Solvency 2 and Data Management

A Practitioner's Perspective
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Solvency II Timeline

**January 2010:** CEIOPS delivers remaining final advice on Level 2 Implementing Measures with inclusion of industry impact analysis

**June 2010:** CEIOPS publishes final “Technical Specifications” for QIS5

**August 2010:** QIS5 Scheduled

**October 2010:** Solo enterprises to submit QIS5 results to regional regulator

**November 2010:** Insurance groups to submit QIS5 results

**April 2011:** CEIOPS releases results and report of QIS5

**December 2011:** CEIOPS delivers Level 3: Supervisory Guidelines

1Q12 – 3Q12: Industry and Member State final preparation of entry to new scheme

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**Implementation Roadmap**

- **Detailed Specifications**
  - Demands iterative approach for new / amended requirements - PoC of solution (tech & business)

- **Analysis & Design**

- **Solution Build**

- **Testing & Training**
  - Requires 12 months running in BU’s where possible to validate Internal Model

- **Implementation into Business and National / Regional Units**

- **Testing / Certification / Embedding to BAU**
  - ~ 12 months running to certify Models and processes
The Importance of Data Governance to a Solvency 2 Programme

- The directive states that organisations must have a strategy for management of data, it’s quality and ownership of that data to pass review by their local regulator.
  - You must be able to assess the sufficiency and quality of the data used in the calculation of technical provisions
  - You must have procedures in place to ensure the appropriateness, completeness and accuracy of the data used
- Governance demands control, structure, standards, definitions, consistency and more importantly enforcement.
So, Data Governance is a key enabler that will underpin an effective S2 landscape and a mandated requirement.

- Solvency 2 is a complex and extensive directive that impacts both business and IT.
- Directive Requirements relating to data cut across key workstreams:
  - Models and Reporting: granularity, materiality, frequency and speed including new requirements
  - Processes and Ownership; Risk and Pricing to surface control and hand off gaps and remediation options
  - Systems and Data Management Strategy; to identify scope of remediation work and options
  - Certification and approvals; to enhance regulator communications and provide forum to discuss scope, options and required standards.
What do we mean by Data Governance and Quality?

- **Data Governance**
  - The prime function of Data Governance is to manage improve and maintain the quality of data.
  - Data Governance unites people, process, and technology to change the way data assets are acquired, managed, maintained, transformed into information, shared across the organisation as common knowledge, and consistently leveraged to improve profitability.

- **Data Quality**
  - Data quality must ensure that it is fit for its intended use in operations, decision-making, and reporting.
  - Factors contributing to Data Quality include:
    - Consistent, unique, accurate, timely, understood and complete.
    - Data satisfies the needs of the business (materiality, quality, completeness and availability).
    - Users are satisfied with validity of the data and the information derived from that data.
  - Is a process that focuses on addressing quality issues at the source - not project based data cleansing and scrubbing…a persistent activity.
  - Must be continuously measured and the results fed back into Data Governance Council.
# Solvency II Requirements; Data

## Quantitative requirements
- Implementation of Asset Liability Management or **Dynamic Financial Analysis for organisation as a whole**
- **Quantification of all significant risks** and fair / realistic valuation of assets and liabilities
- Adequate solvency capital for all lines and divisions
- Adequate reserves

## Qualitative requirements
- Collecting, handling and controlling all significant risks
- Prompt and comprehensive information on the risk situation for the management
- Regular checks of the valuation and controlling of risks through internal audits
- Precise hierarchies, communication channels and ownership for implementing and living internal controls
- Defining and supervising limits and regulation (investment decisions and risk underwriting)
- Extensive separation between management and controlling
- Implementing an early-warning system (**key performance indicator based forecasts**)
- Regular profitability and stress tests (scenario analysis, sensitivity tests)
- Adequate re-insurance strategy
- Adequate asset allocation strategy (within given risk margin)

## Market discipline and transparency
- Comprehensive and timely reporting (internal and external)
- Disclosure (based on IFRS principles)
Lessons Learned (extracts from world of Basel II)

- **It was a major change programme and needed to be managed as such** (a leading bank)
  - Significant challenges to manage a programme over a long time period with ambiguous and changing requirements
  - Need for clear Roadmap, particularly in understanding the critical path for the IT and data streams
  - Need for stakeholder engagement early on – Board level engagement was generally too little, too late
  - Need to leave a sufficient buffer in the timetable for unexpected changes
  - Need for identification of potential skills shortages

- **There was too much focus on the functional rather than non-functional elements of models** (a leading bank)
  - Validation requirements raised the bar significantly, requiring detailed controls and a high degree of documentation
  - Accountability for elements of the calculations (ownership of assumptions and methodology) not clearly assigned and subsequent recalibration was extensive

- **Strategic focus was wrong** (a leading investment bank)
  - Major focus on capital and not enough on profitability, led to a lack of business and management buy in
  - The exercise was generally seen as one of compliance rather than of delivering strategic advantage

- **Cultural change is hard but important**
  - Changes in the organisation were required to reflect new metrics and processes.
  - The programme focused on delivering tools rather than embedding cultural change in the risk management function

- **Data management is a persistent challenge** (a leading investment bank)
  - MI required new/additional data at a much deeper level of granularity than previously available, and data systems were costly to re-engineer
  - Generally too much focus on the models and not enough on the data consistency and governance
  - The requirements changed regularly, leading to time consuming redesign of data dependent systems
Any Questions?

“The significant challenges we face today cannot be resolved by the same level of thinking that created them.”

Albert Einstein
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Appendices

Supporting Materials
The Impacts of Poor Data Quality

Data Warehouse Project Challenges

Four of the top six (6) technical challenges for companies implementing data warehouses are related to poor data quality, integrity, integration, transformation, and infrastructure (2005 industry study, “Data Integration: Using ETL, EAI, and EII Tools to Create an Integrated Enterprise)

Enterprise Technology Project Failures

“…through 2007, more than 50 percent of data warehouse projects will have limited acceptance, or be an outright failure, because of lack of attention to data quality issues” (Gartner)

Adverse Financial Impacts

“…data quality problems cost U.S. businesses more than $600 billion a year.” (The Data Warehouse Institute)

Total impact of poor Data Quality: $600 billion (TDWI)
Specific impact to banking Industry: $35 billion (TowerGroup)
In order to take full control of information integration and enable the business to drive definitions, rules and results a solution needs to deliver non-technical solutions that:

- Understand the nature of the data in all of its aspects
- Manage business definitions and terminology
- Manage and control source to target translations
- Leverage existing investments in data models
- Fully understand and control data traceability
Data Model: To purchase, or to create from scratch?

- The use of an industry specific reference architecture is cost-effective and leads to a shorter deployment time frame compared with an attempt to build a data model from scratch.
  - Building custom data models demands significant and sustained involvement of business resources to create/specify data definitions and relationships.
  - An industry specific reference model, that incorporates S2 components, would provide a foundation of standard definitions and structures and help to accelerate activities.
- Reference models provide the persistency of defined structures and provides the knowledge from numerous specialists, validated by insurance clients worldwide.
IBM Insurance Information Warehouse (IIW)

- For organisation intending to develop a data model for S2 reporting there exists another option, leveraging the IBM IIW toolset and methodology as accelerators.
  - This model, and its extensive content, has been built through client engagements over the last 20 years. The S2-specific content launched in 2006, has been primarily constructed in IBM’s European centre, and validated and extended through recent client work.
  - IIW V8.3 S2 content is from CEOPS QIS4, QIS3, SCR, MCR, CoC Risk Margin content and calculations and incorporates CP content including CP58 Solo balance sheet reporting etc.
  - IIW is structured to provide expansion and flexibility to meet new or emerging requirements. The model design anticipates customisation and development during it’s implementation.
  - IBM releases regular updates, taking account of business and regulatory change, and this approach has been applied in over 150 insurance clients, and specifically for S2 purposes in two clients in continental Europe.
  - IIW includes both Life and GI content and business solution templates (BSTs) for additional MI related demands.
Example: IIW Solvency II Definition and Structure
Implementation Effort, indicative benefits.

We have extended IBM IIW over the last three years to incorporate critical Solvency II content including S2 Business Solution Templates (BSTs) covering standard model requirements.

Data Management activities to comply with Solvency II and IFRS

- Reqs analysis
- Determine measures and dimensions
- Determine data definitions
- Design logical data model
- Source analysis and extraction
- DWH build
- Generation data-marts
- Creation of BI reports

IIW BSTs enable scoping and easy customization of business reqts vs. definition of requirements from scratch

IIW BSTs contain all measures and dimensions compliant with Solvency II

IIW Business Glossary contains normalized set of data definitions

IIW Enterprise Model delivers logical DWH design compliant with Solvency II and IFRS

Information Server toolset supports Data Quality Assessment, Data Source to Target Mapping and Metadata Management

Generation of physical DWH design; Information Server toolset supports ETL processing and creation of DWH

IIW Project Views and BSTs and Information Server toolset enable easier and faster generation of data-marts

Cognos pre-defined Solvency II & Risk reports accelerate build and generation of BI Reports

- 60%
- 70%
- 80%
- 60%
- 40%
- 50%
- 40%
- 60%

Estimated reduction in development effort by using IIW accelerators, Information Server and Cognos

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