



# ERM Beyond Theory to Practice

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RIMS Connecticut Chapter  
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# Agenda

- An overview and the evolution of ERM
- Key takeaways from the ERM guide research – AFP/CTC
- Practitioner Experiences:
  - Multi-national Industrial Equipment Mnfr
  - A major healthcare company
  - A diversified building and automotive company
  - International Mining Company
  - Global Multi-line Insurer\*\*
- Success and failure
- What's the next level?
- Q&A

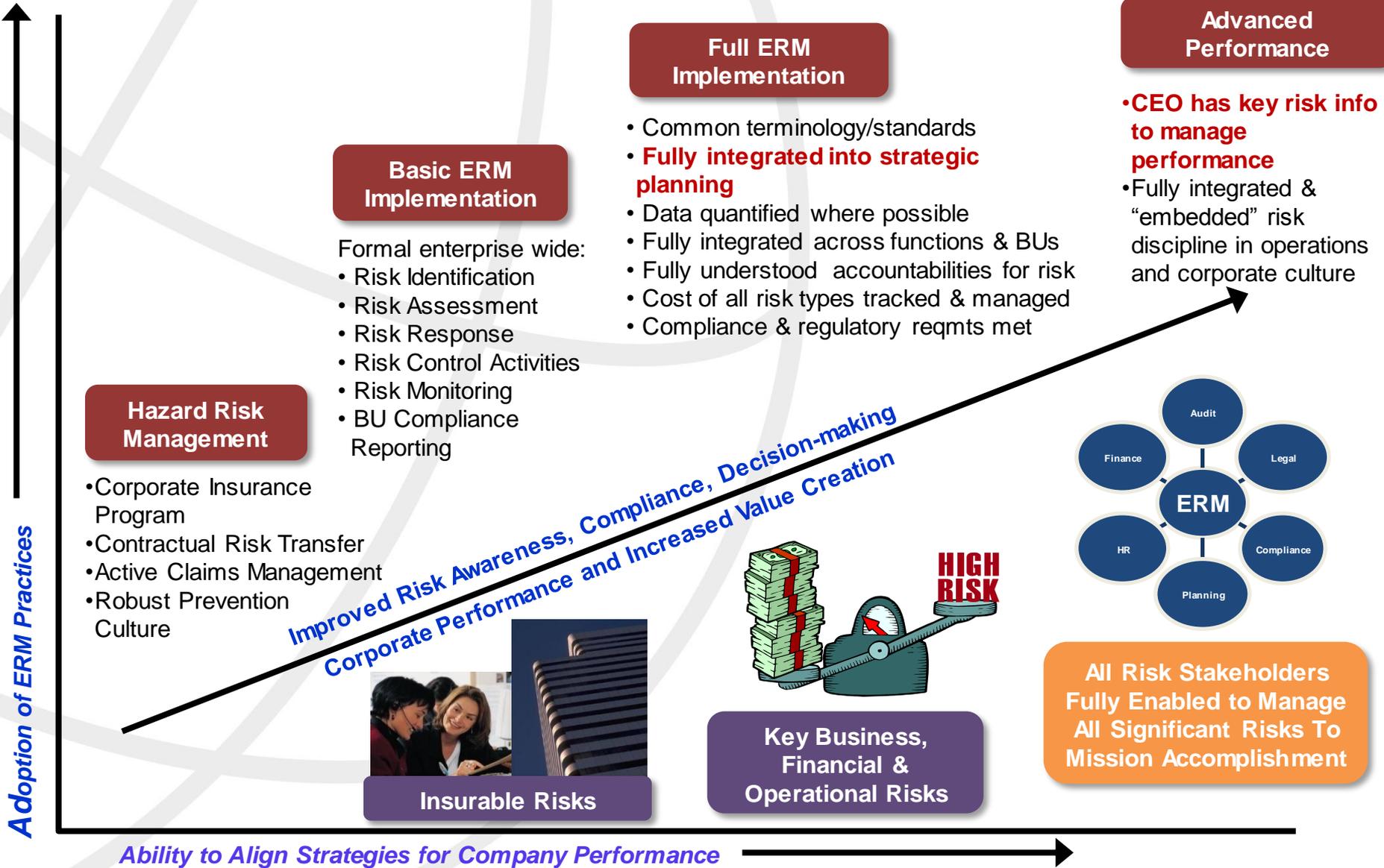


# ERM - SIMPLY STATED

- Is a discipline that establishes and governs an orchestrating framework for the management of risk, enterprise-wide (***coordinates siloed risk management efforts***)
- Its purpose is to help company's deliver consistent company performance ("***achievement of objectives***")
- Improves decision-making by supplying current and relevant risk information and analysis ("***informing and directing***")
- Is effected by the Board, carried-out by Management and applied to planning, budgeting, business performance review and decision-making (***integrated into the business***)

***What it IS NOT is a "LIST OF RISKS"***

# Risk Management Capability Evolution



Adoption of ERM Practices

Ability to Align Strategies for Company Performance



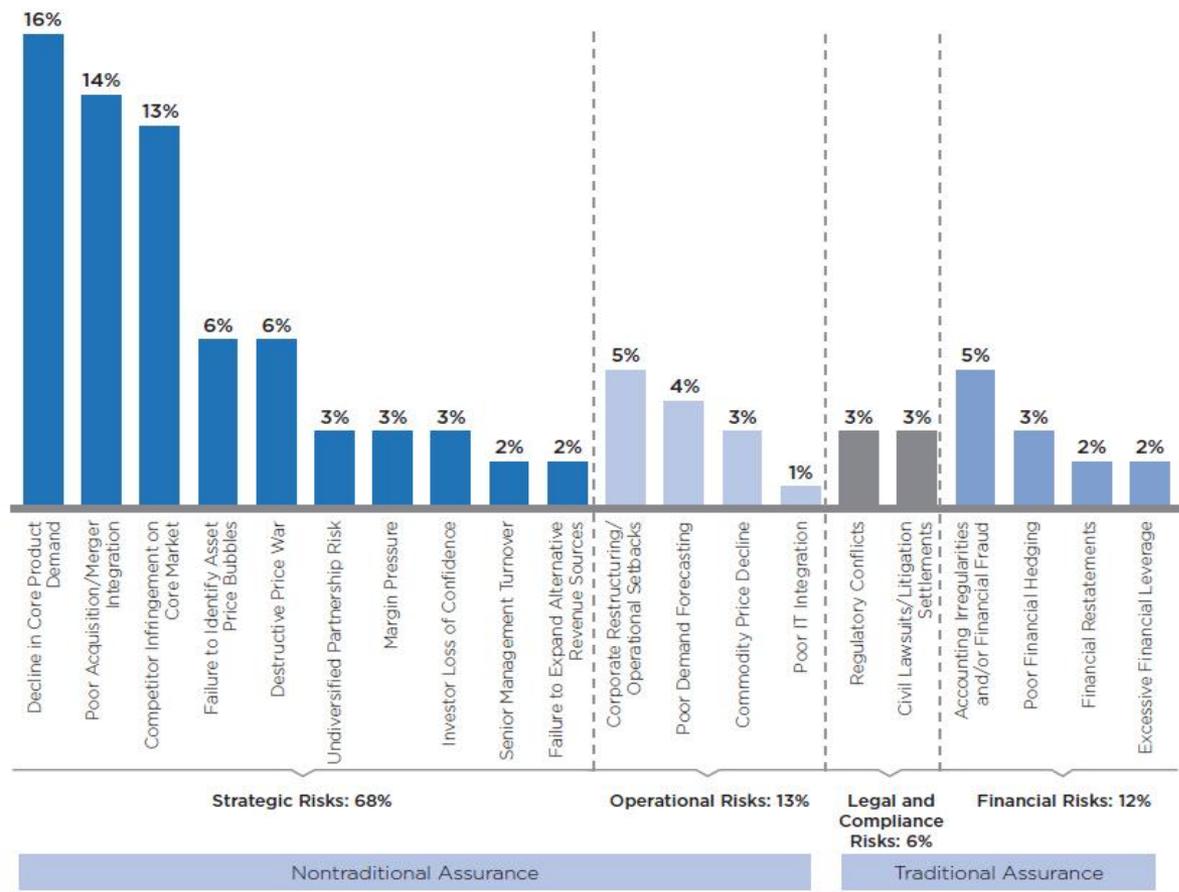
# Which Risk Matters Most?

Strategic risks continue to have greater negative impact on stock price than more easily auditable risk areas.

- This analysis looks at root causes underlying market capitalization declines of 50% or more in a single year.
- Percentages refer to frequency of occurrence of each factor in the sample population.

## ROOT CAUSES OF DECLINE

Market Capitalization Decline Drivers  
Top 20% of Fortune 1,000 (1998-2009)

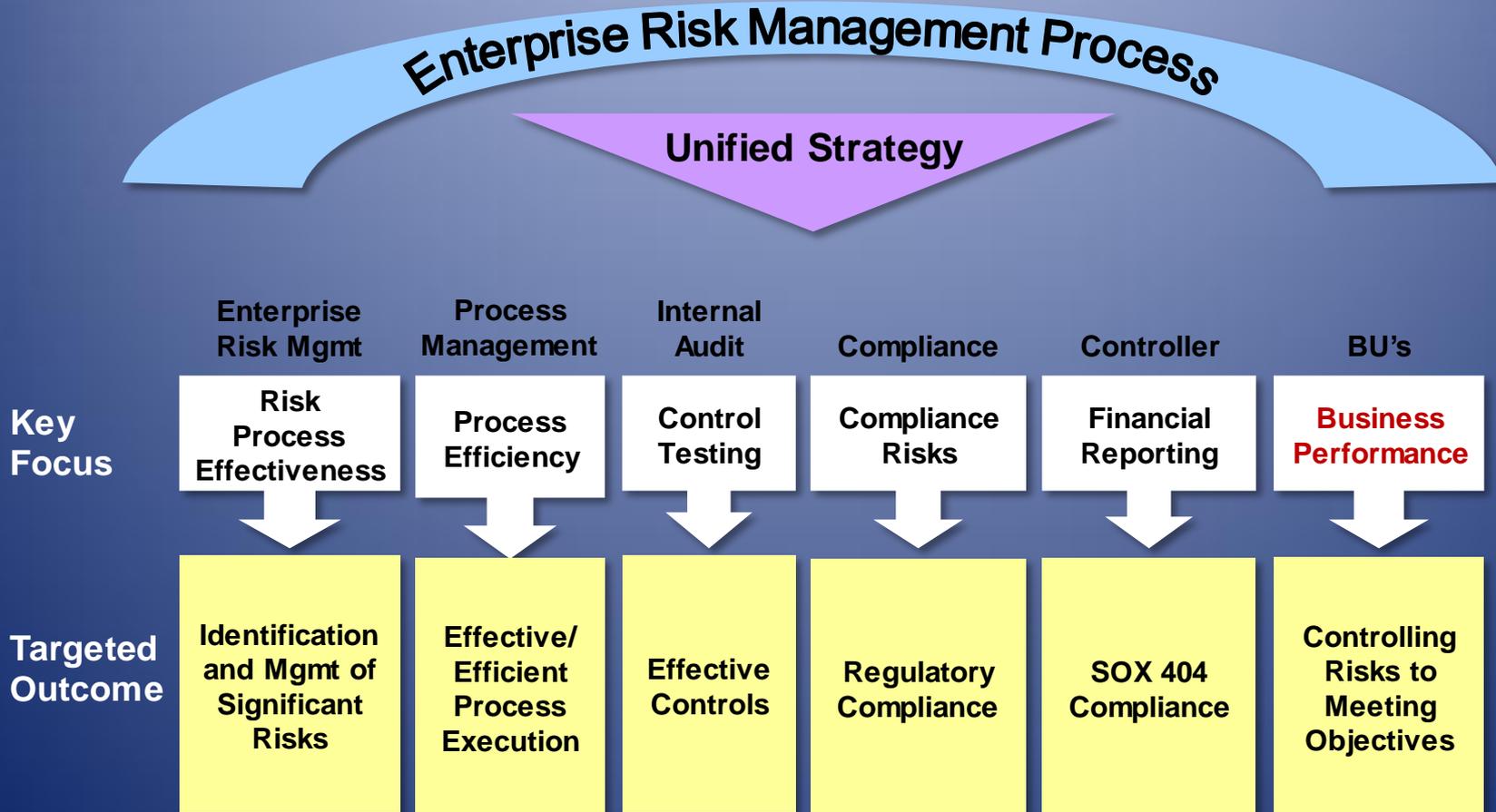


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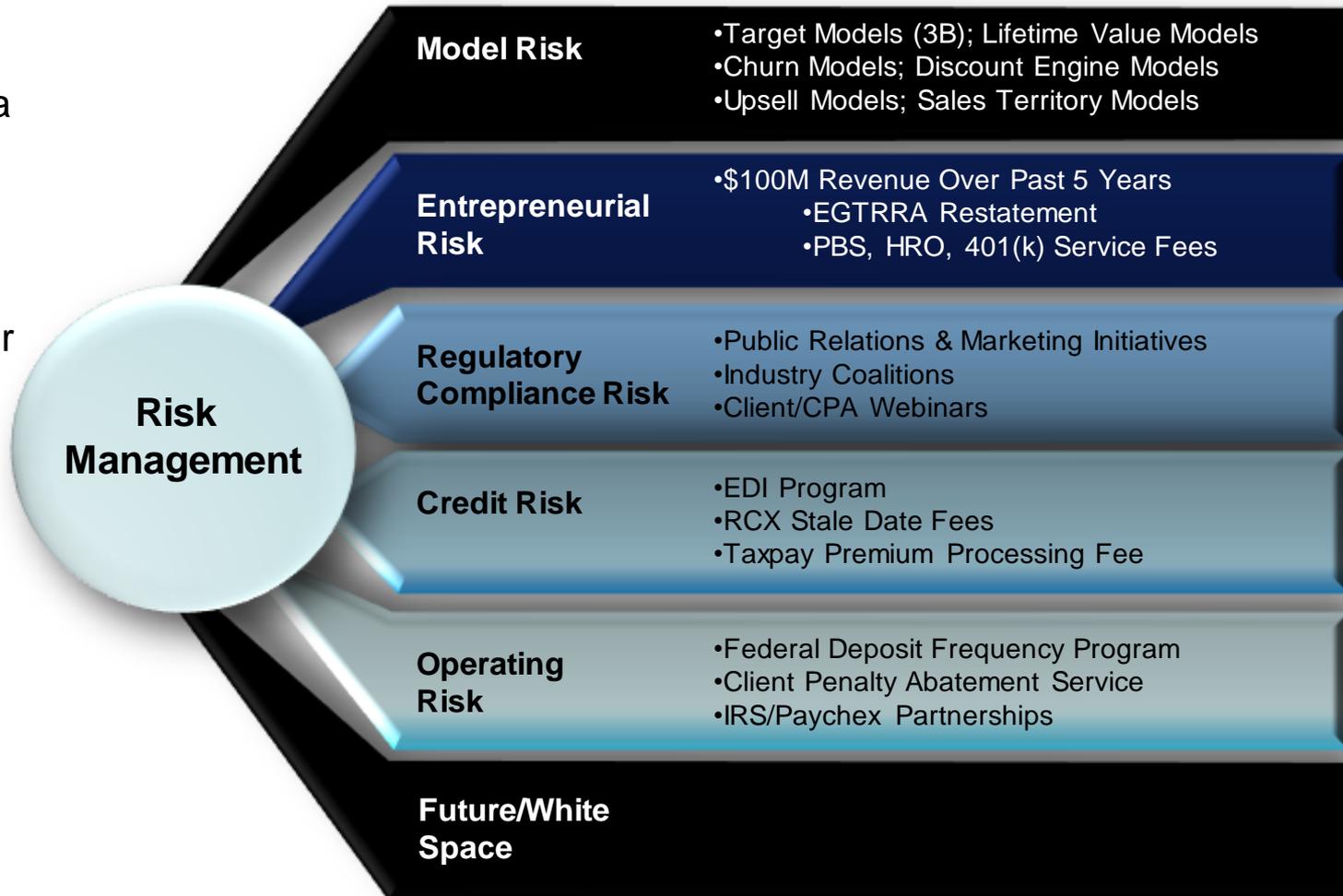
# Stakeholder Interests



# Value Preservation to Value Creation

The discipline of risk management has evolved from strictly a value preservation-based focus to a balanced focus between protecting assets and creating or enhancing value.

A flexible and dynamic risk management discipline is uniquely positioned to quickly adapt to change and identify opportunistic risk to create new streams of revenue and increase value



**STANDARDS FACILITATE THIS EVOLUTION**

# The CTC Guide to ERM: Inflection Point

Why are more companies rethinking ERM?

- Post financial crisis awakening
- Board pressure
- Greater uncertainty
- New technologies (higher focus on analytics)
- S&P ratings (impact TBD)



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## SUCCESSFUL ERM PROGRAMS

RISK  
Strategic  
Planning

RISK  
as Downside  
and Upside

Quantify  
RISK

RISK  
Capacity

The companies in the guide each has a different approach to ERM. But each exhibits some or all of these factors:

- They connect risk and strategic planning
- They think about risk as downside and an upside
- They put numbers around risk
- They consider risk capacity



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## SUCCESSFUL ERM PROGRAMS

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Quantify  
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RISK  
Capacity

- The objective is to connect all the dots
- Risk becomes part of the strategic planning process
- Focus is on key risks to business performance (away from compliance and operational only)
- Identify what can prevent the company from achieving its strategic objectives



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# SUCCESSFUL ERM PROGRAMS

RISK  
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RISK  
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Quantify  
RISK

RISK  
Capacity

- Risk tolerance needs to be defined clearly
- Decide which areas are ripe for “more” risk in order to achieve strategic objectives
- Define no-risk tolerance areas
- See risk as an opportunity
- Risk management vs. risk minimization



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## SUCCESSFUL ERM PROGRAMS

RISK  
Strategic  
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RISK  
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Quantify  
RISK

RISK  
Capacity

- This is probably the toughest area
- There are new ways emerging for risk quantification
- Companies are putting numbers around risk to make decisions about tolerance
- It's not about math and algorithms: Risk can be quantified using financial statements methods



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## SUCCESSFUL ERM PROGRAMS

RISK  
Strategic  
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Quantify  
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RISK  
Capacity

- Capital management relates to how much risk the business can absorb
- It's a common insurance/bank concept
- There are ways for non-financials to follow
- Using credit rating as one of the risk tolerance measures is a starting point
- Risk-adjusted capital allocation can help

# Study Conclusions

- There's no single way to do ERM
- Get buy-in from the top
- Keep it fresh
- Get the right champion
- Select the right level of complexity for your organization
- Set up an ERM infrastructure
- Condense the information
- Be realistic about timing

# The Companies Studied

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# Company 1 Case Study: The ERM Pivot



## Who?

- Rapidly growing \$6.6B global industrial equipment company
- 6 Year old ERM strategy

## Current State:

- ERM process owner churn
- Inconsistent process and practice
- Minimal standardization or common language
- Informal emerging risk review process
- Regional data consolidation
- Quarterly board risk reporting

## ➤ Drivers for Change:

- Challenging ERP implementation
- 5 Years of stumbling around

## ➤ What did they do?

- Hired a new ERM leader at VP level
- Defined the value proposition
- Clear articulation of the "end state"
- Risk culture modification from stakeholder input
- Moved from high level to deeper org dive into risk profile

## **Communicated and Implemented Value Drivers:**

- Improved C-suite and board reporting on key risks
- Designed and deployed KRIs
- Improved readiness: more proactive; less reactive
- Tied risk to strategic objectives and showed impacts
- Used improved scenario planning to understand possibilities
- Drove risk info/data into key areas of decision making
- Defined and drove understanding of risk appetite
- Defined and implemented changes to risk culture
- Enabled balanced risk taking
- Created an improved sense of control in risk taking and potential impacts
- Embedded ERM strategy and tactics into culture

## **Watch outs:**

- Underestimating resources necessary to gather, interpret and explain the meaning and use of data
- Managing as a project – treat as a journey

## Who?

- \$33B hospital and healthcare company
- 20 states and the UK
- 200,000 employees

## Current State:

- Small but impactful program
- AVP, ERM and BPC – part of IA but only administratively
- Evolved from being too granular to more high level
- Exploits limited detail
- Involves lots of stakeholders from top into divisions
- Regularly updated risk data used for decision making
- **Drivers for Change:**
  - 3 CEOs over 13 years
  - Each CEO scrutinized ERM value and expanded it
  - Audit's need for data to feed a RB audit plan

## What did they do?

- Partnered with the Audit leader
- Enhanced culture to support risk based auditing
- Aligned risk with strategic planning
- Designed risk reports to initially inform
  - The CEO and
  - The Board
- Over time, expanded reporting and drove data down into divisions
- Leveraged CEO's acknowledgement that risk needed more attention
- Focused on top key risks
  - Elicited opinion from broad cross section of stakeholders
- Drove alignment & communications about key risks from top to bottom and up again
- Enhanced process that over time revealed emerging risks
- Focused on effectiveness of risk mitigation strategies and gap closing
- Drove focus toward risks to strategy
- Used outputs to feed 10-K disclosures
- Understood and developed risk strategy that clarified roles

## **HCA View of Benefits**

- Evolved from purely negative view to upside recognition
- Evolved management view of risk management from nay sayers to balanced view toward prudent risk taking
- Improved risk understanding
- Improved risk culture and communications
- Developed and enhanced board oversight role and reporting

## **Success Factors**

- Sell it to the top and secure consistent CEO level support
- Keep it focused and NOT too detailed
- Secure quick wins and keep producing them
- Involve the right people; those that understand the business
- Keep data and reporting at a high level and focused
- Benchmark and learn from others

# Company 3: Johnson Controls

## Who?

- \$42B diversified building & automotive
- Global spread
- 21 year record of earnings growth

## Current State:

- 6 year effort owned by VP Strategy; no dedicated risk FTEs
- Comprehensive set of processes integrated with strat planning
- Focus on 10 yr risk horizon
- Annual validation of risk universe
- Corp validated BU risk priorities
- BU's own risk and mitigation responsibilities

## Drivers for Change:

- Board demand of CEO for disciplined risk process
- Post Enron/Worldcom effects
- CEO engagement

## What did they do?

- Evolving list of key risks
- Evolving assessment process from a simple qualitative focus to multi-dimensional (4) view
  - Likelihood > Impact > Velocity > Mitigation effectiveness
- Initially engaged 50 most senior to broader group of 350
- Risk assessments flow back and forth from BU's to corporate leading up to the annual strategic planning event
- Top risks are tracked on one page dashboards with risk owner reporting required
- Designed sophisticated risk scoring that enables prioritization
- Developed a system tool to support the population of the 4 dimensional view of top 50-100 risks
- Risk ownership rests with BU presidents
- Established a risk committee in 2009 (wake of financial crisis)
- Periodic benchmarking to achieve top quartile (CEB basis)
- Recognized that strategic risks are the most significant

# Johnson Controls

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## Key Benefits

- Leveraging engagement of broad set of stakeholders to drive understanding and to inform governance
- Having a clear view into risk appetite by risk type and knowing where gaps need closing
- Regular, periodic risk reporting to board
- Comprehensive process assessment reporting used to support enhancing process and secure resources

## Success Factors

- Set the tone at the top; engaged committed CEO/Board
- View risk as opportunity
- Goal should be risk mitigation/leveraging not minimization
- Design and fit to your company's needs
- Take a broad view of risk
- Involve a broad set of stakeholders to ID and assess
- Keep it simple but meaningful
- Focus on clear and regular communications across the entity

# Company 4: Zurich Insurance Group



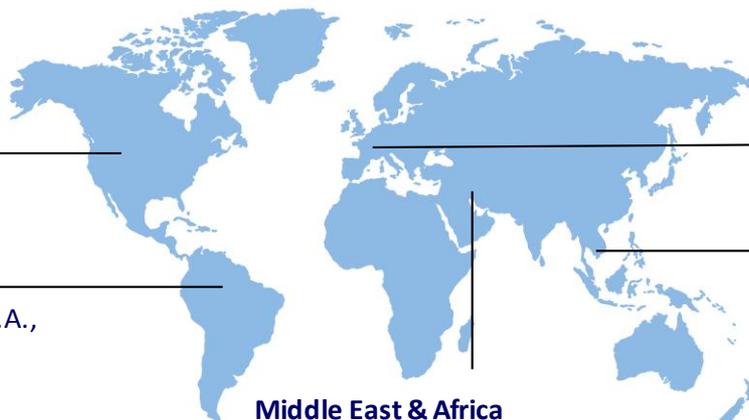
Segment	General insurance	Global Life	Farmers
Business	Property & casualty insurance and services	Life insurance, savings, investment and pension solutions	Management services related to property & casualty insurance
Market segments	Individual, commercial and corporate customers	Individual, commercial and corporate customers	Individual, commercial and corporate customers
Distribution channels	Agents, banks, brokers, direct	Agents, banks, brokers, employee benefit consultants, direct	Agents, direct
Geography	Global	Global	United States

## North America

In 2012, Zurich celebrated its 100 year anniversary of providing insurance in the U.S.

## Latin America

Our joint venture with Banco Santander S.A., entered into in 2011, strengthened our presence in Latin America.



## Middle East & Africa

Our business spans the region with key operations in the Middle East, South Africa, Morocco and Turkey

## Europe

We have major operations in Germany, Italy, Spain, Switzerland and the UK and a significant presence in five other countries.

## Asia-Pacific

Zurich has operations in Australia, China, Hong Kong, Indonesia, Japan, Malaysia, Singapore and Taiwan.

1 All references to "Farmers Exchanges" mean Farmers Insurance Exchange, Fire Insurance Exchange, Truck Insurance Exchange and their subsidiaries and affiliates. The three Exchanges are California domiciled interinsurance exchanges owned by their policyholders with governance oversight by their Boards of Governors.

# Group Risk Management

## RISK MISSION

To promptly identify, measure, manage, report and monitor risks that affect the achievement of strategic, operational and financial objectives. This includes adjusting the risk profile in line with the Group's stated risk tolerance to respond to new threats and opportunities in order to optimize returns.

## Objectives

- Protect the **capital** base by monitoring that risks are not taken beyond the Group's risk tolerance
- Enhance value creation and contribute to an optimal risk-return profile by providing the basis for an efficient **capital** deployment
- Support the Group's **decision-making** processes by providing consistent, reliable and timely risk information
- Protect Zurich's reputation and brand by promoting a sound **culture of risk awareness** and disciplined and informed risk taking

# Risk taking and control is at the heart of the business

## “Three lines of defense”

1

### **Business management owns all risks**

1. Business takes risk decisions optimizing risk/return
2. Business manages risks every day
3. Business mitigates risks where necessary

2

### **GRM ensures a consistent risk & control framework**

1. Develops and implements Enterprise Risk Management framework and Zurich Risk Policy (ZRP)
2. Establishes methodologies to measure and assess risk
3. Monitors Zurich risk exposure against the Group's risk tolerance and sets risk limits
4. Develops and operates appropriate risk & control infrastructure, incl. risk aggregation and risk reporting

3

### **Audit provides independent oversight and assurance**

1. Audit assesses the effectiveness of the risk framework
2. Audit builds on risks identified by GRM for planning its activities
3. Audit independently monitors effectiveness of controls



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# ERM fosters an integrated view of risk

## Risk Governance

### Zurich Risk Policy (ZRP)

- Risk ownership, roles and responsibilities
- Limits by risk type
- Mandatory
- Regularly updated and communicated

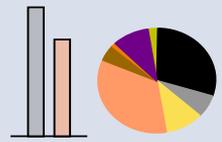


## More quantitative

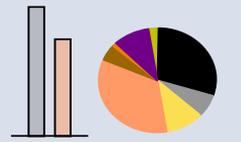
### Risk Tolerance

- Defines and informs risk limits
- Takes a shareholder view
- Capital-at-Risk, Earnings-at-Risk, financial flexibility and franchise value

#### Capital-at-Risk



#### Earnings-at-Risk



### Economic Capital (EC)

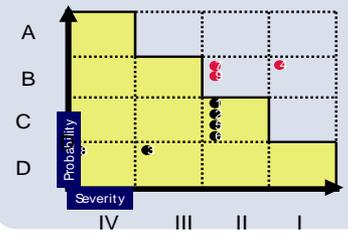
- Set target capitalization at AA level
- Takes a policyholder view (1/2000 years)



## More qualitative

### Total Risk Profiling (TRP)

- Management view of risks
- Proprietary tool for risk identification and assessment
- 3-5 year time horizon



### Operational Risk & Control

- Integrated Risk & Control framework and methodology (Top Down Scenarios, Operational Risk Assessments, Issue Register, Loss Events, etc.)
- Operational risk management
- Int. Control Framework (ICF)

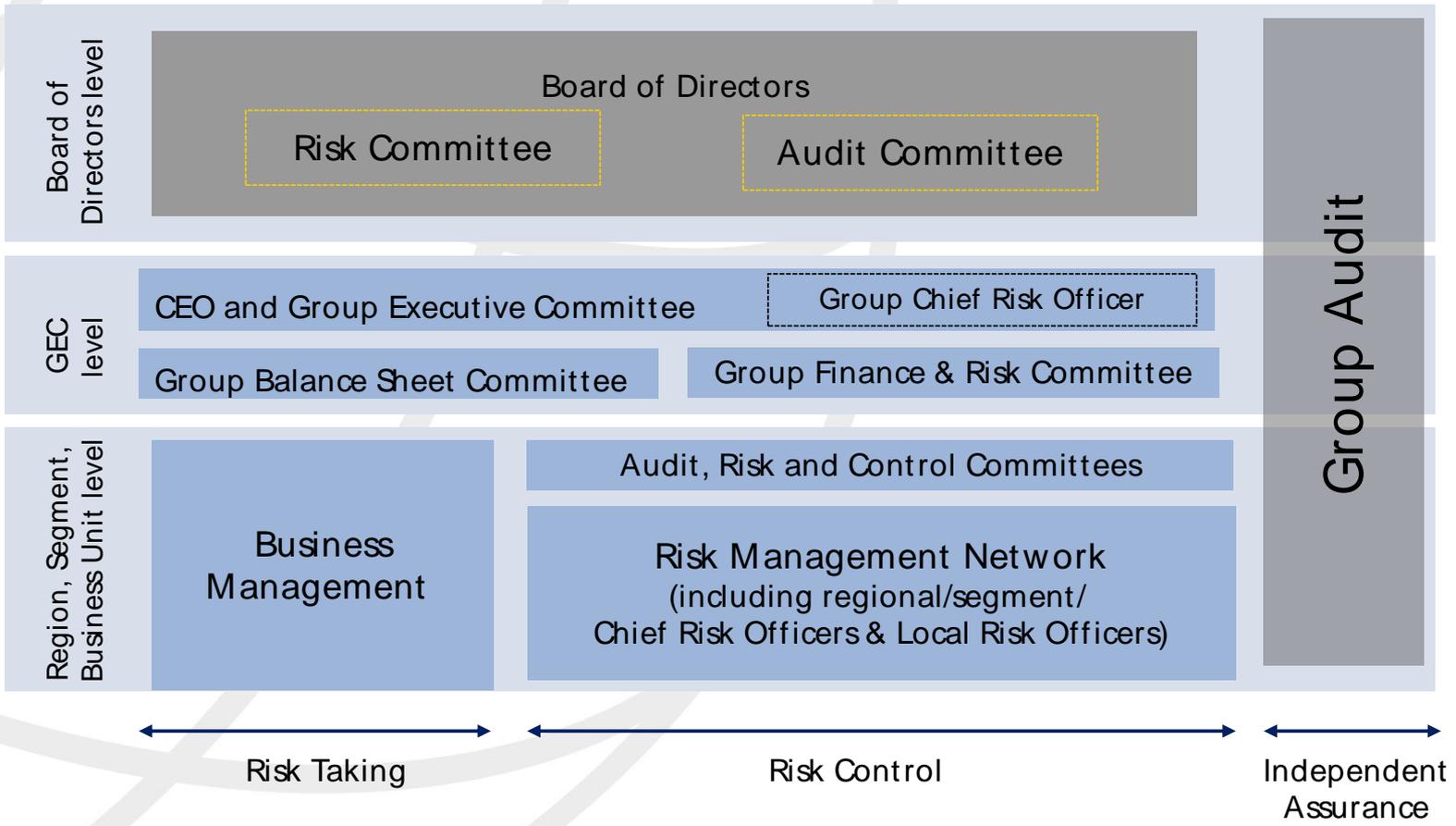


## Risk reporting



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# Risk & control framework



## **What is Risk Management for this insurer?**

- First and foremost about managing capital
- Encouraging and supporting risk based decision making
- Supporting and encouraging a risk aware culture

## **What did they do?**

- Designed process to be integrated with capital management priorities
  - Target debt rating levels
  - Uses economic capital modeling to quantify and aggregate risk
- Ensure capital is sufficient to meet its promises and obligations to stakeholders including:
  - Customers
  - Investors
  - Regulators
- Designed a set of processes that are objective and analytical
- But incorporates qualitative components as well
- Use quantitative risk metrics to make risk return decisions
- Uses multiple risk committees at various levels throughout the org
- Ensures compliance is achieved both internally and externally

## Success Factors

- Support from the top is critical
  - Selected sr management and
  - Board engagement
- Recognize design and successful deployment is a long term effort
  - It can't be treated as a project
- Identify a champion which may or may not be a full time CRO
- Recognize risk as having both downside and upside characteristics
- Clearly articulate your goals and stick to them
- Learn from others and both their successes and their failures

# Why aren't ERM Programs More Successful?



- Most ERM Programs are built with a “Governance” or “Compliance” focus
- Measures are rarely quantitative
- Don't play a material role in performance management, planning, budgeting or strategy
- Limited in scope and focus
- Not a “day-to-day” part of decision making
- Difficult to translate value proposition

# Why Did “ERM” Fail During the Financial Crisis? Or did it?

- Misguided focus on risk processes vs.. agility
- Large amounts of info; no evaluation of risk interconnectedness
- A “check the box” risk management mentality
- Over reliance on statistical models
- Cultures of risk acceptance w/o regard to risk appetite, tolerance or capacity
- Compensation structures that rewarded excessive risk-taking
- Inadequate risk governance/oversight structures

# Financial Crisis Inquiry Conclusions

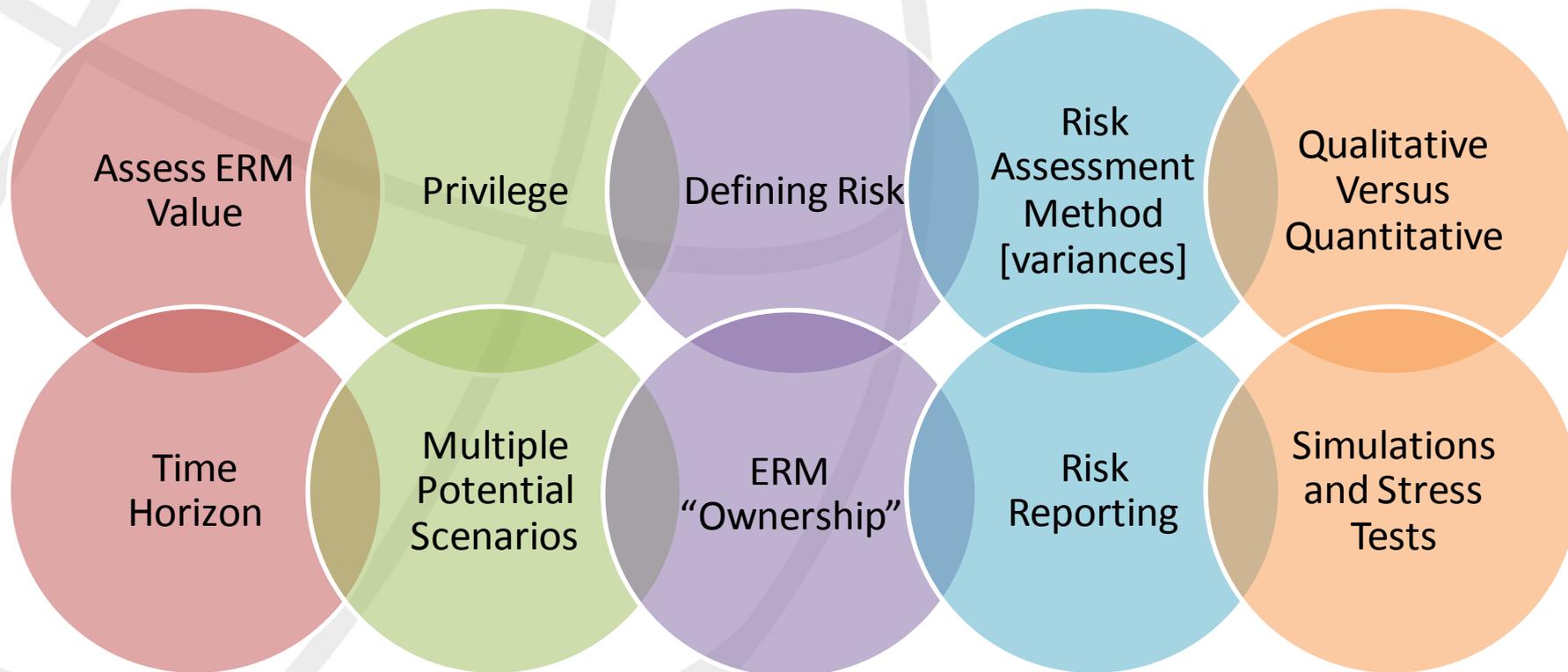
## Final Report of the Nat'l Commission on the Causes of the Financial and Economic Crisis in the US:

- **Financial Crisis was Avoidable**
- **Dramatic failures of corporate governance and risk management was a key cause**
- **Rating Agencies relied inappropriately on risk models & “were essential cogs in wheel of financial destruction”**
- **Risk management too often became risk justification**
- **Excessively risky investments and a lack of transparency were key**
- **Government ill prepared for crisis and inconsistent response exacerbated the crisis**
- **There was a systemic breakdown in accountability and ethics**



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# Common ERM Obstacles



Source: *Risk Management*, March 2010 issue.  
Used with permission.

**What is the next level for  
progressive risk mgmt?**

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## Risk Managers as “Strategic Advisors”

- Identifies key risk metrics and/or indicators to assist the responsible board committee and senior management in fulfilling their risk management responsibilities
- Provides risk leadership support to executive management, business units, resources units and lines of business in their respective risk management efforts
- Collaborates with legal, compliance, internal audit, corporate security, information security, controller, traditional risk management and other key risk stakeholders on risk identification, assessment and controls implementation
- In cooperation with other risk management functional areas, makes risk an explicit factor in selecting controls to be tested
- Reports to management and the board

# Do We Need A Global Risk Standard?

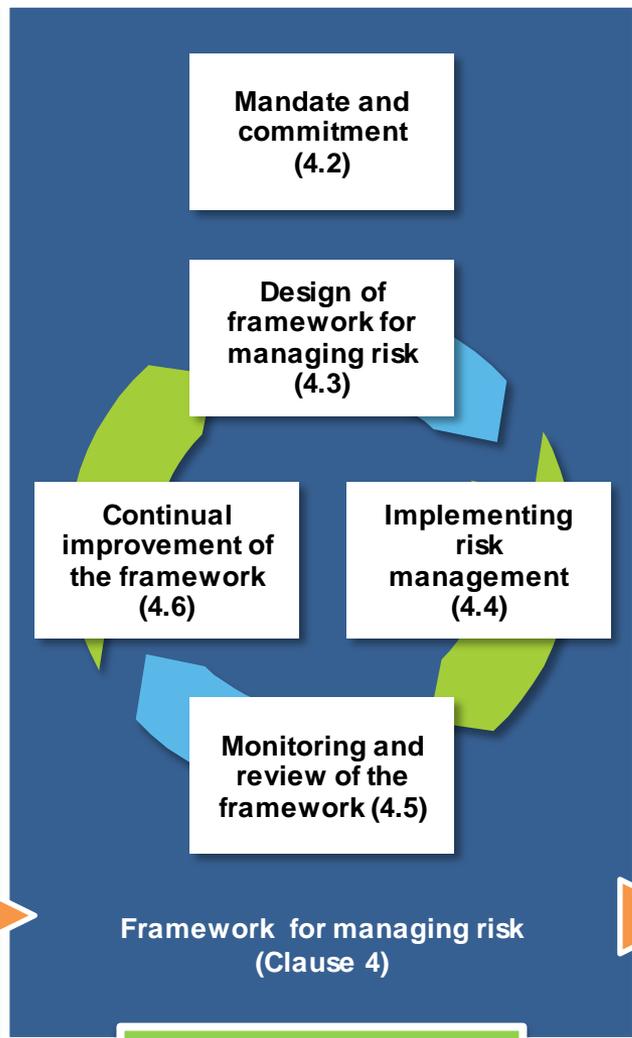
- Multinational companies operating in many countries around the globe
- A need to set priorities and address risks based on global importance
- Need a “common look and feel”
- Need to demonstrate that effective and reliable methods have been used.
- Many existing sub-standards are “down in the weeds” and unsuited to broad application

# ISO 31000 – Risk Management

- a) Creates value
- b) Integral part of organizational processes
- c) Part of decision making
- d) Explicitly addresses uncertainty
- e) Systematic, structured and timely
- f) Based on the best available information
- g) Tailored
- h) Takes human and cultural factors into account
- i) Transparent and inclusive
- j) Dynamic, iterative and responsive to change
- k) Facilitates continual improvement and enhancement of the organization

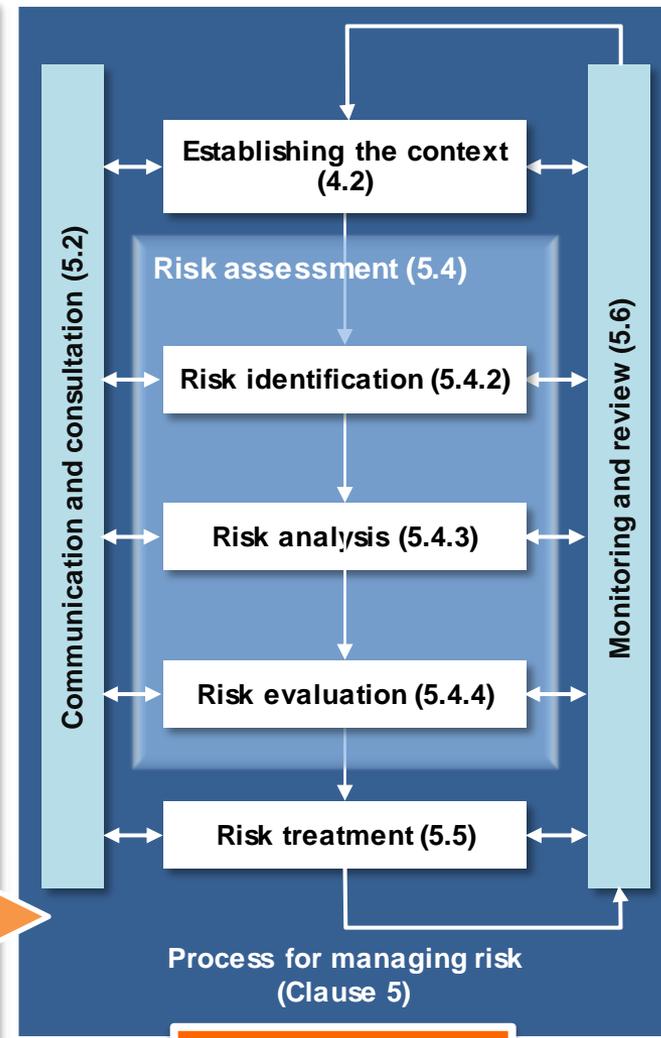
Principles for managing risk (Clause 3)

## Principles



Framework for managing risk (Clause 4)

## Framework

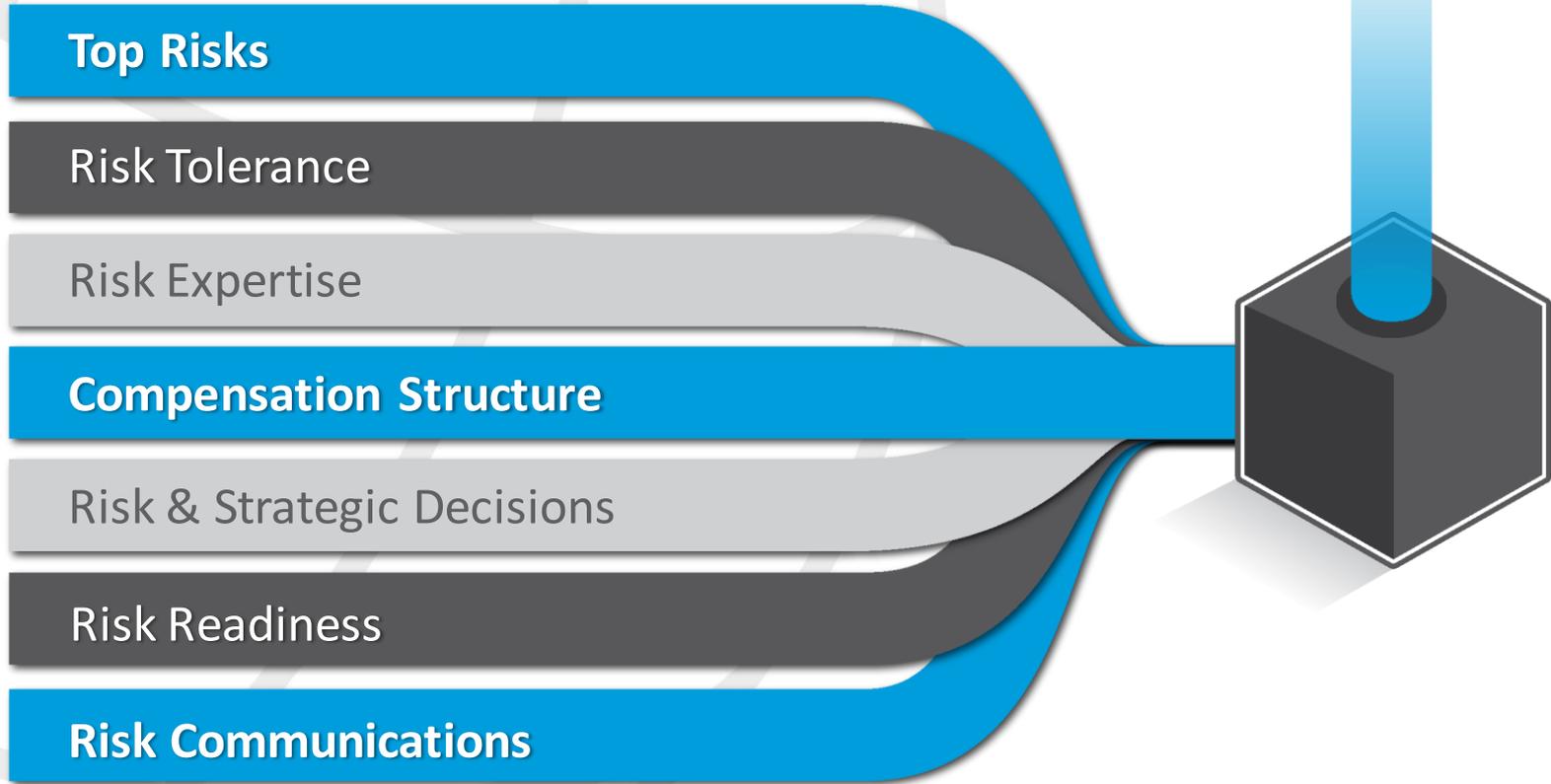


Process for managing risk (Clause 5)

## Process



# What's Important to Rating Agencies Now?



# Considerations for More Effective Risk Mgmt



- **Board Level Interest.**

What “material” risks does the board need to know/manage?

- **Broadened Risk Management Teams.**

How to involve stakeholders in a coordinated effort?

Which stakeholders do you want to involve?

- **Clear, Understandable Risk Management Process.**

How to get board members, managers, and employees to understand the process?

How to get board members, managers, and employees involved?

- **Broad Focus.**

How to integrate RM into all key business processes, including all planning, operating, and financing activities?

# RIMS Risk Maturity Model



## Adopt ERM Approach

Denotes the degree of executive support for an ERM-based approach within the corporate culture. Activities cut across all processes, functions, business lines, roles and geographies.



## ERM Process Management

Degree that a repeatable and scalable risk management process is integrated into business and resource/support units, using a sequential series of steps that support uncertainty reduction and promote opportunity exploitation.



## Risk Appetite Management

Degree of accountability for (1) defining acceptable boundaries 2) calculating and articulating risk tolerance 3) developing a risk portfolio 4) considering scenarios, and 5) attacking gaps between perceived and actual risks.



## Root Cause Discipline

Degree of discipline applied to measuring root cause by: 1) determining sources 2) understanding impacts 3) identifying trends, and 4) measuring effectiveness of controls.

# RIMS Risk Maturity Model

## Uncovering Risks

Degree of quality and coverage (penetration) throughout the organization for uncovering uncertainties related to organizational goals achievement.



## Performance Management

Degree to which organizations are able to execute on vision and strategy in tandem with risk management activities.



## Business Resiliency and Sustainability

Extent to which an organization integrates business resiliency and sustainability aspects for its operational planning into its ERM process.

# Key Challenges for the Future State

Risk challenges are increasingly priorities for execs and boards, including:

- Understanding what risks are most threatening to mission accomplishment
- Connecting actionable risk information to goals & strategy
- Managing critical risk interdependencies
- Getting ahead of emerging risks
- Controlling risks brought to the firm by third parties
- Fostering a strong ethics and risk culture
- Addressing low-frequency, high-impact risks proactively
- Providing timely information on key risks not effectively mitigated

**ADDRESSING THESE CHALLENGES WILL DRIVE THE FUTURE OF RISK MANAGEMENT**

# Components of Best-in-Class Risk Management

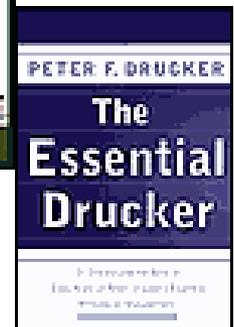


**Including these key elements in your Risk Management Strategy will support Best in Class results**

# Final Thought

*“A decision that doesn’t involve risk probably isn’t a decision.”*

Peter Drucker



# Questions and Discussion

# References for Deeper Study

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- 5) Excellence in Risk Management 10 Report: Delivering Strategic Value Through Risk Management, RIMS/Marsh
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- 9) RIMS Strategic Risk Management Implementation Guide, RIMS, Inc.
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- 15) Risk Management Society's ERM Center of Excellence at [www.rims.org](http://www.rims.org)

# Christopher E. Mandel, CPCU, ARM SVP, Strategic Solutions, Sedgwick, Inc.



Christopher E. Mandel is the SVP for Strategic Solutions at Sedgwick, Inc. He is engaged in helping Sedgwick chart its future through the long term planning for products, services and strategic solutions for this claims and productivity management firm. He is also co-founder and EVP, Professional Services for rPM3 Solutions, LLC as well as founder and president of Excellence in Risk Management, LLC. both independent consulting firms specializing in governance, risk and compliance, with a special emphasis on enterprise risk management. rPM3 Solutions holds a patent for a unique risk measurement process known as ARQ™. Prior to electing early retirement and for ten years from 2001-2010, Mr. Mandel was head of enterprise risk management for USAA Group, a \$165 billion diversified financial services organization. At USAA, he designed, developed and led the enterprise-wide risk management and corporate insurance centers of excellence. He also served as President and Vice Chairman, Enterprise Indemnity CIC, Inc., an Arizona based alternative risk financing facility.

Mr. Mandel has more than 25 years of experience in risk management and insurance in large, global corporates. He has pioneered the development of cross-enterprise risk management capabilities resulting in S&P rating USAA as “excellent and a leader in ERM” from 2006 through 2010. In 2007, Treasury and Risk Magazine bestowed the Alexander Hamilton Award for “Excellence in ERM” on USAA. Mr. Mandel has been a long term senior leader in the Risk and Insurance Management Society including being elected President and Chief Risk Officer and was named Risk Manager of the Year in 2004.

Mr. Mandel’s deep, wide and diverse experience in all facets of risk management and insurance allows him to offer those interested in managing risk with excellence to engage him to provide everything from a comprehensive strategy and complete ERM framework to targeted guidance, tools, techniques and/or training. Mr. Mandel’s innovative approach to making risk a key strategically placed and results oriented function results from solidly connecting risk management outputs to a company’s key performance metrics and ultimately, mission accomplishment.

Mr. Mandel received his B.S. in Business Management from Virginia Polytechnic Institute and State University and an MBA in finance from George Mason University. He holds the CCSA, CPCU, ARM and AIC designations and is a frequent industry speaker, teacher and writer. He writes the “Risk Innovation” column for Risk and Insurance magazine and *in 2008 was elected a member of Risk Who’s Who (RWW). He also wrote the Ask a Risk Manager column for Business Insurance from 1996 through 2008.*

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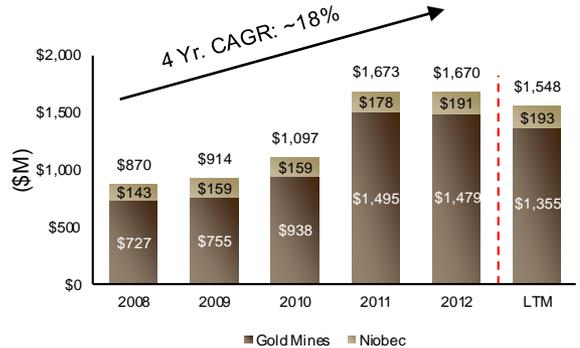
# Company 5: IAMGold

- A mid-tier mining company with six operating gold mines on three continents and one of the world's top three niobium mines.
- Originally founded in 1990; built through a series of acquisitions and organic growth
- revenues<sup>1</sup> and Adjusted EBITDA of \$1,548M and \$602, respectively
- Significant exploration and development portfolio with multiple projects at various stages of development

	Mine	LTM Production (koz)	LTM Cash Costs (\$/oz)	Proven & Probable (2P) Reserves (koz)	Measured & Indicated (M&I) Resources (koz)	Est. Mine Life (years)	Production Start Year
Operating Gold	Rosebel (Suriname, 95%)	366	\$701	5,445	7,428	19+	2004
	Essakane (Burkina Faso, 90%)	281	\$676	3,293	4,156	13+	2010
	Sadiola (Mali, 41%)	96	\$1,011	2,138	3,193	4+	1996
	Yatela <sup>2</sup> (Mali, 40%)	32	\$1,144	32	60	-	2001
	Mouska <sup>3</sup> (Canada, 100%)	46	\$830	71	198	1	1991
	Westwood <sup>4</sup> (Canada, 100%)	10*	-	348	533	19	2013
Dev. Gold	Côte Gold (Canada, 92.5%)	-	-	-	7,035	-	-
	Niobec (Canada, 100%)	4.8 Mkg	\$16 / kg	1,768 Mkg	2,563 Mkg	16	1976
Non-Gold	Rare Earth Element (REE) (Canada, 100%)	-	-	-	8,730 Mkg	-	-

\*Pre-commercial production

Revenue<sup>1</sup>



Adjusted EBITDA



# ERM Process

## **Phase 1: Risk Identification and assessment:**

- Define the risk universe
- Use of two-dimensional model – impact and likelihood
- Four broad categories: strategic; operational; financial; compliance
- Align with corporate and site accountabilities

## ➤ **Phase 2: Risk Mitigation and reporting:**

- Define the rules, responsibilities and control activities
- Define mitigating processes
- Monitor and report the risks

## ➤ **Phase 3: Risk Policy.**

- Document the policy
- Include processes, reporting, communications
- Ensure integration into business planning process

## ➤ **Phase 4: Risk Infrastructure:**

- Document the risk appetite
- Implement appropriate tools and technology to track risks

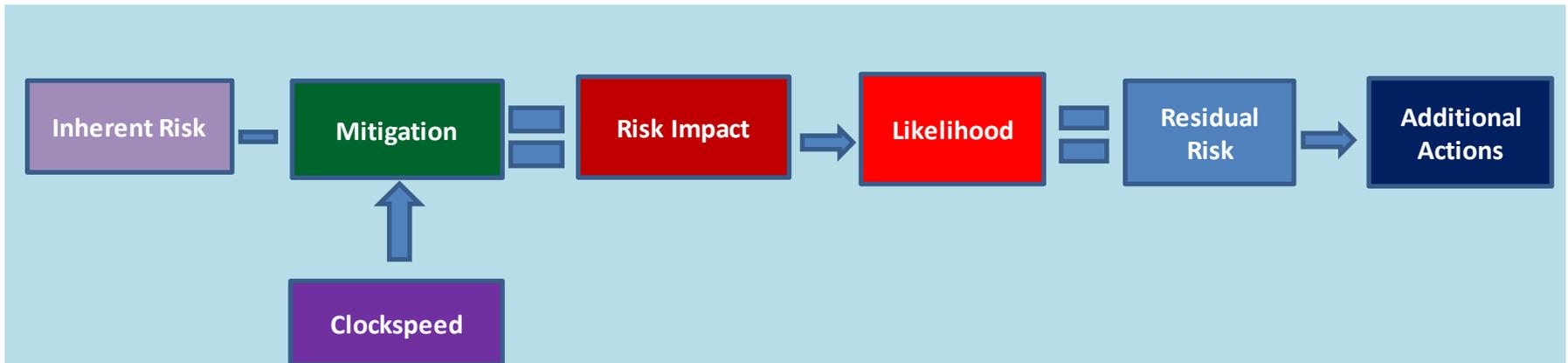
# Risk Assessment

## Risks assessment Process

**Step 1:** For each risk, Executive Leadership Team uses impact and likelihood criteria to assess inherent risk

**Step 2:** Assess management controls and actions per the control assessment criteria and determine residual risk

**Step 3:** Establish risk owners, identify improvement opportunities and implementation action timeline



***Inherent risk** is the risk that could occur assuming no management controls are in place*

***Residual risk** is the risk that remains after considering management control activities*

# Risk Universe

## Organization

- Leadership
- Talent management
- Succession planning
- Compensation & benefits
- Labour relations

## Strategic

- Merger / Acquisition / Dispositions
- Rising cost
- Operations in foreign jurisdictions
- Joint ventures
- Sales and pricing for niobium
- Investor relations
- Capacity constraints
- Pipe shrinkage / Exploration

## Compliance

- Reserves and resources
- Legal
- Title
- Fraud and corruption
- Regulatory
- Governance

## Imbedded Vulnerabilities

- Gold price volatility
- High cash costs
- Labour unrest
- Declining production profile / finite resources
- Environmental disaster (tailing ponds, cyanide spillage)
- Market volatility & demands
- Safety disaster
- Widely held shareholder base (shareholder activism)
- Pipeline shrinkage
- Operations in higher risk jurisdictions
- Limitations on debt capacity
- Sustainability of earnings
- Hostile takeover

## Finance

- Financial reporting
- Access to capital
- Debt level
- Taxation
- Liquidity and cash management
- Cost of capital
- Capital structure
- Dividend

## Operations

- Mine development
- Health & Safety
- Environmental & sustainability
- Security
- IT/Network
- Project
- Technical
- Life of Mine (LOM)

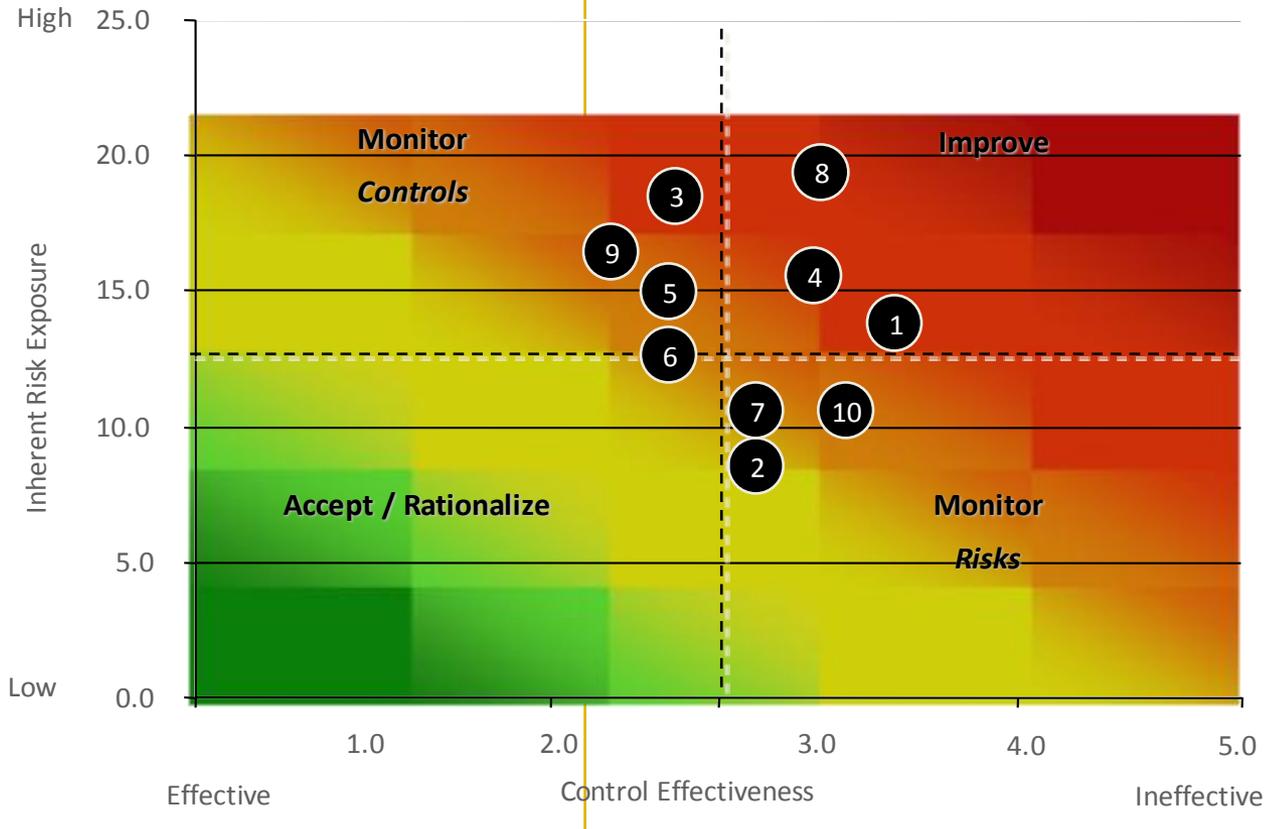
## External

- Gold price volatility
- Resource nationalism
- Social license to operate
- Hostile takeover
- Competition for properties and talent
- Foreign exchange
- Supply chain
- Political & security

Note: Risks in **Blue** fonts represent key risks and **Bold** fonts represent secondary risks  
 Risks under “**Imbedded Vulnerabilities**” are included under respective risk category

# Residual Risks

- Inherent risk rating & management control rating for top 10 risks
- Each risk has opportunities for improvement.



- Key Risks**
1. Commodity - Gold Price
  2. Resource Nationalism
  3. Acquisitions & Dispositions
  4. Reserves & Resources
  5. Social License to Operate
  6. Environment & Sustainability
  7. Political & Security
  8. Pipeline Shrinkage
  9. Mine Development
  10. HR - Talent Management

# IAMGold

## *Success Factors*

- *Buy-in from the Top*
- *Maintain a robust process*
- *Keep it fresh and current*
- *Get the right people in the room*
- *Share the data with external stakeholders*

# Key Take-a-ways

- What we call it shouldn't matter – it's the results we achieve
- The breadth and depth of what form of risk mgmt we pursue should mainly be a function of what your company needs
- Using a specific standard or framework can help but is not required
- Before investing in quantitative measurement tools and techniques, assess the need and appetite for sophistication
- ERMIS platforms can also be useful but are not required
- Let the business own the risk – you own the process
- Don't be afraid of the unknowns – invest in some form of emerging risk process
- Recognize that tying risk to corporate performance will get you the furthest, personally and professionally
- Understand that even in the best of circumstances, engaging and leveraging stakeholders is still most like herding cats
- Finally, be careful what you aspire to; more CROs have been displaced in the last 5 years than all prior years combined