

## ERM Technology

### *Achieving Advanced Risk Measurement and Decision Support*

April 2006

## Discussion Topics

- What is this all about?
  - Focus today is on financial risk measurement
  - Two perspectives
    - Helping companies transform their actuarial/financial modeling and risk measurement capabilities
    - Managing large information technology organizations
- No, what is this *really* about?
  - Identify five major solution components that will allow you to achieve a world-class financial measurement capabilities
    - Data Integration and Management
    - Modeling Engines
    - Reporting and Decision Support
    - Processes and Controls
    - Organizational Alignment

## Business Challenges and Trends

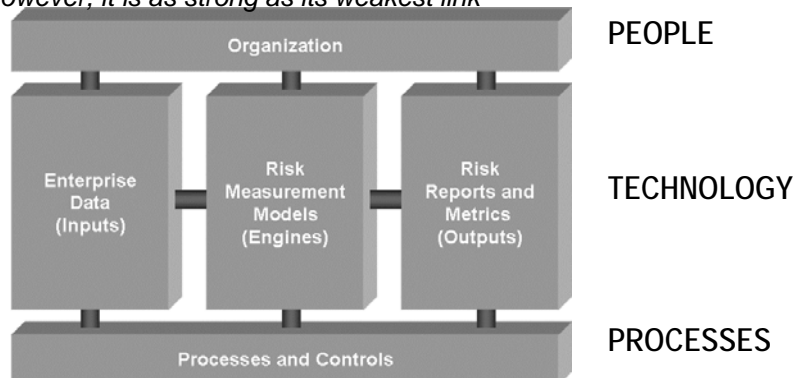
*With the increasing significance of financial products and embedded options and guarantees, advanced stochastic modeling capabilities are now needed for many of the critical financial management functions:*

- Pricing
- Hedging
- Risk measurement
- Economic capital and reporting
- Regulatory capital (C3 Phase 2) and principal based reserving
- Financial simulation with path-dependent capital

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## Achieving World Class Financial Measurement Capabilities

*This basic model can be successfully applied to asset and liability measurements, as well as valuation and projection functions. However, it is as strong as its weakest link*

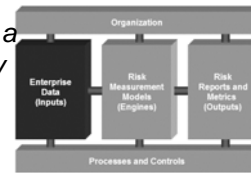


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## Data Integration and Management

*This stage automatically brings together data from a variety of disjointed sources, verifies it for accuracy and meaningfulness, and makes it available to the rest of the process*

- Extraction
- Aggregation
- Storage

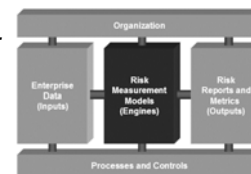


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## Modeling Engines

*Modeling engines are important but often are over-emphasized. It is not just the software tool, it is how you configure and use it as well as an environment it is used in*

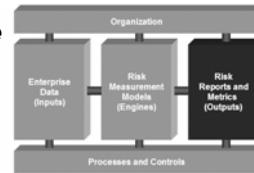
- Second generation modeling software platforms
- “Best of breed” or “Do it all” approaches to valuation and modeling
- Architecture and configuration
- Coding
- Control vs. Flexibility
- High-Performance Computing



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## Reporting and Analysis

*Modern decision support and business intelligence tools provide means to achieve transformational improvements in reporting and analysis capability*

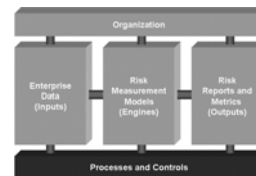


- Should be linked to value creation
- Accuracy + Timeliness = Credibility
- Allow to compare models to actual experience -- validation, actuals vs. expected, etc
- Multi-functional
  - Reporting
  - Analysis
  - What-if scenarios
  - Alerts
- Proper data structures and data definitions will enable all these features

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## Processes and Controls

*Financial measurement processes need to be more automated, better controlled and moved into production mode*



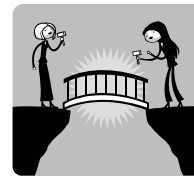
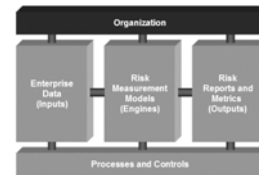
- Production processes
- Development lifecycle
- Process automation
- Control environment
- Run-time environments

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## Organization

*Insurers need to better align the actuarial and technology organizations supporting the financial measurement processes and make better use of technology resources*

- Process owners
- Stewards and developers
- Actuarial technology
- Data architecture and governance
- Infrastructure and application support



## Closing Remarks

- Companies with world class financial measurement capabilities will have a competitive advantage and outperform their peers over time
- Incremental changes and band-aids will not work – fundamental changes are needed to transform existing measurement capabilities
  - › People
  - › Processes
  - › Technology
- Winning is impossible without putting technology to work
- You can't just "give them the requirements" ... you need to invest in building a strategic alignment with your technology organization

Questions?

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