



# The State of Enterprise Risk Management for Power Companies

NAPCO Conference

Scottsdale, AZ

January 17, 2013

**CRA** Charles River  
Associates

# Outline

## »» **What is Enterprise Risk Management (ERM) Program?** ««

### – **Key Business Risk Areas**

Industry Standards for Risk Management

ERM External and Internal Frameworks

Power Utilities Risk and Compliance

Energy Trading Risk Management (ETRM)

Risk Management Challenges

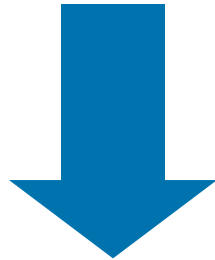
Reference Sources

# Enterprise Risk Management (ERM) Program

## ***Why do power utilities need ERM program?***

To identify and increase awareness of risk events

To ensure that risk prevention and mitigation plans are effective



ERM is integrated into day-to-day responsibilities of employees and management. It involves every entity exists to provide value to stakeholders

ERM allows management to effectively deal with uncertainty and identify associated opportunities, enabling a utility to

- Realize operational efficiencies
- Reap financial gains
- Achieve lasting competitive advantages

Source:

*Power and Utilities Fact Sheet: Enterprise Risk Management, PwC, 2012*

# Key Business Risk Areas

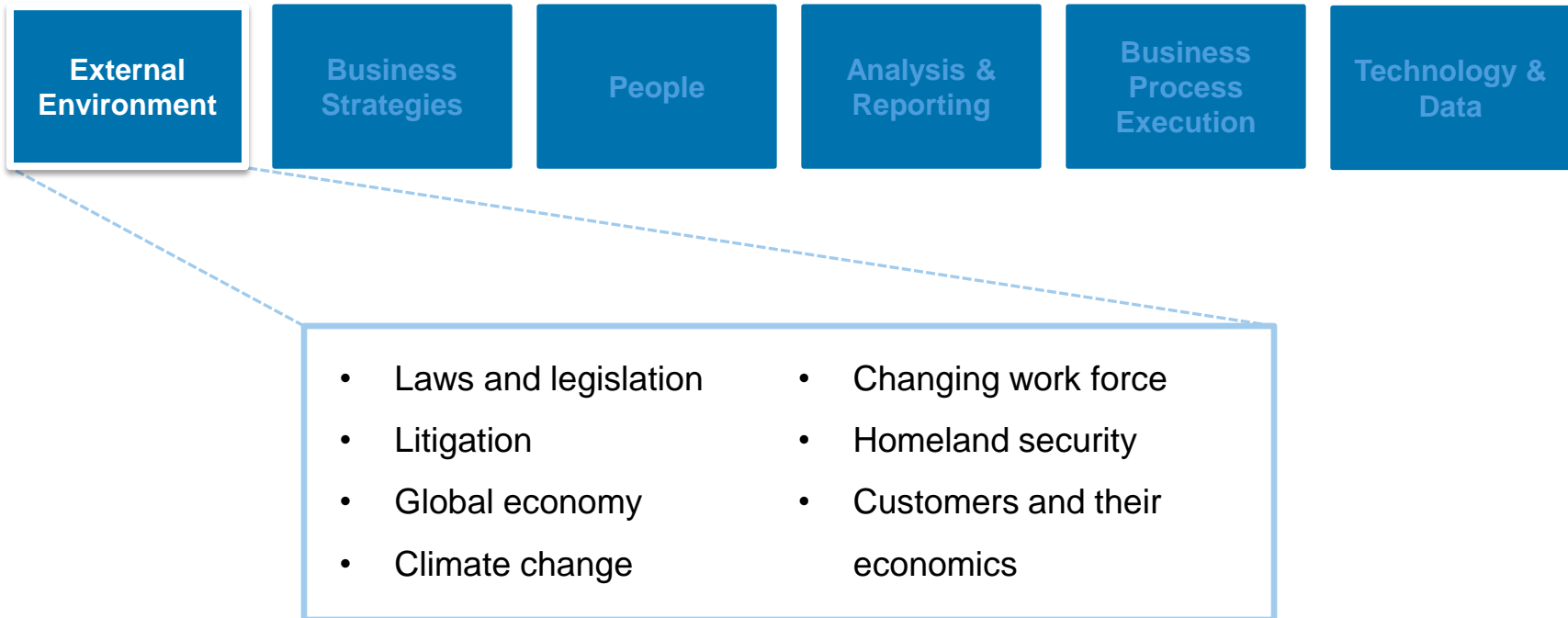


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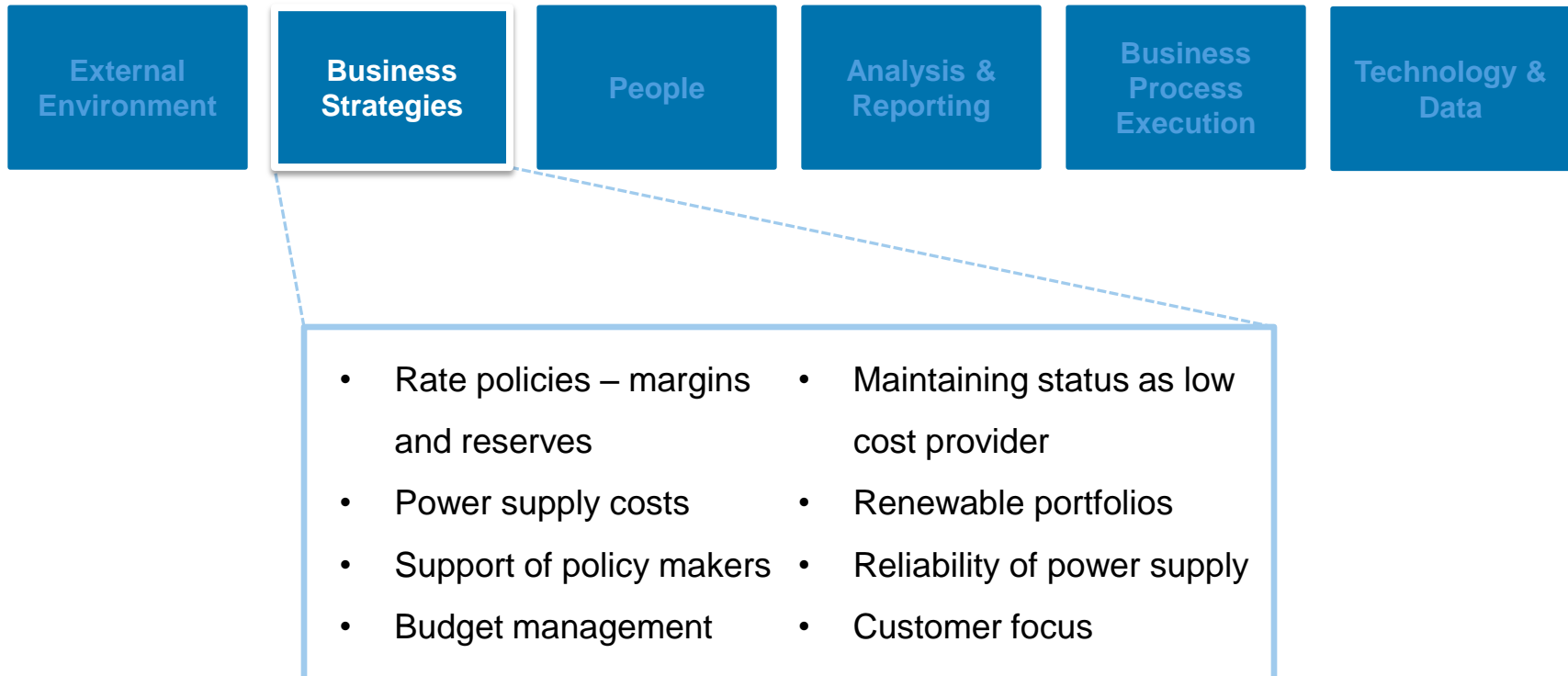


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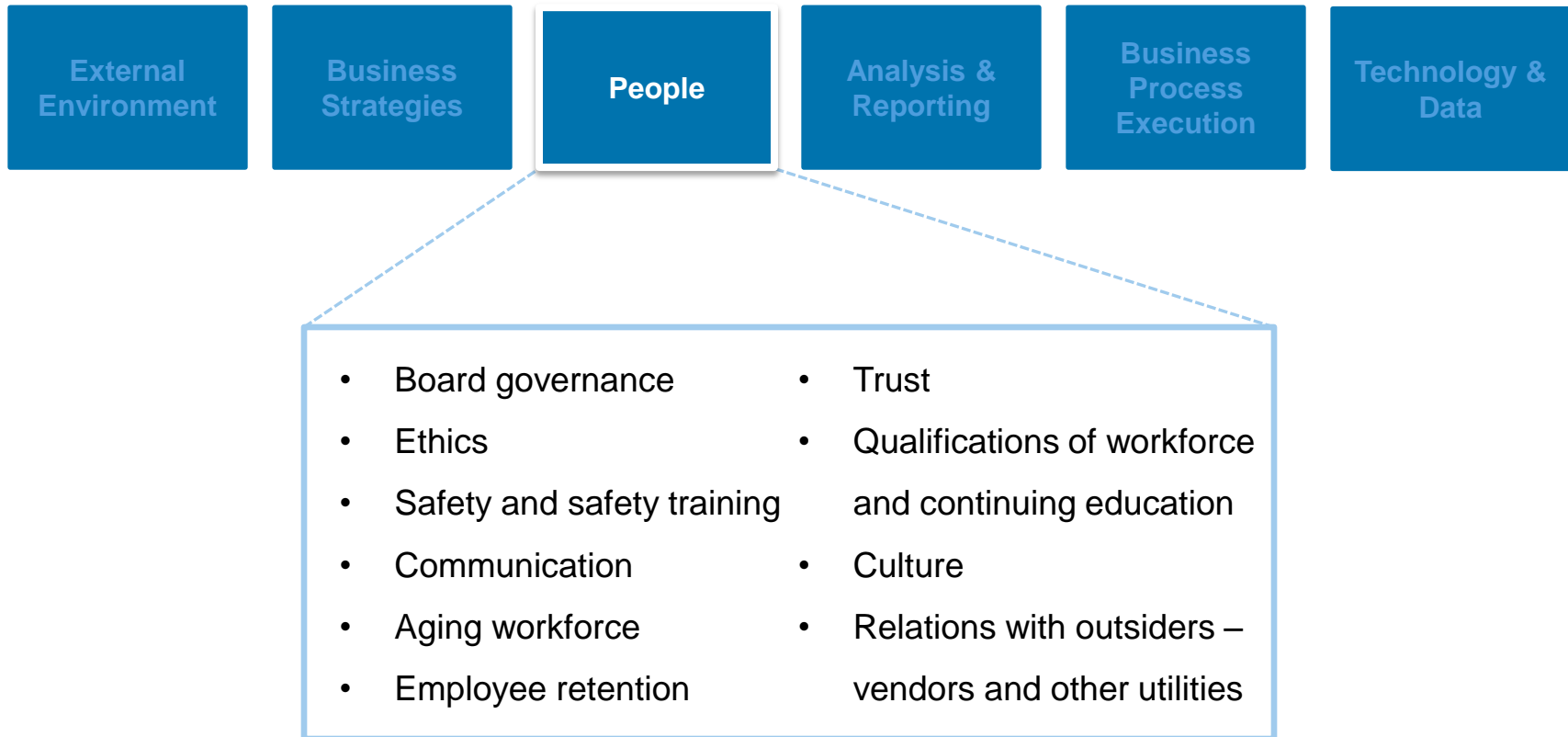
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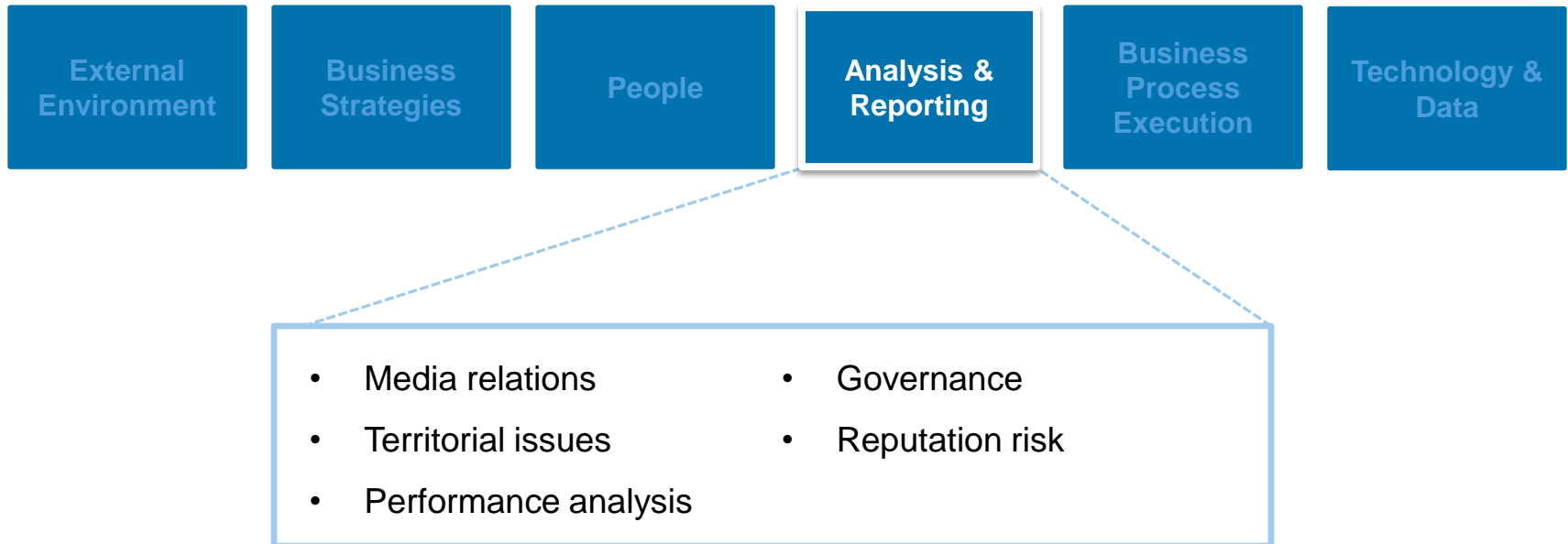
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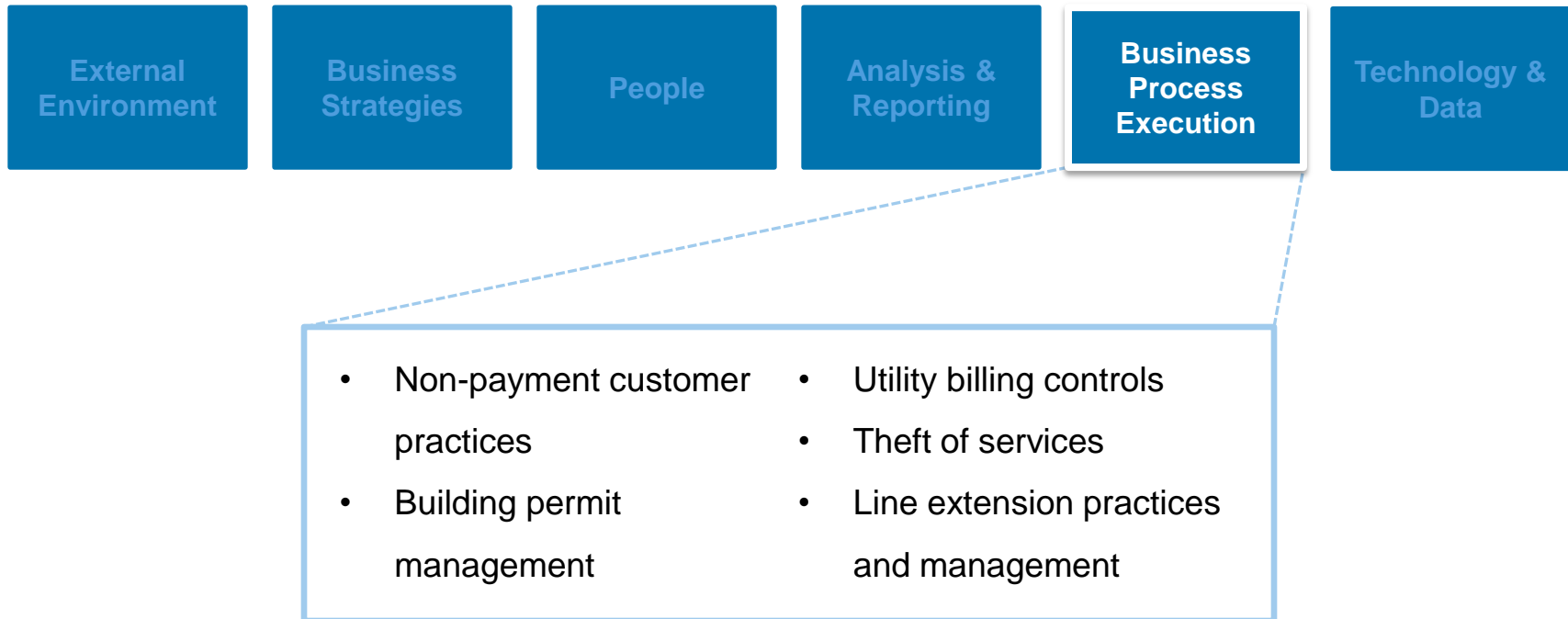
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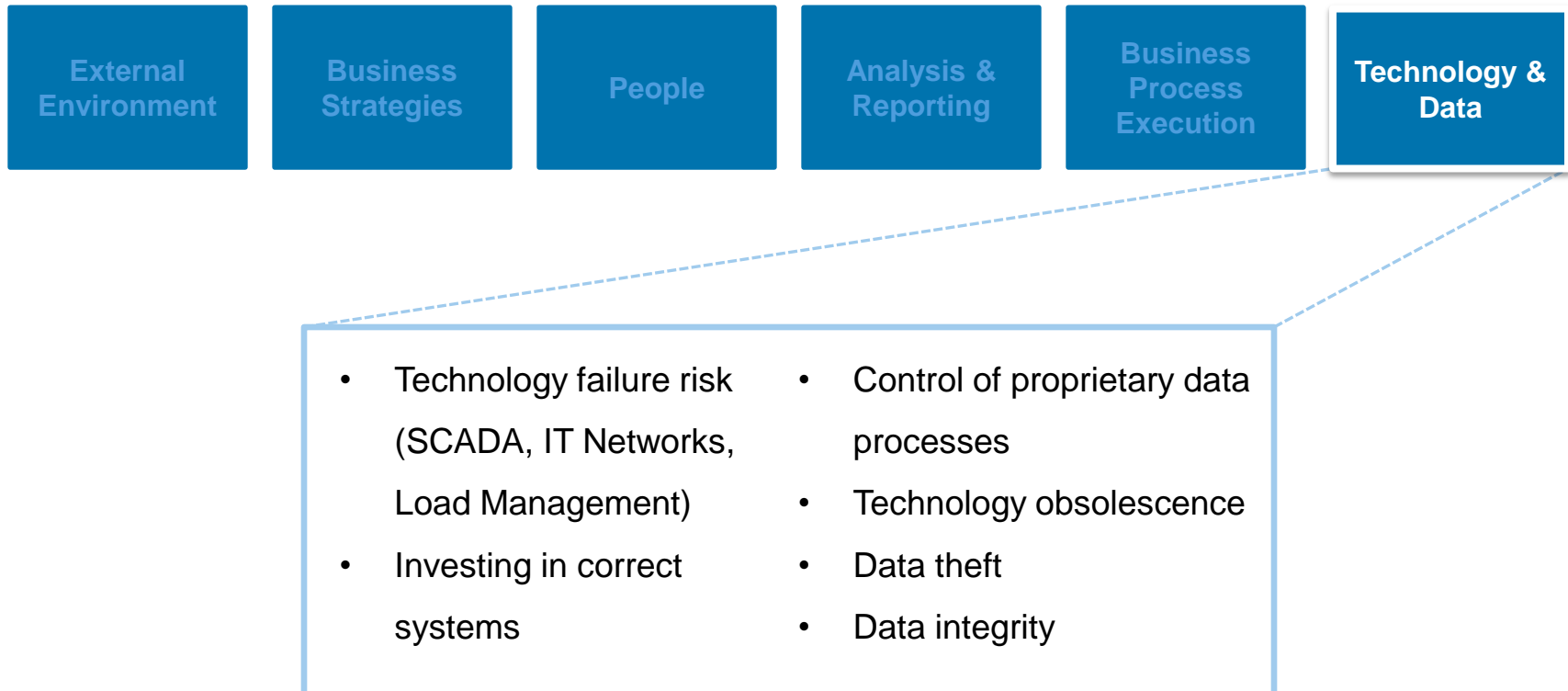
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# Industry Standards for Risk Management

## 1. Enterprise Risk Management – Integrated Framework

- By Committee of Sponsoring Organizations (COSO)
- Released in 2004

## 2. ISO 31000: Risk Management – Principles and Guidelines

- By the International Standards Organizations
- Released in 2009

## 3. AS/NZS 4360: Australia / New Zealand Risk Management Standard

- By a Joint Technical Committee of the Council of Standards Australia and the Council of Standards New Zealand
- First released in 1995 and last updated in 2004

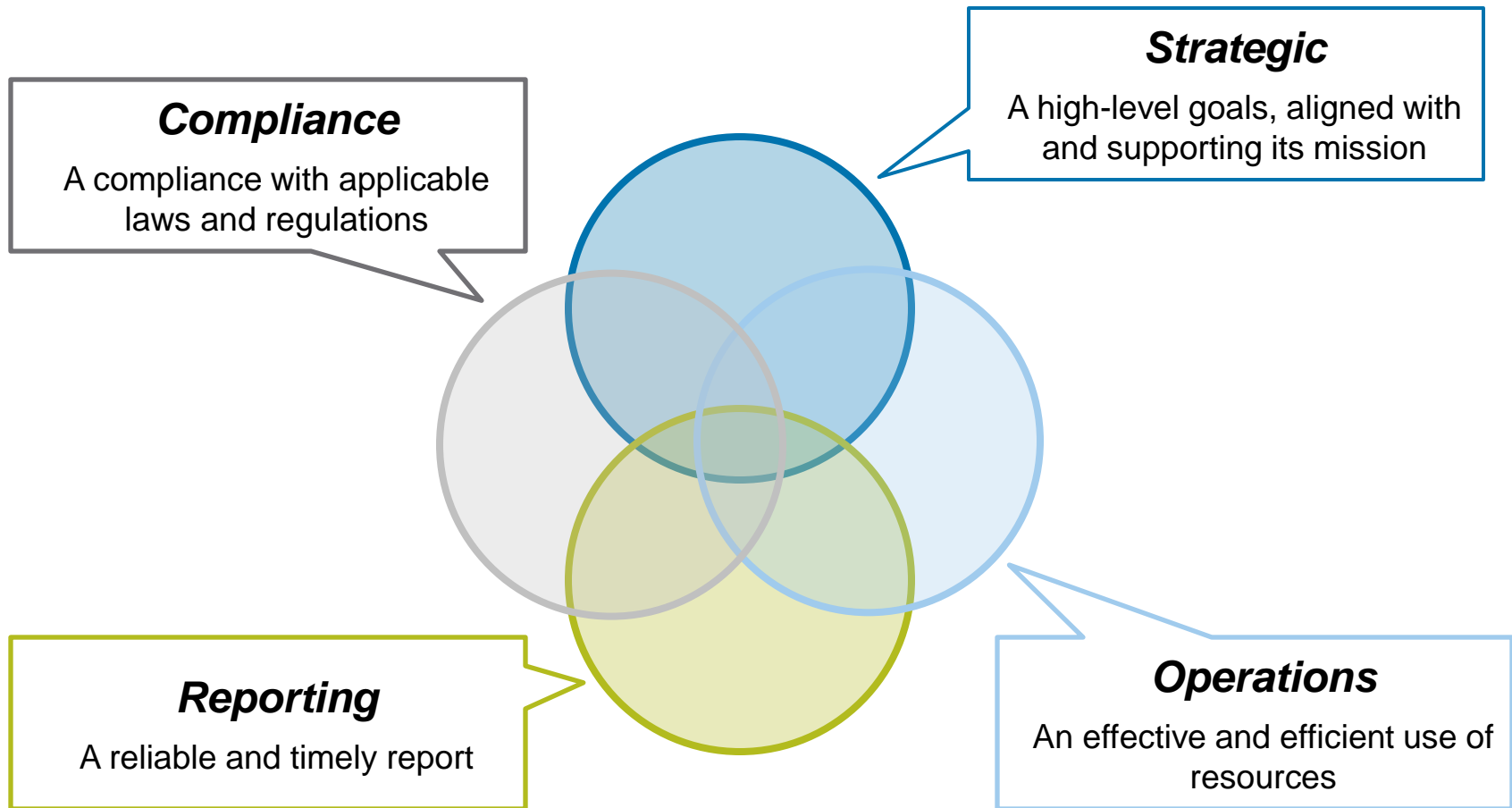
## *Issues...*

- Competing standards
- Vague definitions of critical terms
- Often impractical in public corporation setting
  - Fail to connect risk management to corporation's objective of maximizing shareholder wealth
  - Do not lead to improved quality of decision making involving risks

Source:

*The Flawed Foundation of Corporate Risk Management [pending publication], John Lehman, Strategic Decisions Group, Inc.*

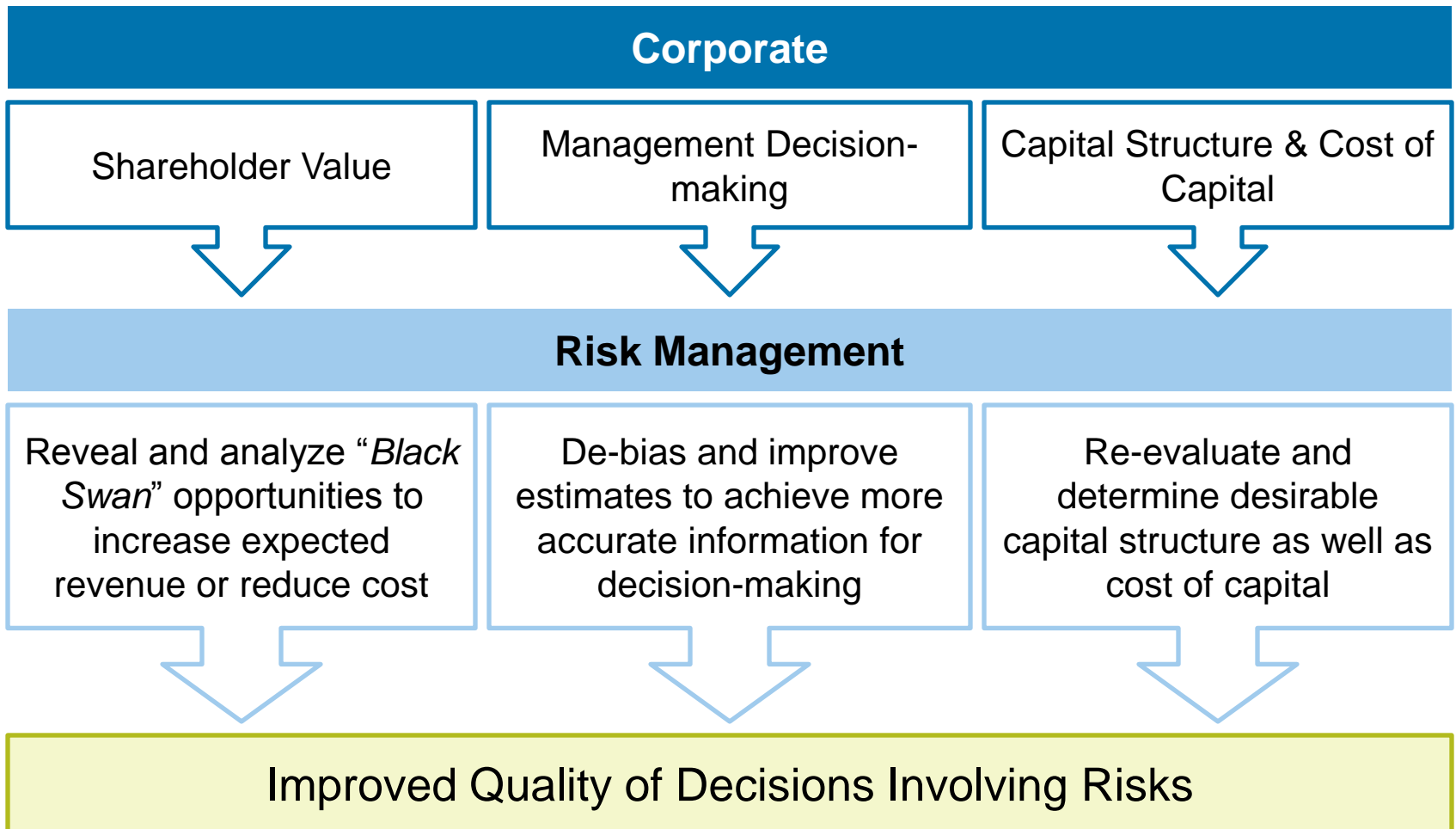
# Committee of Sponsoring Organizations (COSO) Model



Source:

*Enterprise Risk Management for Public Power Utilities, Federal Emergency Management Agency, June 16, 2012*

# How Does ERM Improve the Quality of Decisions Involving Risk?



Source:

*The Flawed Foundation of Corporate Risk Management [pending publication], John Lehman, Strategic Decisions Group, Inc.*

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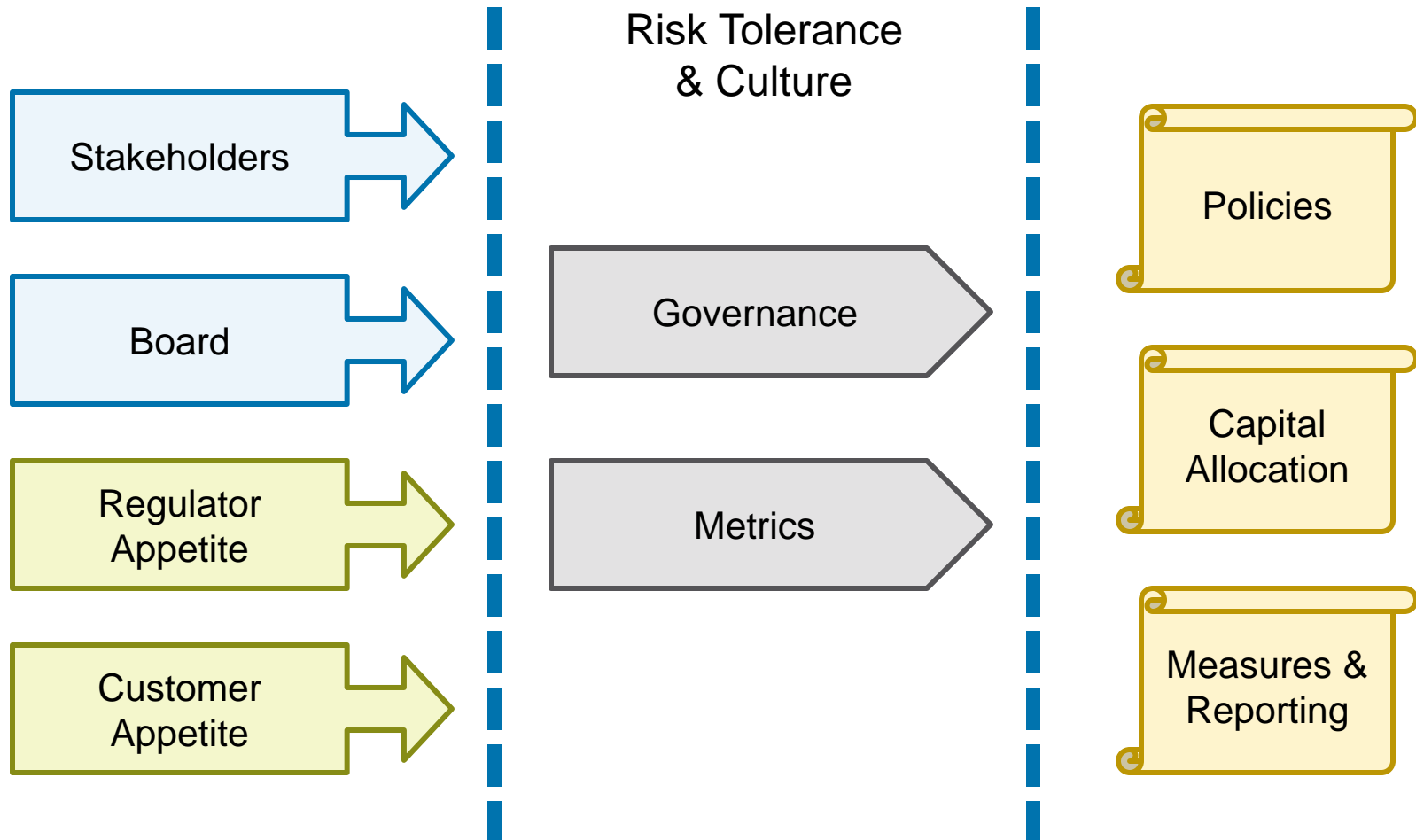
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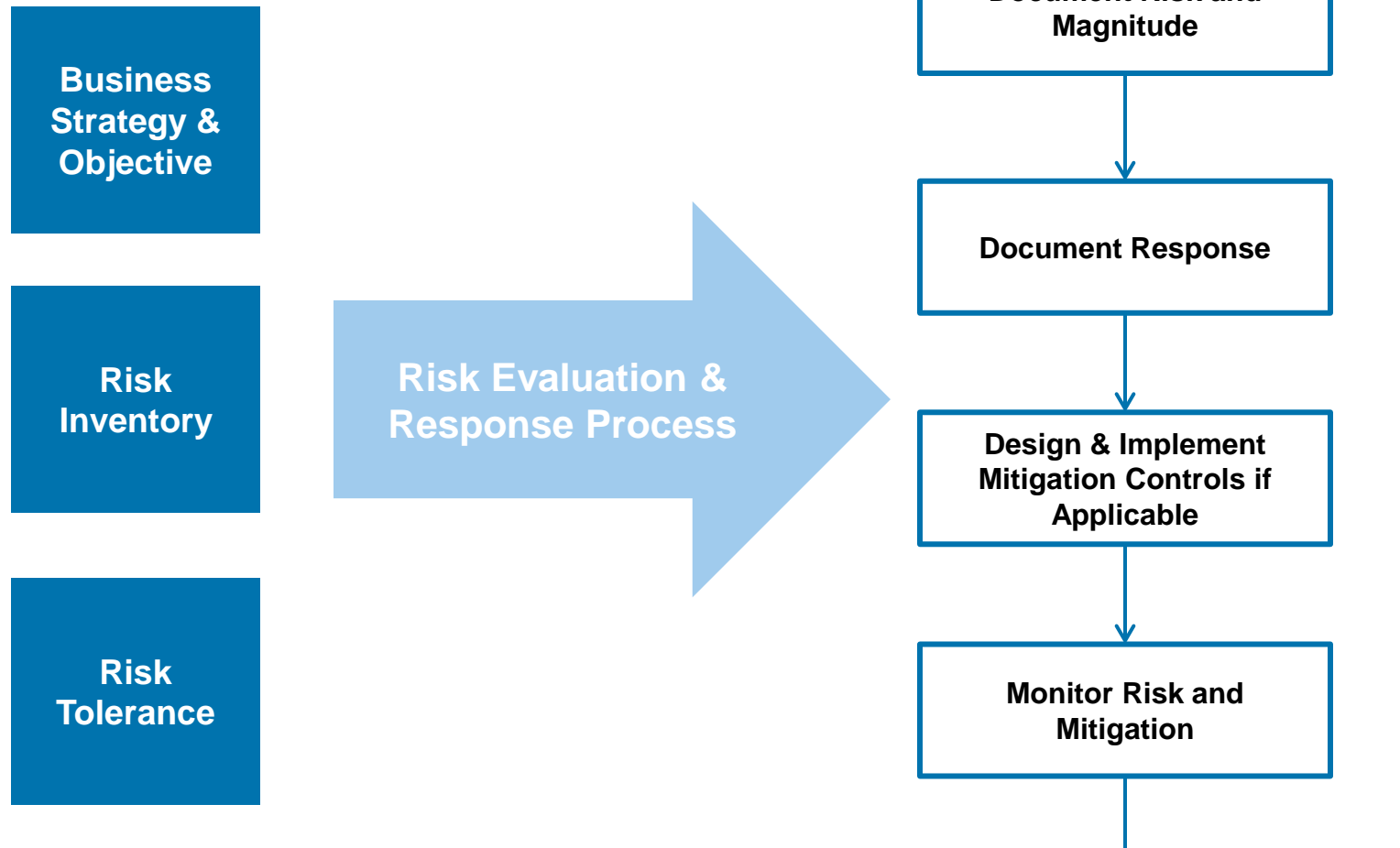
# ERM Framework – External



Source:  
*Enterprise Risk Management for Public Power Utilities, Federal Emergency Management Agency, June 16, 2012*



# ERM Framework – Internal



Source:  
*Enterprise Risk Management for Public Power Utilities, Federal Emergency Management Agency, June 16, 2012*

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# Power Utilities Risks

**Compliance**

**Commodity Trading Risk**

**Commodity Price Volatility**

**Weather Risk**

**Securing Fuel Supply**

**Long-term Supply Contracts &  
Capacity Arrangements**

**Changing Customer Services**

**Generation Optimization**

Source:

*Intertwined: the Physical and the Financial – Commodity Risk in the Oil and Gas, Power Utility, and Mining Sectors, PwC, 2008*

# Power Utilities Compliance Risk

## Compliance to Regulations in the Utility Sector Has Become a Prominent Risk in Itself

- FERC
  - Order 741 requires certain ISO/RTO market participants to provide compliance certifications on risk management<sup>(1)</sup>
- NERC
  - Establishes **14 reliability standards** for all US utilities<sup>(2)</sup>

- |   |   |
|---|---|
| <ul style="list-style-type: none"><li>• Resource and Demand Balancing (BAL)</li><li>• Communications (COM)</li><li>• Critical Infrastructure Protection (CIP)</li><li>• Emergency Preparedness and Operations (EOP)</li><li>• Facilities Design, Connections, and Maintenance (FAC)</li><li>• Interchange Scheduling and Coordination (INT)</li></ul> | <ul style="list-style-type: none"><li>• Interconnection Reliability Operations and Coordination (IRO)</li><li>• Modeling, Data, and Analysis (MOD)</li><li>• Nuclear (NUC)</li><li>• Personnel Performance, Training, and Qualification (PER)</li><li>• Protection and Control (PRC)</li><li>• Transmission Operations (TOP)</li><li>• Transmission Planning (TPL)</li><li>• Voltage and Reactive (VAR)</li></ul> |
|---|---|

Source:

*PwC Power and Utilities Fact Sheet: Enterprise Risk Management, 2012*

*Managing Risk and Compliance in the Electric Utility Environment, Corporate Integrity, LLC, 2012*

# Power Utilities Compliance Risk

## Power Utilities Are Rethinking How They Approach Compliance Economically And Strategically

- Power utilities are under increasing pressure for accountability for reliability and protection of infrastructure and transmission.
  - FERC / NERC
  - FTC Red Flags Rule
  - Payment Card Industry Data Security Standard (PCI DSS)
  - State Mandatory Disclosure Laws (for example, in MA and CA)
  - Sarbanes-Oxley
- As part of ERM program, it is crucial that utilities integrate and monitor compliance risk as part of enterprise risk management initiatives.

Source:

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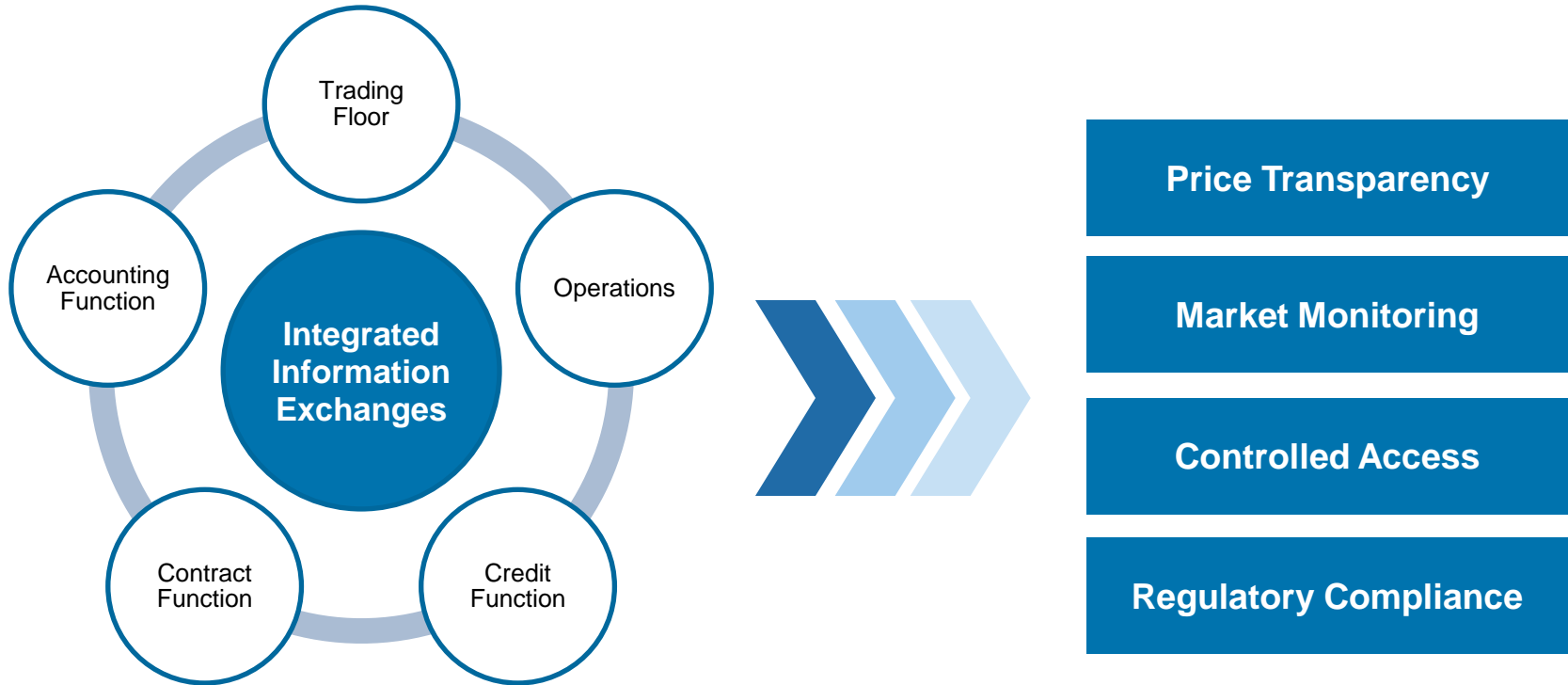
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» **Energy Trading Risk Management (ETRM)** «

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# Energy Trading & Risk Management (ETRM)

## What Is ETRM?



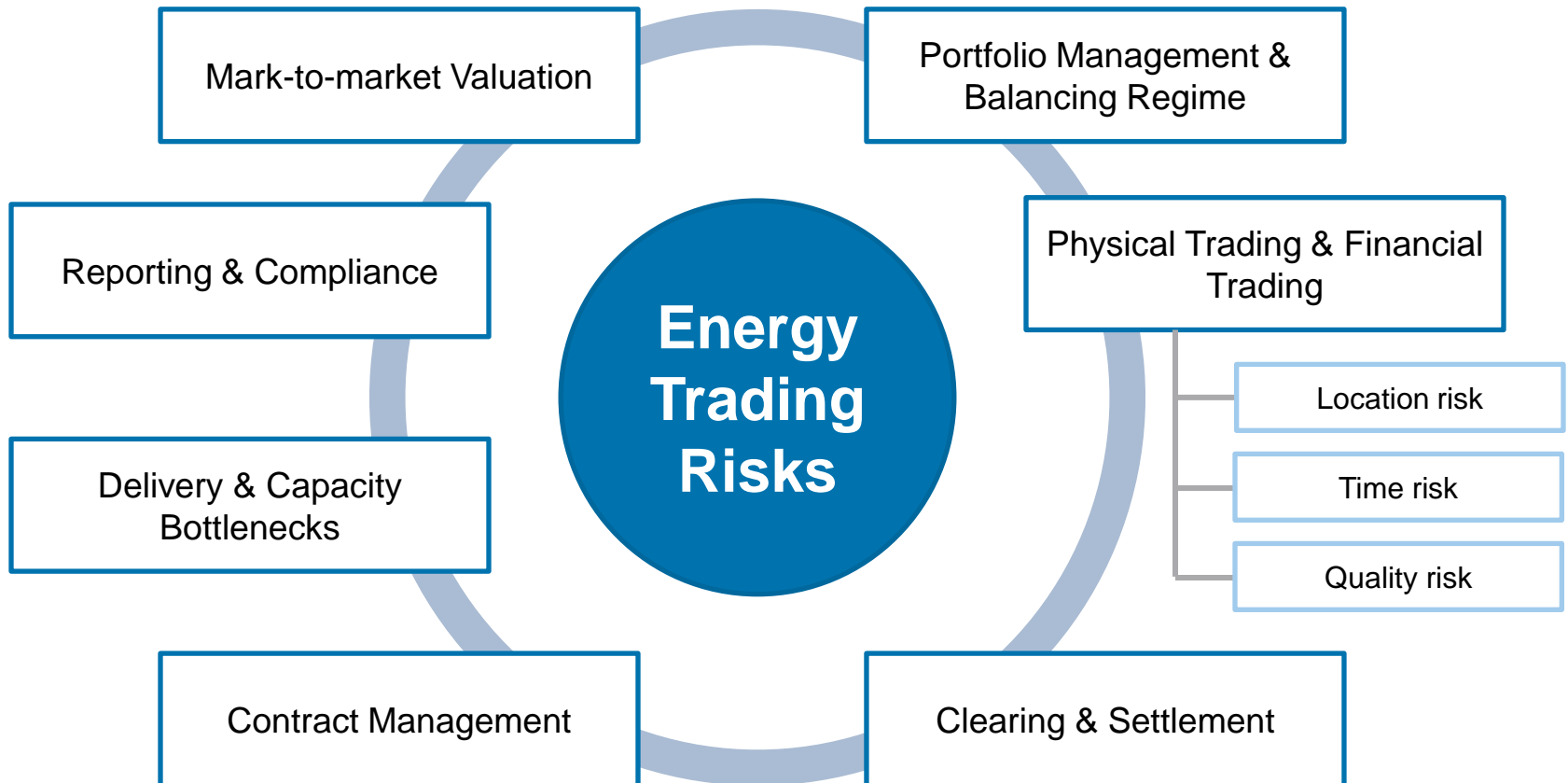
ETRM systems involve commercial decision making and market execution using an integrated system that enables data exchanges among trade floor, operations, credit, contract and accounting functions.

Source:

*Energy Trading And Risk Management (ETRM) Definition, Gartner, Inc., 2012*

# Energy Trading & Risk Management (ETRM)

## What Are The Major Risks Associated With Energy Trading?



Source:  
*In-depth Energy Trading & Risk Management, EnergyForum, November 2012*



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 **Risk Management Challenges** 

# Risk Management Challenges

- **The types and magnitude of risks are increasing**

- Broader spectrum of risks, including trading, operations, supply chain, regulations, reputation
- Examples conventional risks versus emerging risks

Traditional Risks	Emerging Risks
Flat price	FERC 741
Volumetric	Gas market integration
Periodic Ratemaking	More complicated energy commodities or derivatives products
Illiquid market tenures	Aging professional workforce
Etc.	Etc.

Source:  
*Utilities Industry Report, Accenture Risk Management, 2011*

# Risk Management Challenges

- **Critical exposures persist despite major investment in risk capabilities**
  - JP Morgan's lost \$6 billion in risky credit derivative trades
  - Amaranth (a Calgary-based hedge fund) lost \$6.5 billion in natural gas trades
  - UBS lost \$2 billion in equity trades despite large investments made in risk management

Source:  
*Utilities Industry Report, Accenture Risk Management, 2011*

# Risk Management Challenges

- **Organizational silos and outdated information systems prevent effective integration of risk management structures**
  - A move from ‘spreadsheets’ to a ‘serious quantitative modeling’ platform
  - Spreadsheet applications often times lack transparency, efficiency, flexibility, and adequate handling of multiple dimensions and uncertainty.

Source:  
*Utilities Industry Report, Accenture Risk Management, 2011*

# Enterprise Risk Management Challenges for Energy Cos.

- **Adding the cost of risk capital - well studied and implemented in financial institutions and in hedging decisions but limited in application to the wider activities of energy companies**
- **Cost reduction and alignment of risks management with overall business strategy**
- **Avoiding pitfalls of ERM of over emphasis on avoiding losses or other singular goals at expense of missing opportunities to utilize the system for enhancing shareholder value (or vice versa)**

Source:  
*Utilities Industry Report, Accenture Risk Management, 2011*

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# References

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*GRC Integration with Strategy to CCRO*, February, 2012 by Brenda Boulwood, CRO Constellation Energy  
*Power and Utilities Fact Sheet: Enterprise Risk Management*, PwC, 2012

["Trends in Risk Capital Allocation for Energy Companies"](#) V. Jones & L. Cross, Oil & Gas Monitor, March, 2012