Agenda

- ERM Best Practice and Maturity
- Sources of Risk - decisions are no longer in isolation
- ERM Frameworks as a context for decision making
- Risk Appetite and decision making
- Modeling & Scenario Analysis
- Risk Integration and Aggregation
- Risk Response Strategies
- About Marsh Risk Consulting
“The reviews will focus predominantly on risk-management **culture** and **strategic** risk management, two universally applicable aspects of ERM.”

– Standard & Poor’s To Apply Enterprise Risk Analysis To Corporate Ratings, May 7, 2008

**Culture** = Communications, Frameworks, Roles, Policies, Metrics, Influence

**Strategic** = Identification and Updating Process, Impact on Key Decisions
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<td>5. Risk Treatment / Control</td>
<td>6. Reporting</td>
<td>ASX Principles of Corporate Governance</td>
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<td></td>
<td>7. Monitoring</td>
<td>8. Risk Awareness Culture</td>
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<td></td>
<td>9. Communication</td>
<td>10. Working with other Organisations</td>
<td>ISO 31000</td>
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ERM Framework

RM is an effective pro-active management tool applied to:
• Joint Ventures
• Sub-Contractors
• Strategic Objectives
• KRI’s

Risk Inventory • Developed a RM Framework
• Embedded RM Framework
• Risk Control Analysis

Effective Group-wide Risk Management

ERM Maturity level

Developing • Formalised
Established • Embedded
Optimised

Intuitive Risk Management

Value Added
Risk Mngt. In Place But Siloed:
- Treasury - Health and Safety - Contract - Projects

Risk Action Plans

Risk Management Maturity

Basic Management

Best Practice / Industry Leading
Sources of Risk – decisions are no longer in isolation
Volatility – perspective for challenging times

- Less margin for error = lower tolerance to risk
Volatility grows as Appetite shrinks…

- Pressure on cash flow
- Balance sheet exposure
- Short and long-term goals and objectives
- Centralisation of decision making and operations
- Difficulty in accurate forecasting
- Less margin for error
What Risks Destroy / Create Value?
Strategic risks are major contributors to stock holder wealth (de)generation

Distribution of risk categories and sub-categories across FTSE 250 companies

Between 2003-2007, 50% of FTSE 250 companies never recovered completely to previous months closing levels after witnessing their biggest fall. Most of these decreases were due to strategic reasons.

Source: Shareholder Value: Impact of Risk Events and Relevance of Intangible Assets, Marsh 2008
### Key issue raised in the World Economic Forum Global Risks Report 2010

The World Economic Forum (WEF) said the events of the past year have revealed a **fundamental need to change thinking** on global risks and how they are managed.

### Key issue raised in the World Economic Forum Global Risks Report 2010

With **unprecedented levels of interconnectedness** between all areas of risk, the report stresses that the need to combat governance gaps globally is greater than ever.

### Local South African perspective on key issues raised

### Local South African perspective on key issues raised
### Key issue raised in the World Economic Forum Global Risks Report 2010

The report points to what it refers to as “creeping” risks

### Key issue raised in the World Economic Forum Global Risks Report 2010

The report also highlights risk where levels of awareness and preparedness are currently very low; these include transnational crime, corruption, and cyber vulnerability.

### Local South African perspective on key issues raised

![Local South African perspective on key issues raised](image1.png)

### Local South African perspective on key issues raised

![Local South African perspective on key issues raised](image2.png)
ERM Frameworks – context for key decisions
Marsh ERM Framework - An Integrated Approach

**ERM Infrastructure**
- Vision/Goals
- Governance
- Oversight Structure
- Common Language
- Policies
- Technology
- Tools
- Techniques
- Tolerance/Limits

**ERM Process**
- Identify, Assess, andPrioritize Business Risks
- Aggregate Results/Integrate with Decision Making Processes
- Measure, Monitor and Report Risk Management Performance
- Develop and Execute Action Plans / Establish Metrics
- Analyze Key Risks and Current Capabilities
- Determine Strategies and Design New Capabilities

**ERM Culture**
- Change Management
- Communication
- Continuous Improvement
- Information Sharing
- Awareness/Training

**ERM Integration**
- Operational Processes
- Strategic Planning
- Quality Process
- Competency Models
- Resource Allocation
- Product Development
- Capital Projects
- Merger/Post Merger
- Capital Allocation

Enabling Activities
- Communication
Objective: Methodology to incorporate BRM into critical decision-making and management processes

Operational Process
- Workflow diagrams
- Action plan or operational plan development guidelines

Strategic Planning
- Financial plans
- Tactical plans

Quality Process
- Quality control checklists
- Process evaluations

Competency Models
- Strategic workforce planning
- Performance drivers
- Balanced scorecard and appraisal systems

Resource Allocation
- Budgeting and planning forecasts
- Resource constraints (e.g., human, technological, financial)
- Cost/benefit analysis techniques

Product Development
- Market studies
- Business portfolio re-balancing
- Cash flow analysis
- Detailed selection criteria and decision-making process

Merger/Post Merger
- Integration plans
- Cultural benchmarking
- Decision-making processes

Capital Projects
- Investment appraisals
- Decision-making processes

Capital Allocation
- RAROC
Starting with a basic process, an in-depth diagnostic on risks will evaluate causes, process impacts, current controls, and consequences.

Risk Assessment Process: Prioritized list of key risks

Causes: Scenarios that give rise to the risk

Key Risk

Current Controls

Consequences: Determination of outcomes
Quantitative techniques have an important role in risk analysis.

### Key Factors Impacting Selection of Risk Measurement Methodologies

- **Severity or Volatility of Risk**
- **Complexity**
- **Availability of Data**
- **Desired Capability**
- **Cost of Implementation**

<table>
<thead>
<tr>
<th>Degree of Sophistication</th>
<th>Risk Measurement/Analytical Techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HIGH</strong></td>
<td>⇣ Statistical Analysis (Probabilistic Models)</td>
</tr>
<tr>
<td></td>
<td>⇣ Scenario Analysis/Simulation</td>
</tr>
<tr>
<td></td>
<td>⇣ Sensitivity Analysis</td>
</tr>
<tr>
<td></td>
<td>⇣ Position Reports (Exposure Measurement/Volumetric Measurement)</td>
</tr>
<tr>
<td></td>
<td>⇣ Risk Rating or Scoring</td>
</tr>
<tr>
<td></td>
<td>⇣ Risk Indicator Analysis</td>
</tr>
<tr>
<td></td>
<td>⇣ Group Facilitated Qualitative Prioritization</td>
</tr>
<tr>
<td></td>
<td>⇣ Individual Qualitative Self-Assessment</td>
</tr>
<tr>
<td><strong>MODERATE</strong></td>
<td></td>
</tr>
<tr>
<td><strong>LOW</strong></td>
<td></td>
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</tbody>
</table>
Risk Appetite and decision making
Role of Risk Appetite in decision making
- Strategy development, decision-making
- Risk financing & insurance decisions
- Set boundaries for business risk taking
- Project management / delivery
- Investment and M&A decisions
- Contract and placement decisions
Support strategy setting
- Improved goal setting and measurement criteria for risk & reward
- Better balance to risk profile, increasing capacity for risk taking on a value added basis

Support risk Management
- Better allocation of risk management resources
- Improved clarity on risk management expenditure and Board “buy in”

Set boundaries for risk taking
- Enhanced corporate governance, improved relationships with stakeholders and regulators
- Decision makers are motivated to make better and more consistent decisions

Support stakeholder value maximisation
- Improved management of stakeholder expectations
- Enhanced organisational performance
- Value / share price improvements
Marsh / AIRMIC research: Expression of Risk Appetite

- **Setting a boundary on an Impact / Probability grid**
  - Applies well known risk classification principles
  - Comprehensive view of organisation’s risks
  - May result in only the “worst” risks getting attention, vs improving the feasible “middle ground”

- **Economic capital measures**
  - Financial institutions frequently use this as a “buffer” to absorb unexpected losses or stabilise strategic business units
  - Increases the required return on projects, thus higher absolute return and / or higher rate of return projects may be selected – may be counter productive
Changes in Credit ratings
- Avoid exposures that may cause a downgrade in a rating
- Similar to economic capital measure, based on an external view of the organisation’s probability of default
- Difficulties in the rating’s response to ongoing risk position of the organisation – may be a blunt response

Profit and Loss
- Usually popular with Boards – “what allows you to sleep at night”
- Can exclude profitable projects because of the potential risk being higher than “crude” limits
Modeling / Analysing Risk Scenario’s
# Diagnosis - Risk Scenarios

## Value Chain

<table>
<thead>
<tr>
<th>Customer</th>
<th>Channel</th>
<th>Sales</th>
<th>Products</th>
<th>Manufacturing</th>
<th>Suppliers</th>
<th>R &amp; D</th>
</tr>
</thead>
</table>

## Value Driver

<table>
<thead>
<tr>
<th>Example KPI's</th>
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</thead>
<tbody>
<tr>
<td>Batch Production time</td>
</tr>
</tbody>
</table>

## Risk Scenario

<table>
<thead>
<tr>
<th>Loss of Key Supplier</th>
<th>✓</th>
<th>✓</th>
<th>✓</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Loss of key machine</th>
<th>✓</th>
<th>✓</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Loss of key engineers</th>
<th>✓</th>
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</thead>
</table>
What Risks Destroy Value?
Failure to achieve earnings expectations was the trigger for stock price drops

Primary Cause of Stock Drop (# of Companies)

<table>
<thead>
<tr>
<th>Cause</th>
<th>% of Top 100</th>
</tr>
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<tbody>
<tr>
<td>Competitive Pressure</td>
<td>24</td>
</tr>
<tr>
<td>Misaligned Products</td>
<td>12</td>
</tr>
<tr>
<td>Loss of Key Customer</td>
<td>7</td>
</tr>
<tr>
<td>R&amp;D Delays</td>
<td>6</td>
</tr>
<tr>
<td>Cost Overruns</td>
<td>4</td>
</tr>
<tr>
<td>Management ineffectiveness</td>
<td>2</td>
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<tr>
<td>Regulatory Problems</td>
<td>1</td>
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<tr>
<td>Supplier Problems</td>
<td>1</td>
</tr>
<tr>
<td>Accounting irregularities</td>
<td>11</td>
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<tr>
<td>Supply Chain Issues</td>
<td>7</td>
</tr>
<tr>
<td>Foreign Macro-Economic Issues</td>
<td>7</td>
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<tr>
<td>High Input Commodity Price</td>
<td>6</td>
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<tr>
<td>Interest Rate Fluctuation</td>
<td>3</td>
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<tr>
<td>Lawsuits</td>
<td>2</td>
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<tr>
<td>Natural Disasters</td>
<td>1</td>
</tr>
<tr>
<td>Customer Demand Shortfall</td>
<td>0</td>
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<tr>
<td>M&amp;A Integration Problems</td>
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<tr>
<td>Customer Pricing Pressure</td>
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<tr>
<td>Regulatory Problems</td>
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MMC Research
- Investigated risks behind the 100 largest one month drops in shareholder value amongst Fortune 1000 companies between 1993-98
- Found top 100 stock drops
- Identified triggering event
- Determined primary cause of triggering event
- Categorized causes and analyzed implications

Source: Compustat, Mercer Management Consulting analysis
Note: There were also 5 stock drops for which the primary cause could not reliably be determined. These 5 stock drops are not depicted.
Insurance Is Not The Universal Panacea:
Over two-thirds of these risks could have been anticipated and mitigated / transferred using existing tools and techniques.

Risks causing major Fortune 1000 stock drops (1993 - 1998)
The Law of the Few
- Connectors are the people who "link us up with the world"
- Mavens are "information specialists"
- Salesmaen are "persuaders", charismatic people with powerful negotiation skills

The Stickiness Factor

The Power of Context

Thus where might the next "wave of risk" come from?

WEF Risk Interconnectedness...3 years of commentary

WEF commentary on concentration risk..

Stickiness of credit crisis – when will financial capacity be rationally structured, vs "sentiment"?
Examples
- rise of the Internet;
- the personal computer
- World War I
- 9 / 11 attacks

Criteria: rarity, extreme impact, and retrospective (though not prospective) predictability

Black Swan in a Robust World: (recommendation extracts)
- What is fragile should break early while it is still small. Nothing should ever become too big to fail (what are the catastrophic exposures?)
- Counter-balance complexity with simplicity
- People who were crash a school bus blindfolded should never be given a new bus.
- Make an omelette with the broken eggs
Customer Demand Risk - Porter’s Five Forces

Rate each Force:
- Low
- Medium
- High

Potential new entrants

Bargaining power of suppliers

Industry competitors

Bargaining power of buyers

Threats of substitute products or services
Risk Integration and Aggregation:

How do we aggregate the risk registers?

How much risk is tolerable?

What about the dynamics of risk?
### Strategic Risks

<table>
<thead>
<tr>
<th>Risk Description</th>
<th>Frequency Characteristics</th>
<th>Severity Characteristics</th>
<th>Mitigation Measures</th>
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<tr>
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### Project Risks

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<th>Risk Description</th>
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### Business Risks

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<th>Mitigation Measures</th>
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</table>
From Event to Project to Entity to Portfolio Risks….
From Event to Project to Entity to Portfolio Risks....
Risk Response Strategies
Risk Response Strategies

ERM Solution Implementation

Risk Avoidance
Risk relative to reward is too high

Risk Exploitation
Company has comparative advantage in risk

Risk Reduction
Not economical to transfer

Risk Transfer
Economical to transfer risk immediately

Risk Retention
Economical to retain risk
Choosing a Risk Response Strategy

1. Validate key risks
2. Create consensus among stakeholders
3. Conviction
4. Identify unappreciated risks
5. Identify risk drivers
6. Identify how risk changes over time
7. Risk Action Plan
8. Identify roadblocks to remove
9. Quantify risk economics
10. Quantify inter-dependencies

- Risk Retention
- Risk Avoidance
- Risk Exploitation
- Risk Reduction
- Risk Transfer

- Process
- People
- Analytics
- Technology
Factors to Consider When Selecting a Risk Response Strategy

- Alignment to the corporate goals and objectives
- Cost/benefit of the solution (accounting for time to solution)
- Capabilities of the organization
- Residual risks of the solution
- Resources availability
- Regulations and compliance issues
Strategies to reduce:
- Impact
- Likelihood
- Impact and Likelihood
Questions?
About Marsh Risk Consulting
Marsh Risk Consulting Practice - Global Footprint

Marsh operate a global, integrated Risk Consulting Practice that provides its clients with risk knowledge and experience.

**North America – 1,100**
- United States
- Canada

**Latin/South America – 50**
- Mexico
- Argentina
- Brazil
- Colombia
- Venezuela
- Peru
- Argentina
- Chile

**Middle East - 12**
- Dubai
- Saudi Arabia

**Europe - 242**
- U.K.
- Netherlands
- Russia
- Nordic
- Turkey
- France
- Germany
- Belgium

**Asia - 26**
- Japan
- Hong Kong
- China
- Indonesia
- Philippines
- Malaysia
- Singapore
- Taiwan

**Africa - 45**
- South Africa
- Nigeria

**Australia / NZ – 96**
- Australia
- New Zealand
Our consulting offerings

The Risk Consulting Practice of Marsh is the leading global firm of over 1500 risk management specialists and $240m in revenue. We are focused on three areas:

1. Strategic risk – helping senior managers make informed and calculated decisions around risk

2. Efficiency and compliance – putting effective protocols and processes in place around business and operational risk

3. Risk transfer optimisation – striking the right balance between risk and reward, with effective use of capital
Global Consulting Practice Areas
(some local specifics e.g. environmental, valuations)

- **BCM & Supply Chain**
  Assisting clients to develop, implement and enhance their business continuity plans and programmes

- **Captive Consulting**
  Providing specialist strategic and practical advice relating to captives

- **Strategic Risk / ERM**
  Assessing and managing business risk across clients’ organisation, projects and initiatives

- **Product Risk**
  Help clients to quantify potential exposures, analyse resources and develop product recall strategy

- **Property Risk**
  Helping clients to protect their commercial property from damage

- **Forensic Accounting & Claims Services**
  Providing expert claims consultancy advice and support on major losses

- **Human Capital**
  Helping clients to reduce people-related costs and improve the performance of our its people

- **Modelling, Analysis and Design**
  Providing risk quantification techniques to support financial, business and insurance decision making

- **InSolutions**
  Assessing and managing clients’ legacy claims issues

- **Risk Consulting**
Marsh, the world's leading insurance broker and risk adviser, has over 23,000 employees and provides advice and transactional capabilities to clients in over 100 countries. Marsh is a unit of Marsh & McLennan Companies (MMC), a global professional services firm with approximately 52,000 employees and annual revenue of $11 billion. MMC also is the parent company of Guy Carpenter, the risk and reinsurance specialist; Kroll, the risk consulting firm; Mercer, the provider of HR and related financial advice and services; and Oliver Wyman, the management consultancy. MMC’s stock (ticker symbol: MMC) is listed on the New York, Chicago and London stock exchanges. MMC’s Web Site is www.mmc.com. Marsh’s Web site is www.marsh.com.