



Insurance Internal Audit Group

Friday 9 September 2011

Next event date: Friday 25 November 2011

www.iiag.org.uk

Programme

09:50 Welcome from the IIAG Chair

Vicky Kubitscheck

10:00 FSA SII Data Quality Assessment

Dean Buckner, FSA

10:35 FSA Data Audit - getting the pilot flying!

David Butler, Unum

11:15 Coffee

11:35 Auditing IT under Solvency II

Mike Sobers and Peter Wong, Aviva

12:15 A supportive partner – asking the ten questions that help your actuary get it right

John Instance and Graham Finlay, FRC

13:00 Open Forum

13:15 Lunch

The FSA External Review of Data

Dean Buckner
Financial Services Authority

SEPTEMBER 2011

The external review

- External review' means *external to FSA*.
- It is a tool to help us assess whether a firm's data management complies with the standards set out in the Solvency II Directive for use as part of the FSA's Internal Model Approval Process. It informs firms on what they *might* do in order to satisfy the standards set out in the Directive.
 - “It will supplement both the evidence that the firm uses as part of its self assessment in preparation for the application and any additional work that the FSA may choose to undertake”.
- <http://www.fsa.gov.uk/Pages/About/What/International/solvency/imap/review/index.shtml>

Pilot

- It has been piloted with a handful of firms and groups from the life and general insurance industry in May and July 2011.
- We also shared it with the Association of British Insurers (ABI) and reviewed by members of the Insurance Internal Audit Group (IIAG).

Scope

- **all data that could materially impact the Internal Model**
 - typically data immediately feeding the Internal Model
 - The review may make use of previous independent reviews (e.g. SOX compliance assessments, Internal/External Audit work, etc), so long as the data, assumptions, calculation methodology and IT environment reviewed have not changed significantly.

Implementation

- **The review was designed for use by Internal Audit**
 - Or any suitably qualified person who is independent of model design, build, and operation.
 - discussed with representatives from IA profession during the pilot phase

Output

- **After conducting the review, the firm should report back to the FSA with**
 - An executive summary that includes scope, exclusions, summary plan, time scale, significant findings etc
 - Limitations
 - Conclusions on individual controls
 - If the conclusion is a “No”, a list of findings, potential impact (residual risk) on the firm’s internal model, together with a list of actions to address the findings, and the expected completion date.
 - In addition to the above, FSA may request for supporting evidence that formed the basis of the conclusions on individual controls and may also request meetings with those who conducted the review.

Content

- **Five main parts, corresponding to five main risks that data management does not meet SII directive requirements, as follows.**
 - The approach (i.e. matters of policy) to managing data for use in the internal model does not ensure consistency in quality and application
 - Inadequate oversight of data policy leads to poor quality and standards
 - Lack of a clear understanding of the data used in the internal model, and of its impact and vulnerabilities, creates gaps in ownership and control
 - Errors, omissions, lack of timeliness and inaccuracies in the data can undermine the integrity of the internal model decision making
 - Unreliable IT environment, technology or tools compromises quality of the data and processing
- **It is the responsibility of the reviewer to construct a suitable approach to assess the controls over these sub-risks.**



Questions & Comments

Implementing the Data Requirements of the Solvency II Directive

Data Audit – getting the pilot flying

Insurance Internal Audit Group

David Butler | 9 September 2011



- Overview of the FSA Data Tool expectations

- High level view of the scope of Unum's data management and data governance to ensure compliance with Solvency II requirements:
 - About Unum Limited
 - Scope of Data Management for Solvency II
 - Directory of Data
 - Data Governance Framework



- ▶ 4 firms were selected to run the data audit pilot and provide feedback to the FSA regarding the “tool”.
- ▶ Feedback was provided by each firm and a revised “tool” was developed and a dry-run by a fifth firm has been undertaken.



- ▶ A program or work for the audit department to undertake to validate the embeddedness of data quality management within the business
- ▶ Key areas of coverage:
 - Data policy
 - Data governance
 - Data quality metrics
 - Directory of data
 - Risk and impact assessments of data
 - Management and data quality controls
 - IT general computer controls



- ▶ How involved is your IA function with the Solvency II program?
- ▶ What areas of the project have you been involved in to date and to what level of assurance are you aiming to provide?
- ▶ Detailed testing of data controls with “certification by Internal Audit” could be a considerable resource investment



Unum's approach to Data in a Solvency II World



- At the end of 2010, Unum protected in excess of 1.8 million lives
- During 2010, Unum paid claims of £286 million, representing in excess of £5 million a week in benefits to our customers
- Unum's Total Assets were £2.3 billion as at 31 December 2010
- 1000 UK employees. 8,000 US

- No.1 UK Group Risk provider, with a 27.6% share of the market in terms of premium income
- Market leader in the Group Income Protection market with 51% market share and premium income approaching £300m

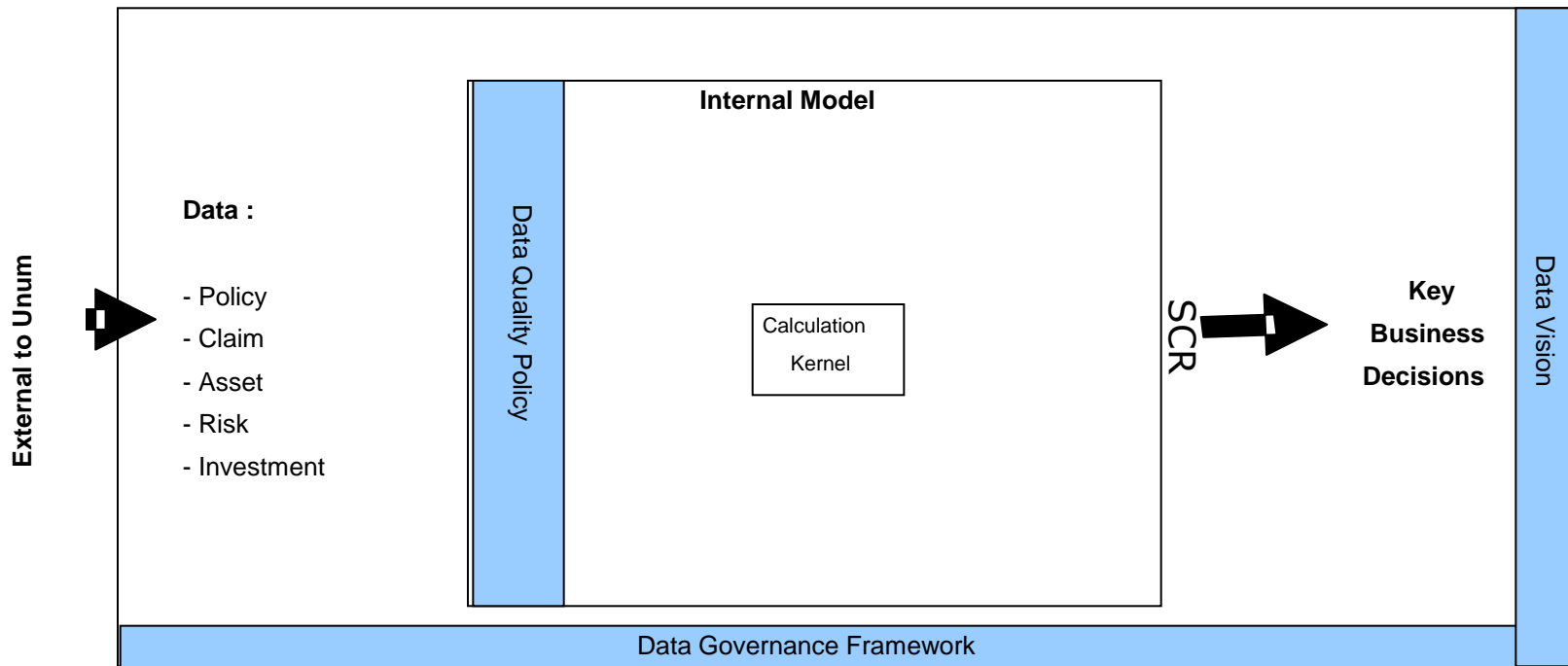
- 4th in Group Life, with strong premium growth in H1 2010
- UK number 1 for Group Critical Illness insurance
- Voted 'Best Group Income Protection Provider' at the Health Insurance Awards every year, for the last 12 years

Source: Swiss Re Groupwatch 2010, ABI

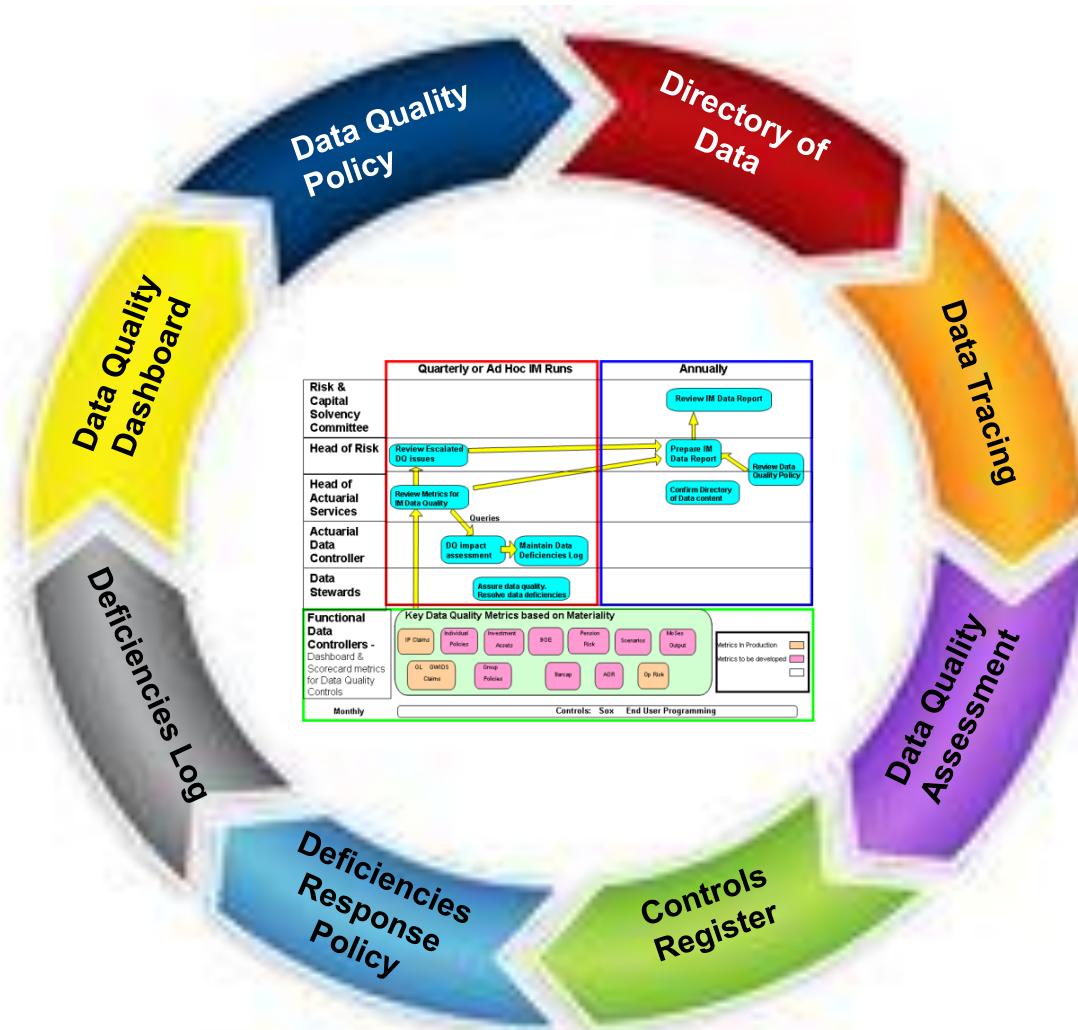


Purpose of the data management development activity for Solvency II:
“Development of Unum’s data management and data governance in order to ensure that data is of the required quality for informing/making key business decisions”

Context - data management scope:



Data Quality Management





The scope of Data Governance is to effect the Solvency II data requirements in Unum and to provide evidence that data is managed according to Policy.

*The **Data Quality Policy** contains Unum's vision for data:*

“Unum UK Ltd (Unum) will only use data of a known and acceptable quality to manage its Risk and Capital operating requirements. Governance & Quality of that data will be defined by clear Policies owned by the Company's Risk Management Function. All data within scope will be reviewed periodically to ensure its continuing Completeness, Accuracy, Appropriateness and Timeliness in respect of Regulatory requirements”.

This vision articulates the Solvency II requirements stated in Article 121, which are expanded upon in the Internal Model Data Quality Policy:

Data Quality Policy - “Article 121” Requirement



The policy applies to all data used to operate, develop or validate the Internal Model, including the wider use of any Internal Model data.

QUALITY DEFINITION:

“**Appropriate**” means that data is suitable for the purpose for which it is used and does not contain biases which make it unfit in relation to the portfolio of risk groups.

“**Complete**” means that the data available provides comprehensive information for all of Unum’s main risk groups and includes sufficient historical data.

“**Accurate**” refers to the degree of confidence that can be placed in the data being free from material mistakes, errors and omissions. Data accuracy should be defined and assessed at three levels:

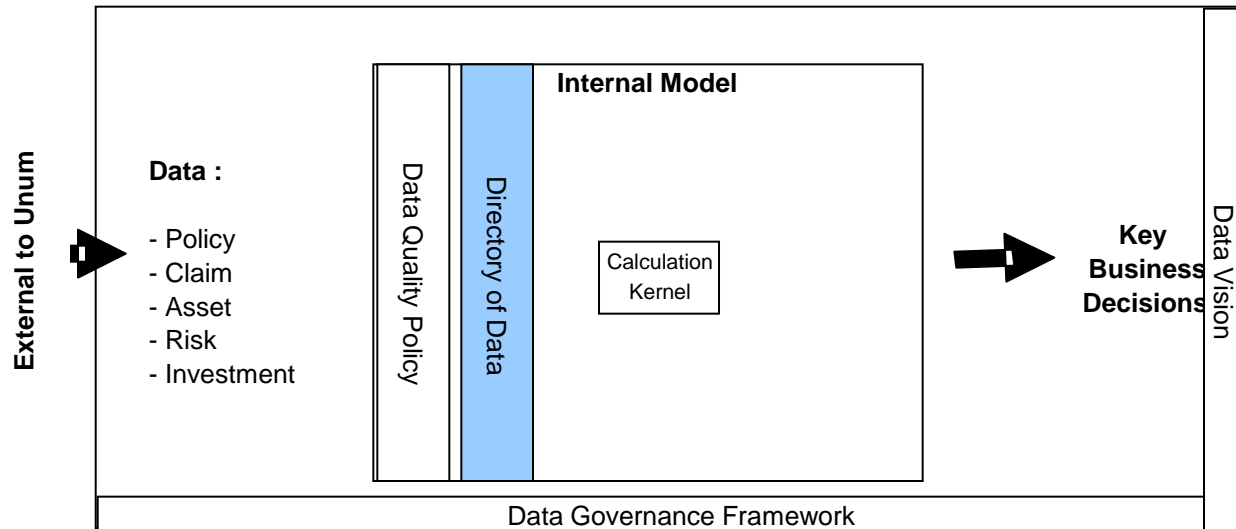
- Data Set – all data items within a data store
- Set of data items – all instances of a specific field within a data store
- Individual data item – each instance of a specific field within a data store.

“**Timely**” means that the data is sufficiently up to date for the purpose to which it is put.

The DQP includes statements on:

- Data Governance
- Materiality
- Expert Judgement
- Data Updates

Directory of Data - Introduction



All data items input to the Internal Model are documented in a Directory of Data, at the level of each data item and grouped into 'data sets' e.g. Income Protection Claims

There are approximately 250 data items in scope

These data items are subject to the Data Quality Policy



- Balance between Actuarial & IT requirements – over-riding requirement is to be able to demonstrate the required level of understanding in respect of the accuracy, completeness, appropriateness and timeliness of each data item
- Key to this is that it must clear, easy to understand and maintainable going forward
- Excel based solution has been developed which is well suited to the relatively modest number of data items
- Going forward the spreadsheet will reside in the SharePoint Internal Model documentation facility which has the necessary security, version control & review processes
- The intention of Directory of Data spreadsheet is to give a full view of data items from source to kernel, hence there are 3 distinct sections:
 - Directory of Data
 - Tracing back to Source
 - Internal Model Transformations
- In all sections information held at individual data item level grouped by data sets (typically core Unum systems) with a unique reference id that maps between the different sections



- Provides key information to enable understanding of the Internal Model data, its appropriateness and its requirements & assessments in terms of data quality
- Positioned at the 'left hand side' boundary of the Internal Model
- At individual data item level, the Directory of Data contains the following:
 - base system information such as internal/external data, source system, field and table
 - descriptions of data item & data set
 - explanations of usage & purpose
 - descriptions of the characteristics such as variability, importance and data "nuances"
 - assessment of data quality requirement and whether the data item meets those criteria

Tracing Back to Source (Data Lineage)



- Provides key information on the controls & processes on the Internal Model data items from original source to Internal model boundary
- At individual data item level, the Tracing back to Source directory contains the following:
 - base system information such as internal/external data, source system, field and table
 - descriptions of original source of data, set up method & set up process
 - Ongoing maintenance processes
 - System & user/process controls
 - Assessment of the effectiveness & limitations of those controls
- Data flow diagrams accompany the Tracing back to Source to illustrate the processes



- Provides key information on the filters and transformations on the Internal Model data items from the Internal model boundary to the Calculation Kernel
- At individual data item level, the Internal Model Transformations directory contains the following:
 - base system information such as internal/external data, source system, field and table
 - descriptions of data filters used
 - descriptions of intermediate data items
 - descriptions of transformations made
 - descriptions of data checks made
 - descriptions of the data items in the final Calculation Kernel input file
- Data flow diagrams accompany the Internal Model Transformations section to illustrate the process and to highlight the controls and audit output



- Data profiling on individual Internal Model data items has been carried out to identify instances where field values are not in line with expected values / ranges
- Similarly sample records from the Internal Model data have been selected in order to check key fields against the source data
- Both the data sampling and profiling has been undertaken by the IT section of Unum's Internal Audit function
- The findings from both activities have been used in the assessment of the accuracy of the data and the effectiveness of controls and are included in the Directory of Data
- Where necessary, the findings have been fed back to the business for remedial action and documented in the Data Deficiencies Log
- The lessons learned from these will feed into the development of a practical BAU approach/process

Data Quality Management



- States Unum's approach and business rules to meet Solvency II requirements on Data.
- Owner – HO Risk

- Lists all the data used in the Internal Model, specifying their source, characteristics and usage.
- Specifies data quality requirements
- Owner – Head of Actuarial Services

- Management Information on the quality of data and controls for the Internal Model
- Owner – Actuarial Data Controller

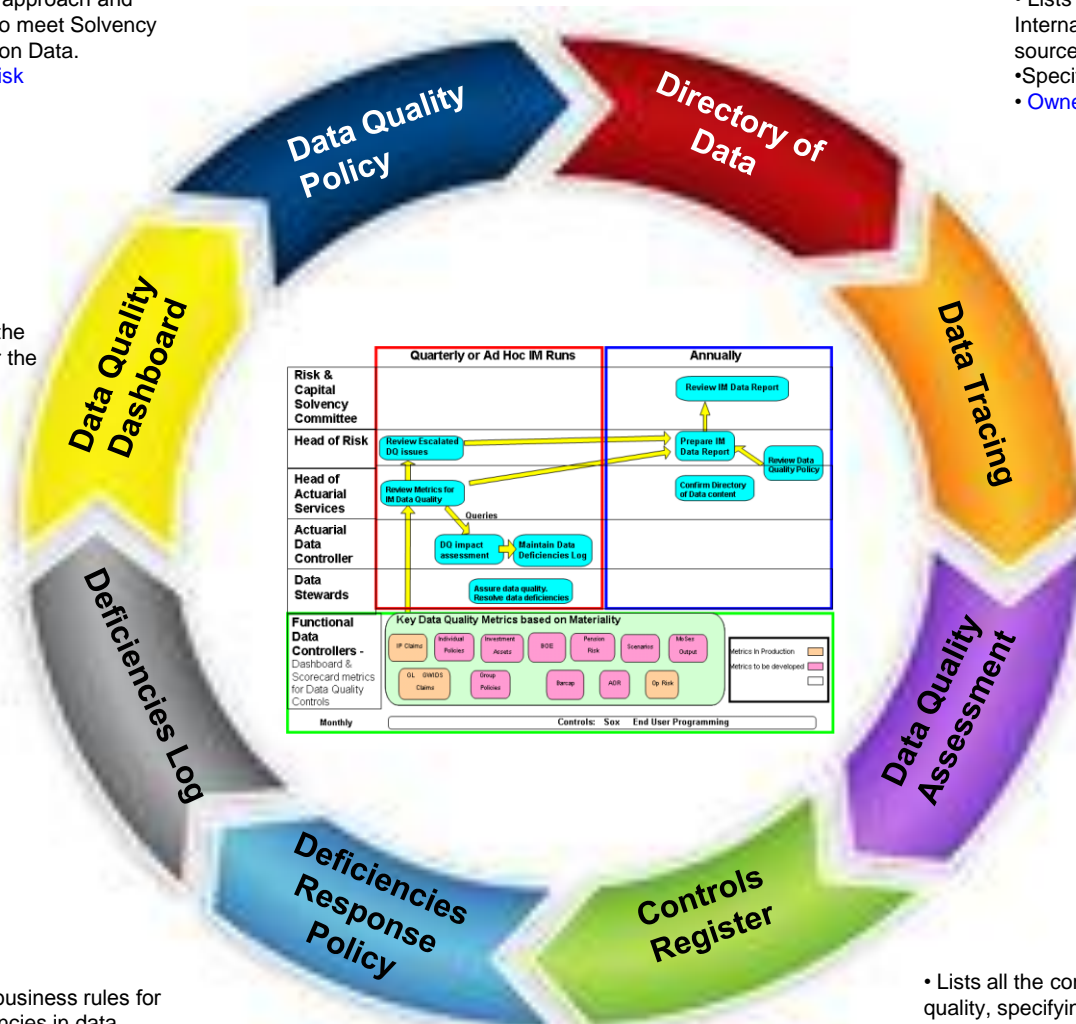
- Documents the source, collection and processing of data input to the Internal Model
- Includes diagrammatic view of data flow and data quality controls (Activity Diagrams)
- Owner – HO Actuarial Services
- Activity Diagrams – Management Services

- All deficiency issues are logged and assessed – both data and data quality controls
- Owner – Actuarial Data Controller

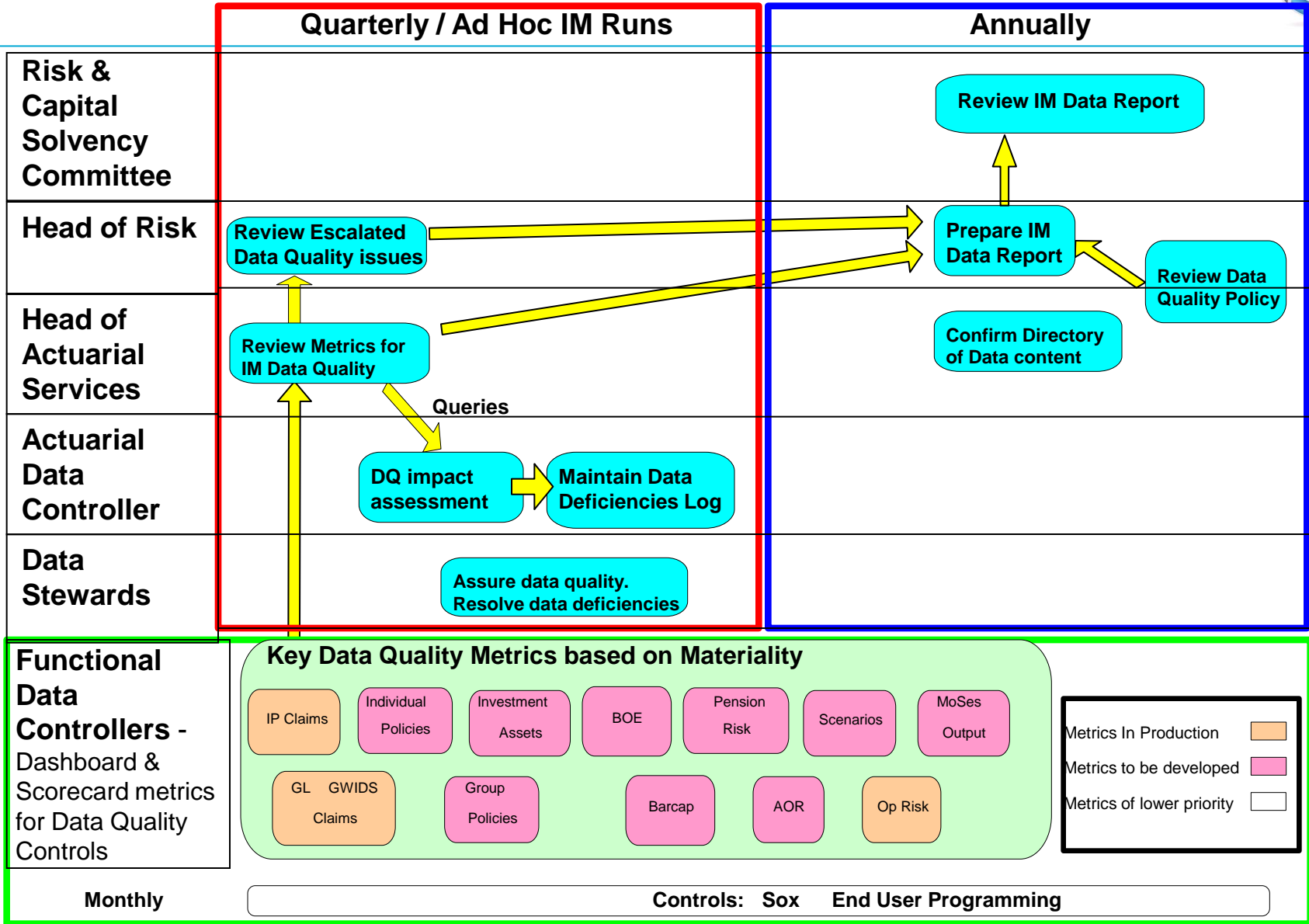
- Data accuracy assessments against criteria specified in the DOD: Data Profiling, Data Sampling.
- Owner – HO Actuarial Services

- States Unum's business rules for managing deficiencies in data quality.
- Owner – HO Actuarial Services

- Lists all the controls for data quality, specifying their purpose, owner, effectiveness assessment.
- Owner – HO Risk



Data Governance Framework





- ▶ IA resource has been used as follows to date in the SII Data Workstream
 - CAAT work to better understand data and identify anomalies
 - Completion of the FSA Data Audit Pilot across one business area – claims
- ▶ Future areas of involvement
 - FSA Data Audit – timing to be clarified
 - Data validation and internal model validation – working with external audit to draw the boundaries and agree coverage

Solvency II Data Requirements & Management



[Link to FSA information regarding the data quality assessment](#)

<http://www.fsa.gov.uk/Pages/About/What/International/solvency/imap/review/index.shtml>.

END

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Insurance Internal Audit Group



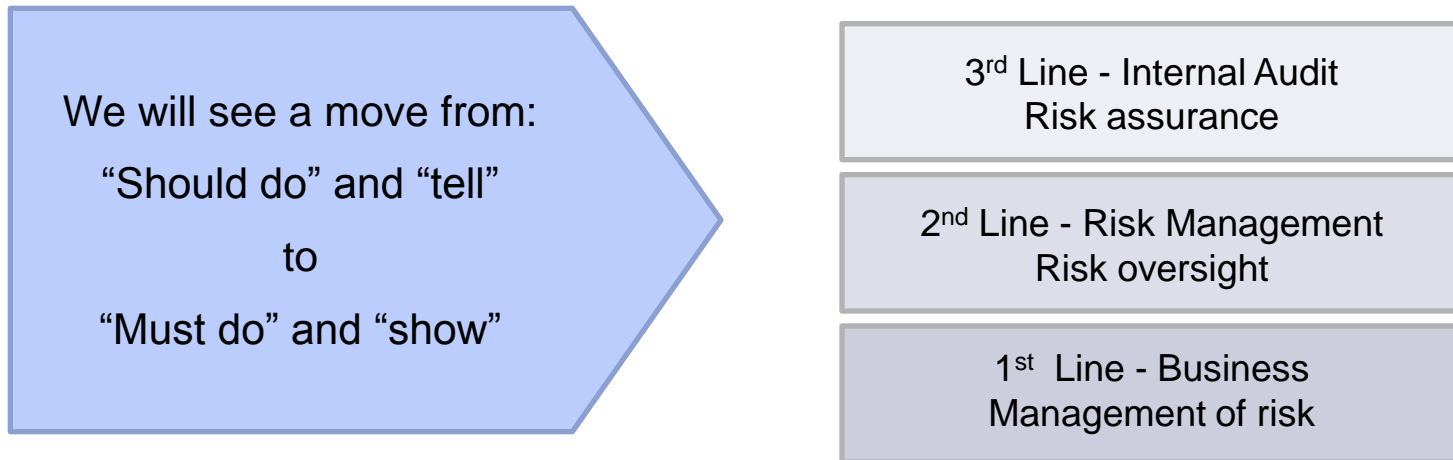
Auditing IT under Solvency II

Presentation by Mike Sobers & Peter Wong, Aviva IT & Change Audit

- What SII means to management of risks and controls
 - More disciplined
- Changes to the business
 - Introduction of more complex technological solutions

What SII means to management of risks

- Impact on 1st, 2nd and 3rd Line of Defence



Brings risk management into sharper focus

Independent model validation



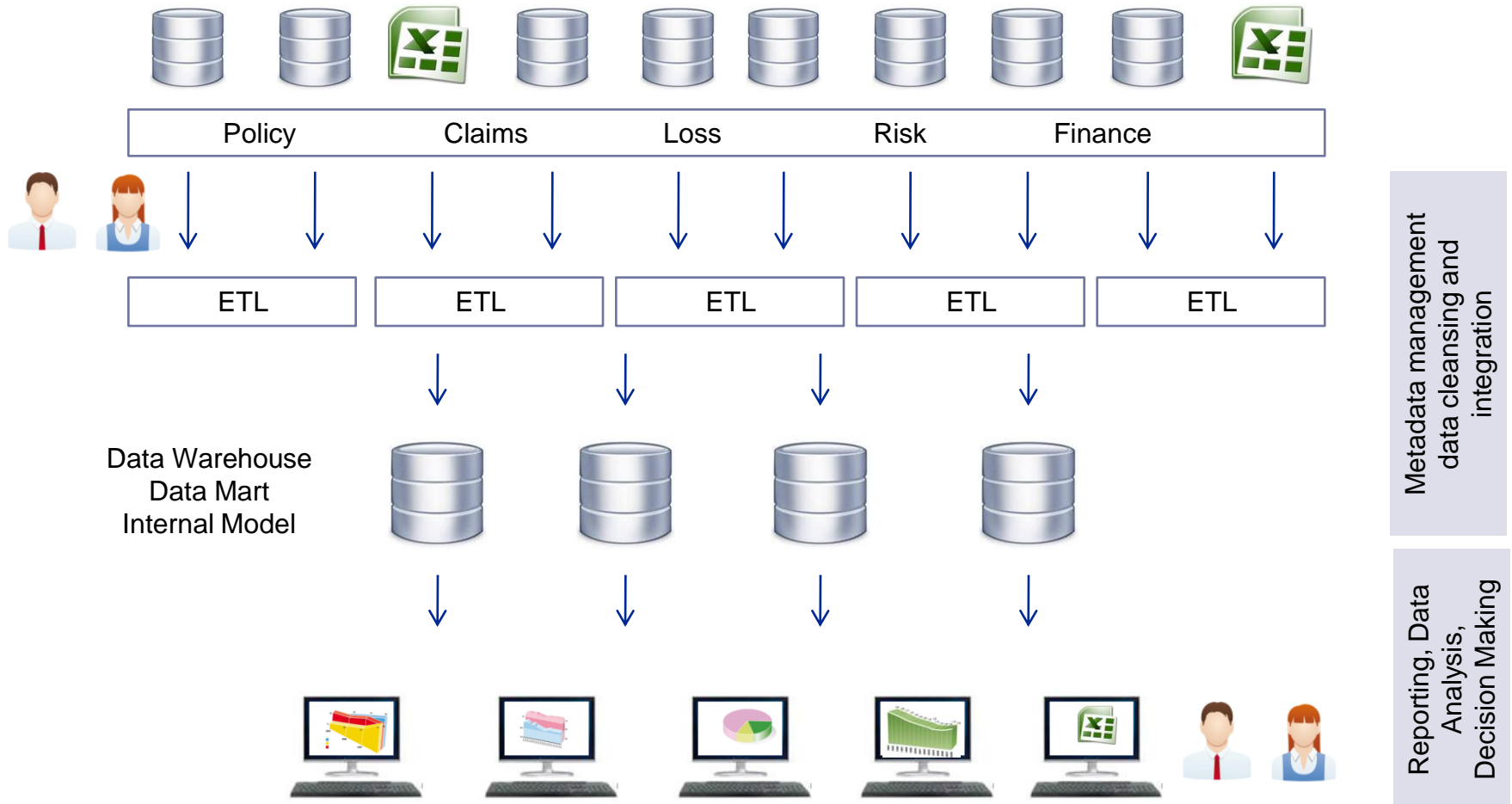
- EIOPA: “Validation does **not** only apply to the calculation kernel ... but shall encompass the qualitative and quantitative processes of the model”
- Examples of areas of the internal model that need to be validated shall include at least:
 - a. Data
 - b. Methods
 - c. Assumptions
 - d. Expert judgement
 - e. Documentation
 - f. Systems/IT
 - g. Model governance
 - h. Use test
- Going forward what does IT Audit need to do?



FSA - “what we were looking for”: how data used, collected, stored and maintained ... how data architecture and data governance helps to ensure **data is complete, accurate and appropriate.**

- Data framework ... policy covering data quality and updates, approved by senior management
- Data warehouse: Many have or planning to invest in centralised ‘data warehouse’
- Data dictionary: Good approach to understanding and classifying data.
- Data quality: Evidence to show data used ... accurate, complete and appropriate.
- IT systems: Spreadsheets versus IT

Data management – the IT landscape



- **Risks:**

- Understanding what the business wants
- Implementing large system

- **Challenges:**

- Large amount of systems and data
- Capacity and performance, usability

- **Potential IT audit activities:**

- See “Data Quality” and “IT systems” over next few pages
- Data warehouse vendor selection, data warehouse risks
- Review of contract, programme assurance



MORE COMPLEX
TECHNOLOGY

Data management – data quality



- **Risks:**

- Unable to demonstrate “internal model was accurate, complete and appropriate”

- **Challenges:**

- Number of stakeholders and data sources
- Complexity of model and amount of data

- **Potential IT audit activities:**

- End to end data validation
- Use of data analytics tools (CAATs) to provide greater assurance

MORE
DISCIPLINED



- **Risks:**

- Unauthorised changes, access to spreadsheet
- Version control, sharing across multiple users

- **Challenges:**

- Reducing the need for spreadsheets
- Consider solutions that “wrap” controls around spreadsheets

- **Potential IT audit activities:**

- Security and controls around spreadsheets
 - Access, best practice, spreadsheet tools and solutions

MORE
DISCIPLINED



Data management – IT systems, cloud computing



- **Risks:**

- Inherent outsourcing risks. Also where is the data and who can access?
- Availability and resilience of service

- **Challenges:**

- Often limited if any right to audit, limited contractual provisions
- Loss of service oversight

- **Potential IT audit activities:**

- Assurance and security reviews
- Reporting tools within cloud computing environment
- Firewalls, network connectivity, disaster recovery

MORE COMPLEX
TECHNOLOGY



What we said in the introduction ...

- What SII means to management of risks and controls
 - More disciplined
- Changes to the business
 - Introduction of more complex technological solutions

Board for Actuarial Standards

A supportive partner 10 questions to help your actuary

Graham Finlay & John Instance
Financial Reporting Council
September 2011



Agenda

- Setting the scene
- Ten helpful questions
- Summary



Agenda

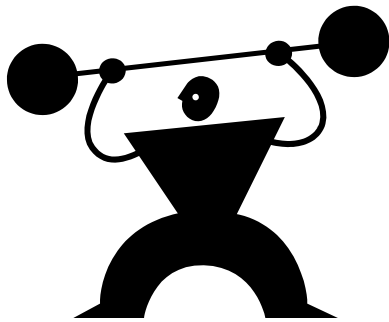
- **Setting the scene**
- Ten helpful questions
- Summary



BAS's Reliability Objective

“The users for whom a piece of actuarial information was created should be able to place a high degree of reliance on the information’s relevance, transparency of assumptions, completeness and comprehensibility, including the communication of any uncertainty inherent in the information.”

What is the BAS trying to achieve with its standards?



Define the bar



The work not
the worker



Focus on
the users

FRC actuarial publications

BAS Scope & Authority	
Actuarial Quality Framework	
TAS R	1 April 2010
TAS D	1 July 2010
TAS M	1 April 2011
Pensions TAS	1 April 2011
Insurance TAS	1 October 2011
Transformations TAS	1 October 2011
Funeral Plans TAS	1 October 2011

Insurance TAS - scope



Reserved work

Actuarial work in:

- External financial reporting
 - True and fair accounts
 - Embedded values
- Pricing frameworks
- Business reorganisations
 - Transformations
 - M&A, securitisations
- The exercise of discretion.

The internal audit function under Solvency II

- To evaluate objectively and independently the adequacy and effectiveness of the internal control system and other elements of the system of governance
- To report findings and recommendations to management and the board.

The actuarial function under Solvency II

- Technical provisions
 - To co-ordinate the calculation of technical provisions
 - To ensure appropriate methods, models and assumptions are used
 - To assess sufficiency and quality of data
 - To compare assumptions with experience
 - To report to management and the board
 - To oversee the use of approximations
- To opine on the underwriting policy
- To opine on the adequacy of reinsurance arrangements
- To contribute to risk management

Agenda

- Setting the scene
- Ten helpful questions
- Summary

Governance

1. Do you have terms of reference for actuarial work?

Are they sufficiently clear about where responsibility lies, and limits of authority?

2. Do you have protocols for consolidated work / work produced by teams?

Who has overall responsibility? (Note that ALL actuaries are responsible for ensuring that their work complies with TASs.)



Governance

3. What does the internal review process cover?

Selection of assumptions? numerical accuracy? compliance with legislation?

Who decides who does the review (and how many different people are involved)? Does it involve actuaries from different functional areas?

4. How do you identify and avoid conflicts of interest?

Do you distinguish between actual and potential conflicts? What other responsibilities do actuaries involved in the development of TP have? Is there any link to their remuneration?



Process

5. What are the sources of data that you use?

In what detail do you record the source? How far back do you go to collect data? What checks do you carry out on data? How do you deal with insufficient data?

6. How do you decide which models to use?

What checks do you make to determine whether those used last year remain valid? What checks do you carry out on externally supplied models?

Process

7. What supports your process for selection of assumptions?

How much flexibility is there in choice of assumptions? How do you decide what to assume about volumes of renewal and new business?

8. How have your assumptions changed to reflect current economic circumstances?

What alternative assumptions have you considered / used to produce alternative results? What level of stress testing do you carry about beyond the requirements of SII (if at all)?



Process

9. How do you ensure compliance with the requirements of the TASs?

What evidence do you provide of compliance? Whose responsibility is it to sign off on compliance?

10. How do you communicate risk and uncertainty?

Ask for examples of issues which have been drawn to the attention of the Board. How do you satisfy yourself that the Board understands the implications?



Agenda

- Setting the scene
- The Insurance TAS
- Summary

Summary

- BAS's Reliability Objective
 - users, comprehensibility, uncertainty
 - focus on actuarial work, not actuaries
- Ten questions to help the actuary provide high quality information to users.

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