

**Leveraging Financial Data for Enterprise Risk Management**

2011 ERM Symposium  
March 16, 2011  
Swissotel Chicago, Chicago, IL



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THE BEST-OF-BUSINESS AND SAP

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**Agenda**

- ERM Evolution -- Integrated Risk & Performance Management
- ERM Key Performance Indicators & Data Requirements
- Building a Trusted Financial Data Foundation for both Risk & Financial Management




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### Key Trends Are Driving Change in the Insurance Industry

Increasing customer demands and environmental complexity are driving the need for constant innovation

Demanding customers	Global competition	Innovation and agility	Compliance and governance	Profitable growth
<ul style="list-style-type: none"> <li>Simpler and individualized products</li> <li>"Generation now" requires superior service</li> <li>Less customer loyalty due to price sensitivity</li> </ul>	<ul style="list-style-type: none"> <li>Changing face of insurance because of competition and demographics</li> <li>Growth potential and risk balancing through emerging markets</li> </ul>	<ul style="list-style-type: none"> <li>Change forced by Web and new technologies</li> <li>New entrants in distribution such as retailers</li> <li>Specialization created by differentiation</li> </ul>	<ul style="list-style-type: none"> <li>Fragmented risk management systems</li> <li>Changing risk landscape</li> <li>Impact of the financial crisis on regulatory requirements</li> </ul>	<ul style="list-style-type: none"> <li>Cost pressure on IT and loss expenses</li> <li>Increase and defend market share</li> <li>Pressure from capital markets</li> </ul>

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### The Current State of Risk Management

Increased need for an integrated enterprise view of risk exposure

- Risk models moving away from standardized calculations and toward internal models
- Complexity of products and portfolios spanning organizational silos, organizations, and borders
- Lack of transparency into overall risk exposure

New emphasis on regulation and control

- Increasing complexity and number of regulations
- Operational risk management becoming a higher priority
- Monitoring and tracking of controls and risk indicators

Data and information needs growing exponentially

- Lack of executive insight into critical risk information due to the siloed nature of data
- Ability to analyze structured and unstructured information required
- Growing requirement for a trusted data analysis foundation

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### Risk Management Evolution

Value Added ERM: Risk Adjusted Performance Management

Strategy

Increasing Risk Management Sophistication

- + Performance Measurement + Facilitate Pricing → Risk Adjusted Profitability (RAROC)
- + Accounting Capital + Economic (Risk) Capital + Regulatory Capital (Sol II) → Manage Reserves & Capital
- + Value at Risk (VAR) + Stress Test & Scenario Analysis → Risk Analysis
- + Monitor, Identify & Avoid → Limit Management

Methodology (KPIs)

Effective Enterprise Risk Data Management Infrastructure (Data)

Adapted from Teradata Risk Data Management Infrastructure

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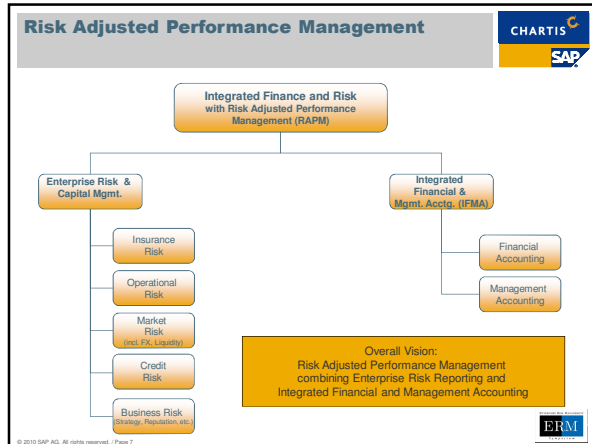
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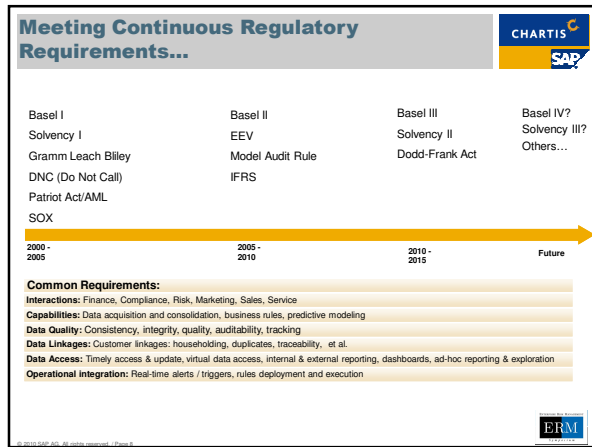
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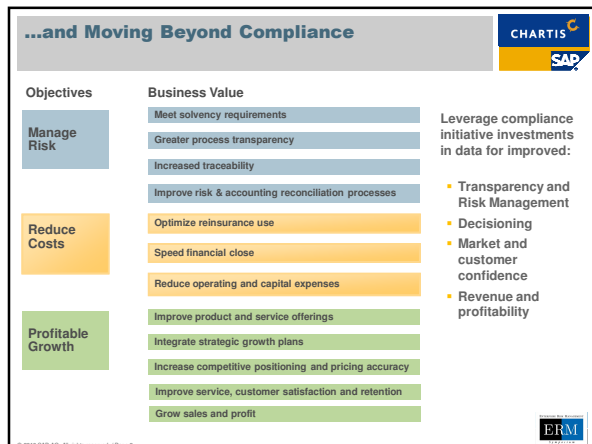
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## Risk Adjusted Performance Management

Objectives, Issues, Capabilities, and Benefits

**Objective:**  
Risk-adjusted management of strategy and performance

**Best-practice solution:**  
Align enterprise risk management processes with corporate strategy initiatives and effectively mitigate risk

Issues	Key business capabilities	Benefits
<ul style="list-style-type: none"> <li>No alignment of risk management with strategy</li> <li>Lack of visibility into the impact of risks to strategic goals and objectives</li> <li>Limited ability to monitor key risks automatically</li> </ul>	<ul style="list-style-type: none"> <li>Formal integration of risk management with strategy</li> <li>Repeatable framework to analyze and mitigate risk</li> <li>Continuous monitoring of key risk indicators (KRIs) across strategic objectives</li> </ul>	<ul style="list-style-type: none"> <li>Optimized performance</li> <li>Maximized visibility across risk and strategy management initiatives</li> <li>Increased strategic effectiveness through automated monitoring of risks</li> </ul>

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## Integrated Finance and Risk Management

Key Stakeholders & Objectives

A unified approach to Integrated Finance and Risk Management maximizes corporate performance by enabling risk adjusted performance strategy, planning and decisioning

Board	CEO	Chief Risk Officer	CFO
<p><b>Corporate Governance, Corporate Performance</b></p> <p>How do we obtain more timely insight into risk adjusted metrics for strategy, planning and decision making?</p> <ul style="list-style-type: none"> <li>Improve overall business strategy</li> <li>Maximize capital allocation and return on capital</li> <li>Increase shareholder value and economic value added</li> </ul>	<p><b>Risk Adjusted Performance Management</b></p> <p>How do I maximize corporate performance while managing risk and ensuring compliance?</p> <ul style="list-style-type: none"> <li>Increase visibility</li> <li>Reduce costs</li> <li>Manage risk</li> </ul>	<p><b>Enterprise Risk Management</b></p> <p>How do I proactively mitigate risk, maintain a proper balance of risk and equity, and ensure accurate and compliant processes and reporting?</p> <ul style="list-style-type: none"> <li>Reduce losses and risk exposure and improve profitability</li> <li>Ensure auditable processes for risk &amp; capital assessment</li> <li>Reduce risk mitigation costs and reinsurance premiums</li> </ul>	<p><b>Financial Performance Management</b></p> <p>How do I maximize corporate performance and allocate capital based on risk?</p> <ul style="list-style-type: none"> <li>Enforce accountability</li> <li>Enable continuous control monitoring through automation</li> <li>Reduce cost of compliance</li> </ul>

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## Top 3 ERM Challenges

Figure 5. People and data challenges will slow ERM implementation

Challenge	Large (rev. > \$10 billion)	Medium (rev. \$1 billion - \$9.9 billion)	Small (rev. < \$1 billion)
People	53	50	47
Data	40	40	34
Cultural	39	38	31
Systems	30	28	22
Business process	28	28	24
Technical actuarial or analytical	24	24	21
Leadership	13	13	11

Source: Towers Watson 2010 Global ERM Survey

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### Sample of Data Requirements for ERM KPIs



	Data Requirements
Financial	<ul style="list-style-type: none"> <li>Required Capital</li> <li>Operating Income</li> <li>Gross and Net Premium by Line</li> <li>Claim Information (reserve, paid, incurred, large loss activity) by Line of Business</li> <li>Expenses by Category</li> <li>Net Income</li> <li>Underwriting Profit by Line of Business</li> <li>Cash Flow</li> </ul>
Risk & Capital Management	<ul style="list-style-type: none"> <li>Claim information by line by accident or underwriting year</li> <li>IBNR estimates by line by accident or underwriting year</li> <li>Gross and Net Premium by Line</li> <li>Measurement of reserve volatility by line</li> <li>All data required for a capital adequacy model (insurance, financial, etc.)</li> <li>Exposure information</li> <li>Catastrophe model inputs and outputs</li> <li>Exposure by obligor for all forms of counterparty risk (reinsurance, investments, receivables, etc.)</li> <li>Scenario definitions (aggregations, stresses)</li> <li>Baseline and stress definitions</li> <li>Identified key risks</li> <li>Identified operational losses</li> <li>Type of available capital funds</li> </ul>
Investments	<ul style="list-style-type: none"> <li>Market value of investments</li> <li>Type and quality of investments</li> <li>Duration</li> <li>Liability payment patterns by line</li> <li>Net investment income by asset</li> <li>Benchmarks</li> <li>All data required for VaR calculations on both market and credit risk</li> <li>Cash Flow</li> </ul>




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- ### Difficulties with Data
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- Timeliness of collection and updating
  - Availability
  - Converting to automated processes without losing the granularity that can be obtained through manual processes
  - Metrics come from both system data as well as outputs from a series of models
  - Quality control
  - Maintaining strong processes around the collection, extraction, reconciliation and applicability of information
  - Capture of relevant exposure information for risk assessment and monitoring
  - Issues for multinational companies
    - Various bases of data and need to convert GAAP or Stat to Economic
    - Monitoring of rules around classification of available funds, risk margin requirements, asset valuations
    - Multiple systems at differing levels of maturity
    - Inconsistent availability
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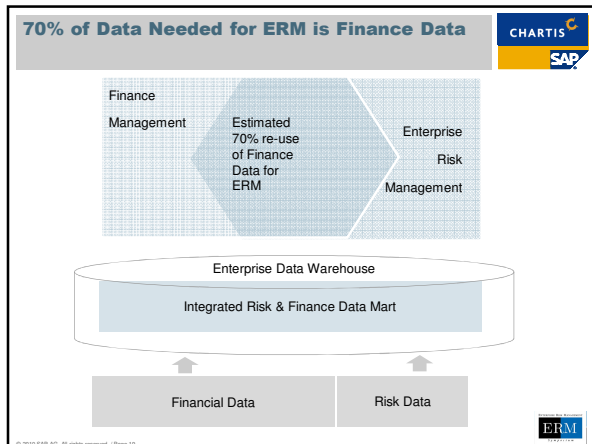
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### Enterprise Risk & Performance Mgmt. Maturity Model

	Basic	Foundational	Advanced	Distinctive
Data Management	<ul style="list-style-type: none"> <li>Manual data clean up</li> <li>Changes posted end-of-month</li> <li>Data definitions undefined</li> </ul>	<ul style="list-style-type: none"> <li>Using clean up using tools but not automated</li> <li>Changes posted weekly</li> <li>Data definitions defined but no concurrence</li> </ul>	<ul style="list-style-type: none"> <li>Automated data feeds from most data sources</li> <li>Changes posted daily</li> <li>Data definitions defined and agreed but limited change management</li> </ul>	<ul style="list-style-type: none"> <li>Automated data feeds from all data sources</li> <li>Changes posted immediately</li> <li>Common data definitions set across enterprise, change management</li> </ul>
Risk Modeling	<ul style="list-style-type: none"> <li>Desktop modeling</li> <li>Model building process spreadsheet based</li> </ul>	<ul style="list-style-type: none"> <li>Desktop modeling with local distributed computing</li> <li>Model points within local database</li> </ul>	<ul style="list-style-type: none"> <li>Desktop modeling with enterprise distributed computing</li> <li>Model points available for multiple users</li> </ul>	<ul style="list-style-type: none"> <li>Enterprise modeling and distributed computing</li> <li>Model points auditable, reusable, optimized</li> </ul>
Reporting & Analytics	<ul style="list-style-type: none"> <li>Ability to reproduce results sporadic</li> <li>Key metrics/indicators defined but not complete</li> <li>No integration between financial modeling applications</li> </ul>	<ul style="list-style-type: none"> <li>Reproduce results with manual archive</li> <li>Key metrics available from multiple reports</li> <li>Reports are standard but aggregation of results manual</li> </ul>	<ul style="list-style-type: none"> <li>Standardized process across enterprise</li> <li>Key metrics and leading indicators in an enterprise scorecard</li> <li>Results updated through periodic batch processes</li> </ul>	<ul style="list-style-type: none"> <li>Automated versioning and reproduce results</li> <li>Key metrics with drill down analyses and data exploration</li> <li>Real time aggregation</li> </ul>

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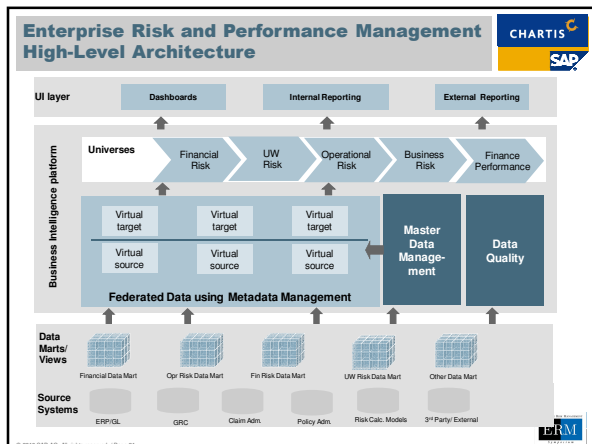
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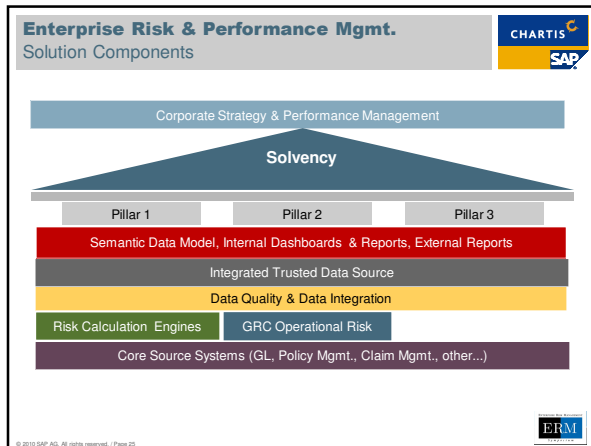
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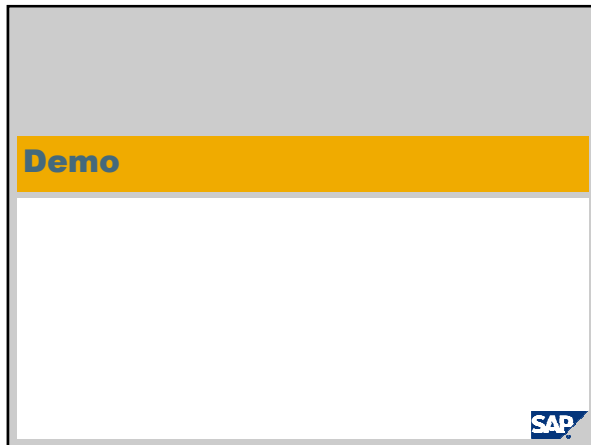
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**Summary**  
Capabilities Needed

Key Area	Capabilities Needed
Organizational Alignment	<ul style="list-style-type: none"> <li>Aligning Risk &amp; Finance &amp; Alignment Roadmap</li> <li>Risk Aware Culture</li> <li>Organizational Maturity Assessment</li> <li>Education &amp; Training</li> </ul>
Risk Models & Calculations	<ul style="list-style-type: none"> <li>Financial Risk (Market, Liquidity, etc.)</li> <li>Operational Risk</li> <li>Underwriting Risk (Life, Non-Life, Health)</li> <li>Business Risk (Reputation, et al.)</li> <li>Risk Aggregation</li> </ul>
Data Governance & Quality	<ul style="list-style-type: none"> <li>Data Governance &amp; Stewardship</li> <li>Data Quality</li> <li>Data Traceability</li> </ul>
Information Management Foundation	<ul style="list-style-type: none"> <li>Common Semantic Layer (KPI Framework)</li> <li>Metadata Management</li> <li>Data Warehouse/Data Marts</li> <li>Dashboards, Reports and Advanced Analytics</li> </ul>

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Thank You!



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