. Risks are prioritized by severity in the context of risk appetite. The organization then selects risk responses and takes a portfolio view of the amount of risk it has assumed. The results of this process are reported to key risk stakeholders.


76



Review and Revision

- By reviewing entity performance, an organization can consider how well the enterprise risk management components are functioning over time and in light of substantial changes, and what revisions are needed.

77



Information, Communication and Reporting

- Enterprise risk management requires a continual process of obtaining and sharing necessary information, from both internal and external sources, which flows up, down, and across the organization.

78

Fraud Risk

- **INTERNAL:** The risk/vulnerability that someone IN THE ORGANIZATION is capable of overcoming the components of internal control.
- **EXTERNAL:** Someone external to the organization can overcome the components of internal control.

79

Fraud Diamond ^α

The diagram features a central orange diamond. Surrounding it are four dashed boxes, each representing a quadrant of the Fraud Diamond:

- Incentive:** Personal Debts, Greed, Drug abuse, Organized crime
- Opportunity:** Inadequate internal control, Weak / Remote Management
- Rationalization:** Inappropriate values, Job / company disaffection
- Capability:** Knowledge of systems, Skills required to undertake

Fraud Diamond explains why employees commit fraud

80

Pew Charitable Trust Studies ^α

- 2014 Studies on the influence of religion on and in people's lives

81



82

Incentives to Commit Fraud


- Individual Financial Pressures
 - Unexpected Financial Need e.g. Sudden Medical Bills
 - Keeping Up with the Jones'
 - Poor Credit
- Individual Vices – Gambling, Drugs etc.
- Work Related Pressures
 - Get Even for lack of recognition/promotion/pay.

83

Incentives to Commit Fraud

- Corporate Financial Pressures
 - Poor Financial Position
 - Uncollectible Receivables
 - Eroding Market Share
- Corporate Vices – Uncompetitive
 - Poor S.W.O.T. or E.R.M.
- Work Related Pressures
 - Obsolescence


84



Opportunity Ω

- Poor Internal Controls or Management Override
- Poor Information Systems – either nonintegrated or lack of audit trail
- Poor Corporate Culture
 - Lack of training/knowledge of job performance
 - Management ignorance or apathy
 - Failure to communicate integrity


85



Rationalization Ω

- People are moral, rational human beings, or not!
- Books by Joseph T. Wells
 - *Fraud Fighter, my Fables and Foibles*
 - *Franksteins of Fraud: the 20th Century's Top 10 White-collar Criminals*
- The amazing ability to lie to oneself.
- Integrity


86



Capability

- Has a knowledge of the systems, processes or the lack thereof
- Cooperates in the 'need' to override or perpetrates the override
- Has the position or skill set to accomplish the task. In the world of corporate espionage, this could be the janitor!


87



The Typical Embezzler ^o

- Trusted, generally long-term employee
- Generally in a management-like role
- Dedicated, works long hours
- Rarely takes vacation, dislikes the policy of mandatory vacations. Makes excuses why they cannot go on vacation.
- Resents and will not cooperate with cross-training.
- Seen as likable and generous


88



ASU/WEF Joint Project

- Workplace Commons Survey
 - <https://chs.asu.edu/diagnostics-commons/workplace-commons>
- Areas Concerned
 - Pandemic Response and Preparedness
 - Financial Impact
 - Testing
 - Facilities Safety
 - Contact Tracing

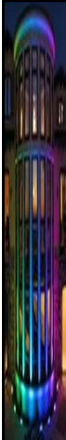
89



Returning to Work Risks

- Outsiders [visitors, nonemployees] access?
- Financial Impact of returning to work and providing the PPE [Masks, Hand Sanitizer] needed for safety
- Providing Work-from-Home Equipment to ensure security of work networks/systems
- Office interaction? Workplace social distancing? Contact tracing and temperature taking?

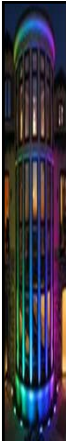
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Returning to “Normal” World Risks

- Currently efforts are underway to determine Covid-19’s impact on 2020 harvests and food supplies
- Enhancing rapid and sustainable responses to priority food supply chain challenges
- Enhance food system recovery pathways through strategic assessment to mitigate risks and weaknesses in a post Covid-19 world


91



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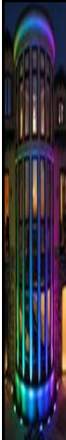
92



Greatest Risk


- Remember, one of your greatest assets could just be your information!

93



END OF SECTION 2

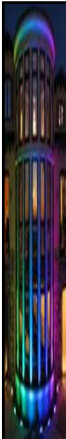
94



Internal Control in the Work-from-home Environment Session 3

Presented by
Steven L. Blake CPA, CFE, CICA, CGMA
 SLBCPA@CHARTER.NET 864-680-6191


95



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- Increase awareness, assessment and responses to current risks.
- Provide tools to both early detect and potentially deter fraud.
- Discuss risk management techniques to monitor on an on-going basis.

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98




SPECIFIC RISK RESPONSE TECHNIQUES

99

Strategic View With an Enterprise Wide Approach

Use of the Framework in the context of

- Mission
- Vision
- Values
- Strategy




Entity level objectives: Operations, reporting (financial, non-financial, external, internal), compliance

ERM and IC Framework Interaction

100

The Latest ERM Graphic



101

Five Interrelated Components

- Governance and Culture
- Strategy & Objective Setting
- Performance
- Review and Revision
- Information, Communication and Reporting

102

Very Important to Understand

possibility of strategy not aligning

Implications from the strategy chosen

STRATEGY, BUSINESS OBJECTIVES, & PERFORMANCE

Risk to strategy & performance

103

The UN 2030 Agenda for Sustainable Development

- Vision Casting in the Preamble:
 - “All countries and all stakeholders, acting in collaborative partnership, will implement this plan. We are resolved to free the human race from the tyranny of poverty and want and to heal and secure our planet. We are determined to take bold and transformative steps which are urgently needed to shift the world on to a sustainable and resilient path.”


104

ERM Sustainability

- A popular definition of sustainability is to meet present needs without compromising the ability of future generations to meet their needs.

(Source: United Nations, 1987 Conference)


105



Levers of Control α

- Belief System
- Boundary System
- Diagnostic System
- Interactive Control System


106



Belief System

- The entity's core values used to INSPIRE and DIRECT actions

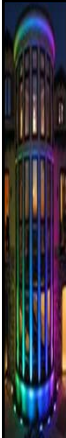
107



Boundary System

- Ethical limits beyond which behavior is prohibited

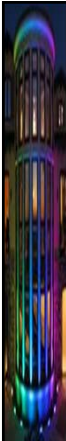
108



Diagnostic System

- The entity's system(s) that ensure the effective and efficient achievement of goals; i.e. budgets


109



Interactive Control System

- The entity's top level development of strategy, risk assessment and monitoring of competitive conditions and technology changes

110



ERM Integrating Strategy and Performance

- 20 Principles from which you set objectives
- 5 Governance & Culture
- 4 Strategy & Objective-Setting
- 5 Performance
- 3 Review and Revision
- 3 Information, Communication & Reporting

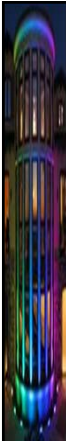
111



Principles – Governance & Culture

1. Exercises Board Risk Oversight
2. Establishes Operating Structures
3. Defines Desired Culture
4. Demonstrates Commitment to Core Values
5. Attracts, Develops, and Retains Capable Individuals


112



ERM Will Change Your Organizational Culture

- Ownership of risk and controls
- Questioning before acting
- Two-way communication
- Bad as well as good news
- Rapid response to changes
- Rapid response to failures in risk management


113



Principles – Strategy & Objective-Setting

1. Analyzes Business Context
2. Defines Risk Appetite
3. Evaluates Alternative Strategies
4. Formulates Business Objectives


114



Principles – Performance

1. Identifies Risk
2. Assesses Severity of Risk
3. Prioritizes Risks
4. Implements Risk Responses
5. Develops Portfolio View

115




**Assurance Continuum
ERM Model**

- **Standard risk assessment methodology**
- **Common risk language**
- **Standard tools and techniques**
- **Standard outputs**

116

116



**RISK ASSESSMENT – CRAWFORD
METHODOLOGY**

117




Common Risk Language Examples

- Business risk
- Impact
- Probability/likelihood
- Monitoring plan
- On-going assurance
- Periodic assurance
- Goals and objectives
- Level 1 Controls
- Level 2 Controls
- Level 3 Controls
- Level 4 Controls
- Process
- Mitigation strategy
- Assurance Continuum
- Certification
- Self-assessment workshop
- Control footprint
- Risk Footprint

118

118




Standard Tools and Techniques

- Brainstorming
- Excel Workbook (powered by Visual Basic Macros)
- Standard Outputs
 - Risk Footprint
 - Control Footprint
 - The Levels of Control in COSO
 - Monitoring Footprint

119

119




Risk Self Assessment Techniques

- Facilitated Workshop
 - Management Directed
 - External Facilitator Directed
- Interviews
- Questionnaires

120


120



Future COSO/ IC Challenges

- Blockchain
- The Internet of Things [IoT]
- Work-from-Home; BYOD, Social Media
- Big Data/ Open Data
- Artificial Intelligence [AI]/ Smart Contracts
- Digital Assets [i.e. Bitcoin] and Private Keys
- Sustainability Reporting – Triple Bottom Line


121



Blockchain

- Software running on multiple computers at the same time; secure logins
- Accounting functions; real time database supposedly impossible to fraudulently manipulate without a trace
- Crypto currency added to the software to implement an alternative to reserve currencies of individual countries.


122



The Internet of Things [IoT]

- Ease of Connectivity
- Security ramifications
- Personal devices used for business
- Compatibility


123



Big Data/ Open Data and AI

- **social media** networks analyzing their members' data to learn more about them and connect them with content and advertising relevant to their interests
- search engines looking at the relationship between queries and results to give better answers to users' questions


124



Artificial Intelligence [AI]/ Smart Contracts

- A smart contract is a self-executing contract with the terms of the agreement between buyer and seller being directly written into lines of code. The code and the agreements contained therein exist across a distributed, decentralized [blockchain](#) network. The code controls the execution, and transactions are trackable and irreversible.

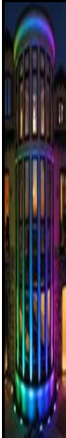
125



Artificial Intelligence [AI]/ Smart Contracts

- Smart contracts permit trusted transactions and agreements to be carried out among disparate, anonymous parties without the need for a central authority, legal system, or external enforcement mechanism.

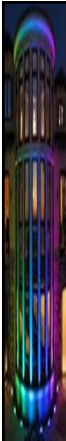
126



Digital Assets [i.e. Bitcoin] and Private Keys

- Hot Wallets vs Cold Wallets
- Limited access to your digital assets means better security; Multiparty Computations
- 2019 twelve exchange attacks netting the hackers \$280 million.


127



Future Challenges

- Securing your data as AI, Big Data, Blockchain, social media, 'smart' devices using 'smart' contracts begin doing and 'thinking' on their own to obtain information you willing or may, in the case of Alexa, unwillingly provide.

128



Primary ERM Process Activities

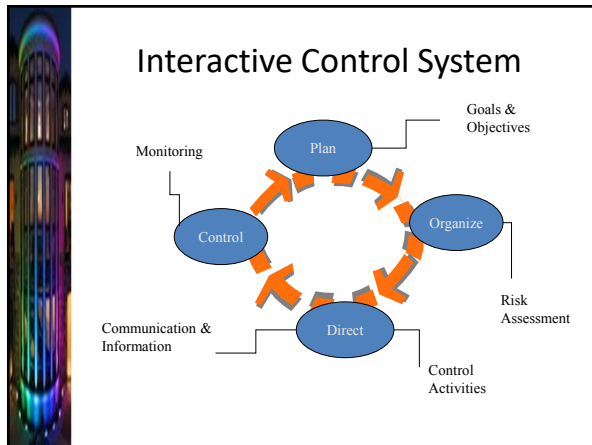
- Know the boundaries and obstacles that will have a critical effect on the achievement of objectives
- Optimize the set of strategies to minimize the effect of boundary violations and obstacle occurrences
- Perform on-going assessments of the design and application of mitigation strategies

129

Proactive Data Monitoring/analysis

- Zero tolerance for missing documents, stale items on recons, document alterations
- Prenumbered documents used in sequence
- Unexplained, unusual or unsupported JE's
- Subsidiary ledger and other reconciliations
- Budget comparison, analytical review
- Benford's Law
- Surprise audits

130

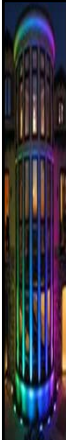


131

Principles – Review and Revision

1. Assesses Substantial Change
2. Reviews Risk and Performance
3. Pursues Improvement in Enterprise Risk Management

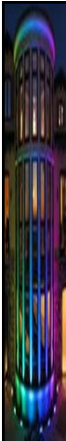
132



Principles – Information, Communication & Reporting

- Executive Leverages Information and Technology
- Communicates Risk Information
- Reports on Risk, Culture, and Performance

133




Capability Maturity Model ^Ω

Capability Maturity Model – Integrated

Level	Focus	Process Areas	Result
5 Optimizing	<i>Continuous process improvement</i>	Organizational Innovation & Deployment Crisis Analysis and Resolution	Productivity & Quality
4 Quantitatively Managed	<i>Quantitative management</i>	Organizational Process Performance Quantitative Project Management	
3 Defined	<i>Process standardization</i>	Requirements Development Technical Solution Product Integration Verification Validation Organizational Process Focus Organizational Process Definition Organizational Training Integrated Project Management Risk Management Decision Analysis and Resolution	
2 Managed	<i>Basic project management</i>	Requirements Management Project Planning Project Monitoring & Control Supplier Agreement Management Measurement and Analysis Process & Product Quality Assurance Configuration Management	
1 Initial	<i>Competent people and heroics</i>		

134



END OF SECTION

135
