

# MODEL VALIDATION – DATA WORKSHOP

13 & 18 April 2012

# Agenda

- Introduction & update
- Revisit the data requirements and Lloyd's expectations

## *Table discussion 1*

- Update on Corporation approach to meeting SII Data standards
- Data Audit Reviews

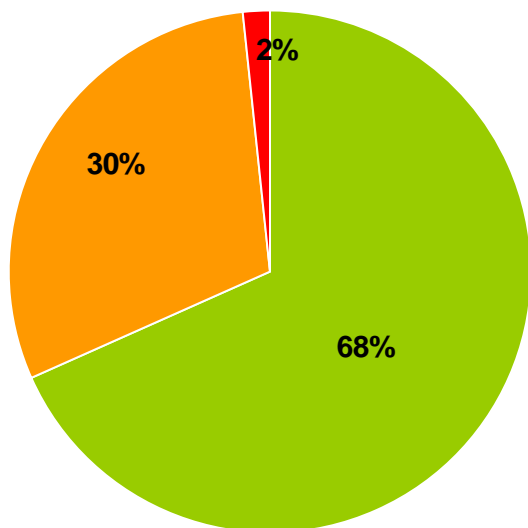
## *Table discussion 2*

- Next steps

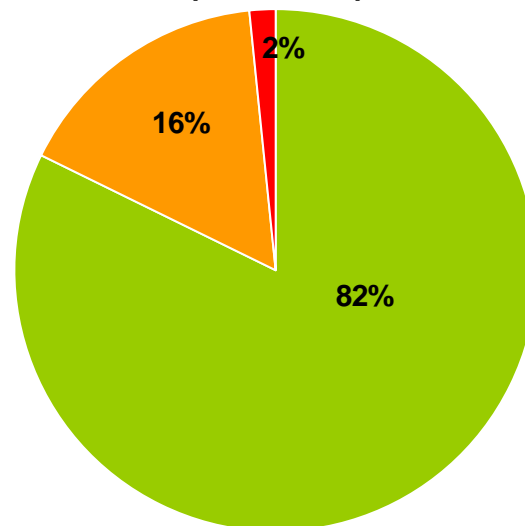
# **INTRODUCTION & UPDATE**

# Revised Agent Ratings Summary based on completion of FAP reviews

By agent

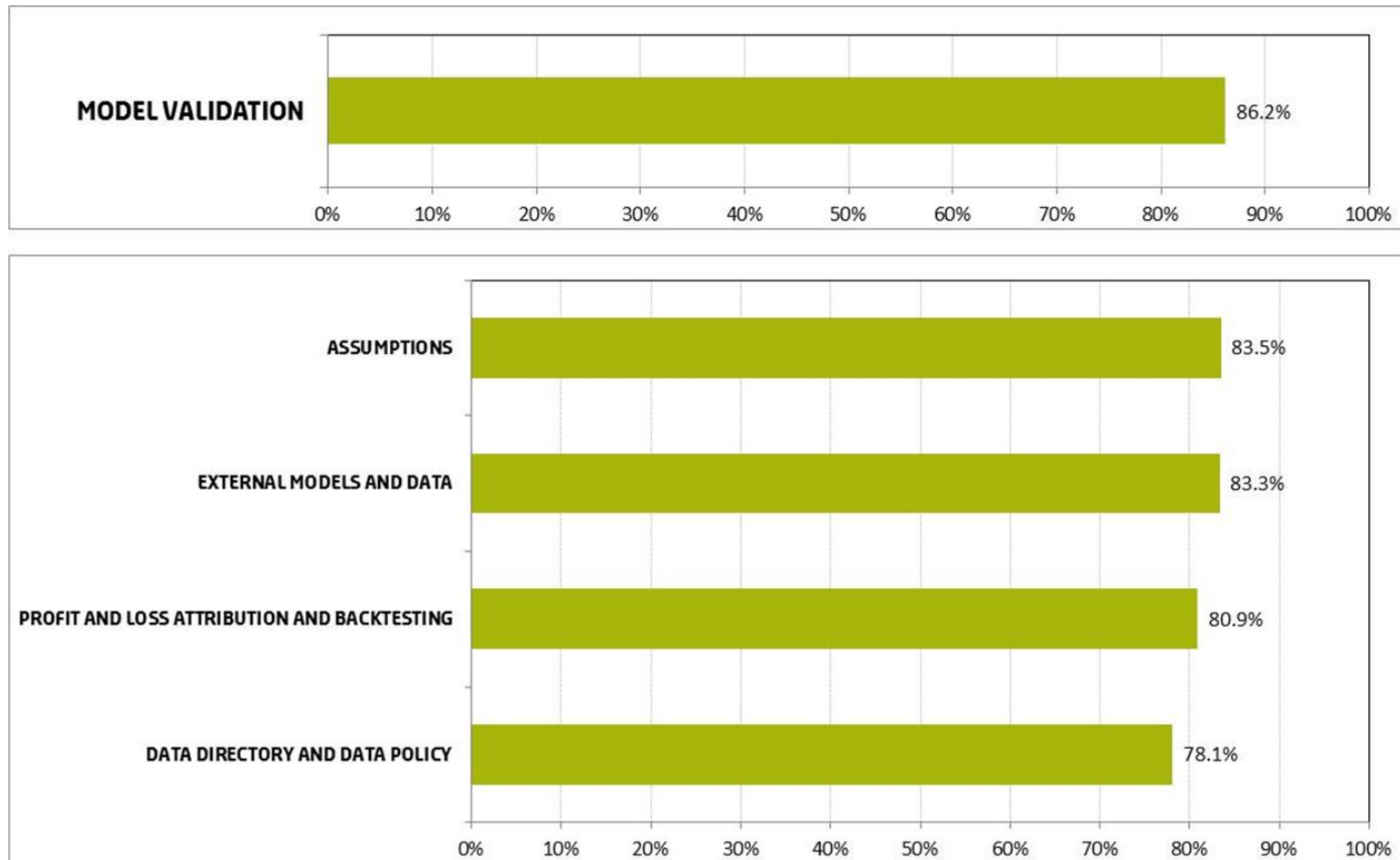


By Materiality  
(2012 ICA)

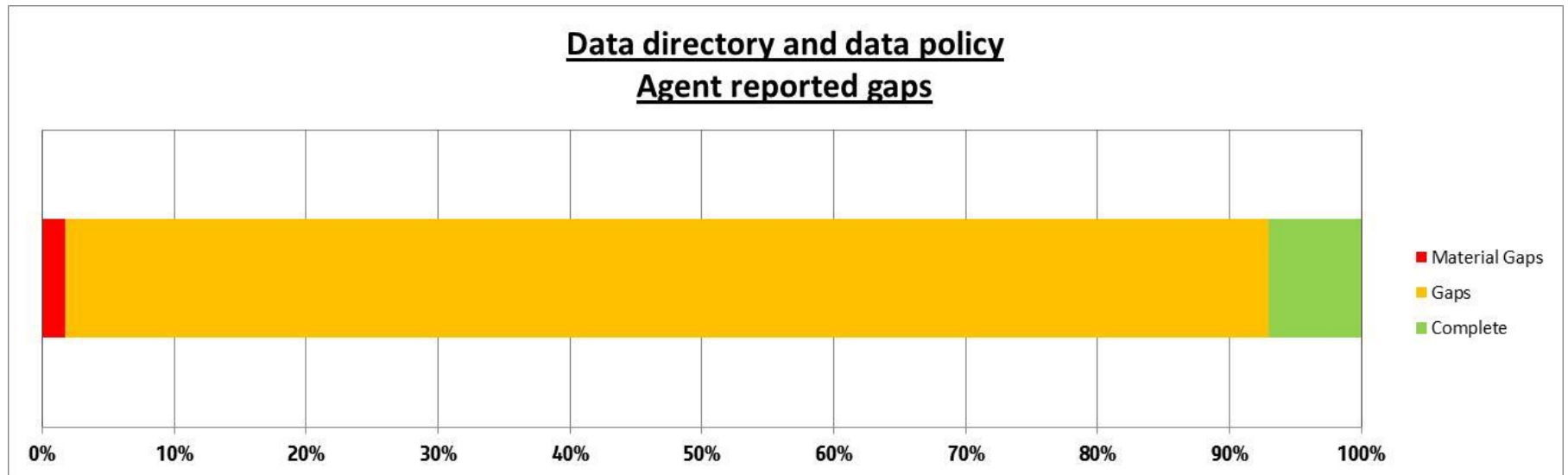


Rating	Summary
Green	Will meet provided that
Amber	Will not meet unless
Red	Will not meet unless with material concerns/FAP rejected

# Self assessed scores for data are lowest within MVAL workstream ...



... but not a large number of material gaps were reported



# **DATA REQUIREMENTS**

# This workshop builds upon previous guidance available on Lloyds.com

- **Statistical Quality Standards (March 2010):**

<http://www.lloyds.com/The-Market/Operating-at-Lloyds/Solvency-II/Information-for-managing-agents/Guidance-and-workshops/~media/Files/The%20Market/Operating%20at%20Lloyds/Solvency%20II/Dry%20run%20guidance/Section4.pdf>

- **Model Validation workshop slides (July 2011):**

<http://www.lloyds.com/The-Market/Operating-at-Lloyds/Solvency-II/Information-for-managing-agents/Guidance-and-workshops/~media/Files/The%20Market/Operating%20at%20Lloyds/Solvency%20II/2011%20Workshops/Validation%20Workshop%20circ%20version.pdf>

- **Data Audit Report Guidance (March 2012):**

<http://www.lloyds.com/The-Market/Operating-at-Lloyds/Solvency-II/Information-for-managing-agents/Guidance-and-workshops/~media/Files/The%20Market/Operating%20at%20Lloyds/Solvency%20II/2012%20Add%20Materials/Data%20Audit%20Report%20Guidance%20final.pdf>



# The FSA thematic review provides insights into good and poor practices

## FSA data thematic feedback (February 2011)

<b>Data framework</b>	Better prepared firms support their data framework by a <i>comprehensive data policy</i> covering data quality and data updates, approved by senior management
<b>Data warehouse</b>	Many firms investing in a centralised 'data warehouse'
<b>Data dictionary (directory)</b>	Few firms could demonstrate existing procedures to ensure the timely maintenance and consistent use across the firm
<b>Data quality</b>	Insufficient evidence to show that data used in their internal model was accurate, complete and appropriate
<b>IT systems</b>	Spreadsheets provide a key area of risk as may not be subject to formal IT systems control (i.e. change controls, DR, security etc)

Source: [http://www.fsa.gov.uk/pubs/international/imap\\_final.PDF](http://www.fsa.gov.uk/pubs/international/imap_final.PDF)

# SII Data requirements are implicitly covered across all workstreams but primarily supports model validation

## Level 1 SII Data Requirement References

- Article 121 – *Statistical Quality*
- Article 124 – *Validation*
- Article 125 – *Documentation*
- Article 126 – *External Models and Data*
- Article 48 – *Actuarial Function*

# Lloyd's perspective on SII data requirements

## MODEL VALIDATION

### DATA MANAGEMENT

**DEFINE THE SCOPE AND STANDARDS**

**ESTABLISH DATA GOVERNANCE AND RESPONSIBILITIES**

**MONITOR AND MANAGE DEFICIENCIES**

### DATA

#### DATA TOOLS

- Policy
- Processes
- Standards
- Directory
- Dictionary
- Lineage / Mapping

- Management and Escalation Processes
- Controls
- Accountabilities
- Update / Change Process

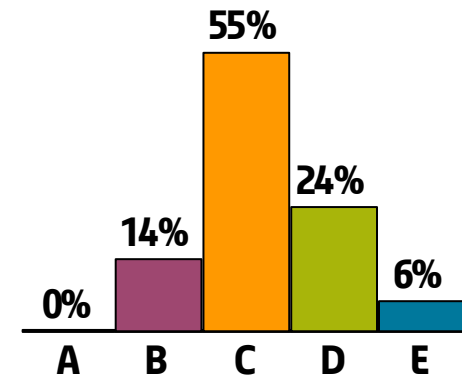
- Quality Assessments
- MI reports
- Controls Register
- Audit / Controls Report
- Deficiency Log

**PLEASE NOTE: THIS IS NOT A MANDATORY LIST!**

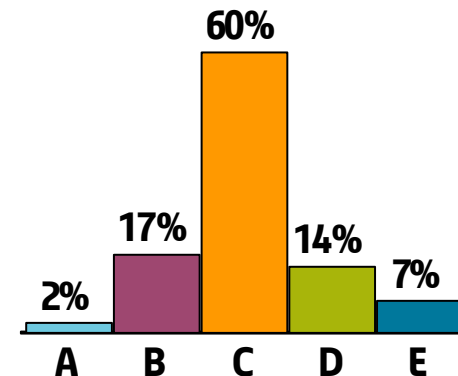
# Which elements of your data work are currently causing the most issues?

- A. Defining the Data Policy
- B. Establishing the Data Directory
- C. Implementing Data Management and governance processes
- D. Data Audit report
- E. Something else

**13 APRIL RESULTS**



**18 APRIL RESULTS**



# Defining the scope and standards



Data Tool	Progress reported at 16 December (FAP)	Further data work planned over 2012
<b>Policy</b>	<ul style="list-style-type: none"> <li>• Further enhancements required</li> <li>• Not “in play” at this time</li> <li>• Limited scope</li> </ul>	<ul style="list-style-type: none"> <li>• Smarter definitions of materiality</li> <li>• Clearer scope definition</li> </ul>
<b>Standards</b>	<ul style="list-style-type: none"> <li>• Defined for some agents</li> <li>• Dependency on data mapping</li> </ul>	<ul style="list-style-type: none"> <li>• Consistency with DP</li> <li>• Complete awareness training</li> <li>• Opportunity to integrate with corporate data / IT standards</li> </ul>
<b>Directory</b>	<ul style="list-style-type: none"> <li>• Structure defined and partially complete</li> <li>• Defined ownership and responsibilities</li> </ul>	<ul style="list-style-type: none"> <li>• Include data controls</li> <li>• Extend scope to cover all data plus material data feeds</li> <li>• Implement toolset / system to maintain</li> <li>• Dependency on data flow mapping</li> </ul>
<b>Dictionary</b>	<ul style="list-style-type: none"> <li>• Not common or widespread</li> <li>• Aspirational plans to develop but limited demonstrable progress</li> </ul>	<ul style="list-style-type: none"> <li>• Define field level data</li> </ul>
<b>Lineage / Mapping</b>	<ul style="list-style-type: none"> <li>• Primarily complete – some non-material data mapping still outstanding</li> </ul>	<ul style="list-style-type: none"> <li>• Complete for all areas of internal model including tracing origin</li> </ul>

# Establish data governance and responsibilities

Data Tool	Progress reported at 16 December (FAP)	Further data work planned over 2012
<b>Management and Escalation Processes</b>	<ul style="list-style-type: none"> <li>Defined but not fully implemented</li> </ul>	<ul style="list-style-type: none"> <li>Formally document process</li> <li>Define triggers for escalation</li> </ul>
<b>Controls</b>	<ul style="list-style-type: none"> <li>Plan to extend control environment</li> <li>Dependency on completion of data flow mapping</li> </ul>	<ul style="list-style-type: none"> <li>Complete assessment of all controls required</li> <li>Implement controls</li> <li>Track/produce MI reports</li> </ul>
<b>Ownership and Accountabilities</b>	<ul style="list-style-type: none"> <li>High-level responsibilities agreed (inc. relevant committees)</li> <li>BAU responsibilities assigned</li> </ul>	<ul style="list-style-type: none"> <li>Complete educational training</li> <li>Testing process / responsibilities</li> </ul>
<b>Update and Change Processes</b>	<ul style="list-style-type: none"> <li>Limited definitions within DP</li> </ul>	<ul style="list-style-type: none"> <li>Integrate with change management process</li> </ul>

# Monitor and manage deficiencies



Data Tool	Progress reported at 16 December (FAP)	Further data work planned over 2012
<b>Quality Assessments</b>	<ul style="list-style-type: none"> <li>Some preliminary assessments complete</li> </ul>	<ul style="list-style-type: none"> <li>Conduct final data quality assessment</li> </ul>
<b>MI Reports</b>	<ul style="list-style-type: none"> <li>Limited progress</li> <li>Some high-level metrics defined</li> </ul>	<ul style="list-style-type: none"> <li>Define quality metrics</li> <li>Define MI reporting process</li> </ul>
<b>Audit / Controls Report</b>	<ul style="list-style-type: none"> <li>Building upon existing control framework and reporting mechanisms</li> </ul>	<ul style="list-style-type: none"> <li>Data Audit planned for Q2</li> </ul>
<b>Deficiency Log</b>	<ul style="list-style-type: none"> <li>Defined but not used yet</li> </ul>	<ul style="list-style-type: none"> <li>Update following data quality / audit assessments</li> <li>Integrate into wider governance processes</li> </ul>

# Other general 'data' observations

- ✓ Increased awareness and understanding of data
- ✓ Data management more formalised
- ✓ Responsibilities and accountabilities established
- ✓ Opportunities to upgrade and replace legacy systems
- ✗ Limited evidence of embedding
- ✗ Limited insight into on-going maintenance
- ✗ Spreadsheets not eradicated!
- ✗ Data implementations local to SII scope
- ✗ Integration with wider model governance framework



# **GROUP DISCUSSIONS**

# Suggested topics for discussion

## Scope and Standards

- Have you established a data policy and is this *understood* across the organisation? What further work is required to the data policy before it can be signed-off?

## Data Governance and Responsibilities

- Who is *responsible* for data management within your syndicate? Have you assigned clear ownership and responsibilities for all data defined within the data directory?

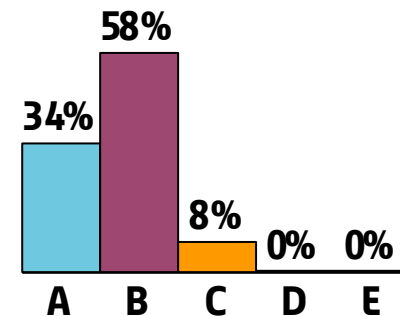
## Data Monitoring and Deficiency Management

- How will data issues be escalated and managed through to remediation?

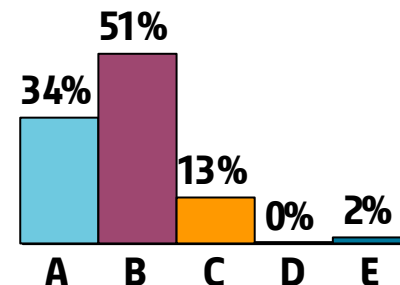
# At what stage of development would you describe your data policy?

- A. Fully defined and embedded
- B. Pretty much well defined, but still needs finalisation and approval
- C. Drafted, but still subject to significant debate
- D. Not well defined and a lot of work is still to be completed
- E. None of the above

**13 APRIL RESULTS**



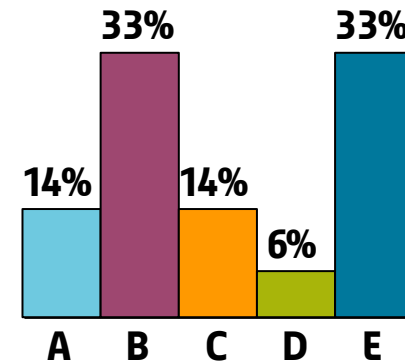
**18 APRIL RESULTS**



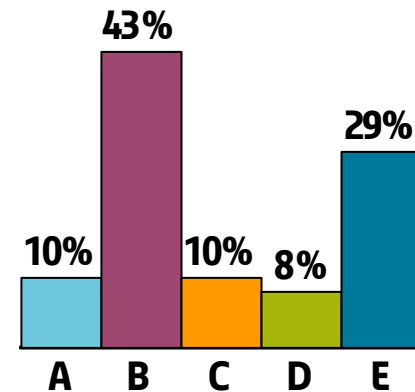
# Who has overall responsibility for data management?

- A. IT
- B. Data manager
- C. Actuary
- D. Finance
- E. Other

**13 APRIL RESULTS**



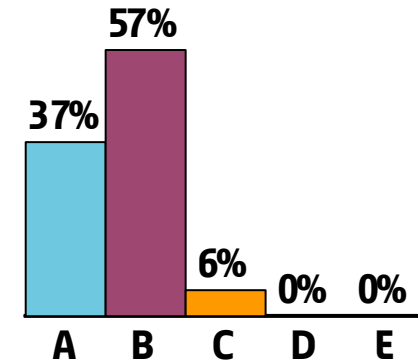
**18 APRIL RESULTS**



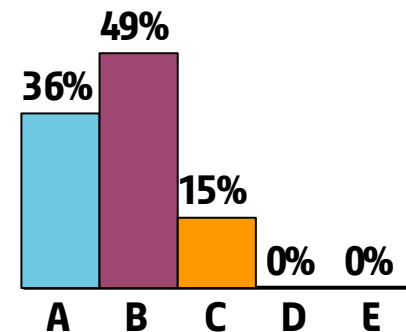
# Is your data management process now active?

- A. Yes – in full swing
- B. No – defined and being implemented
- C. No – still in design
- D. No – not started
- E. Other

**13 APRIL RESULTS**



**18 APRIL RESULTS**

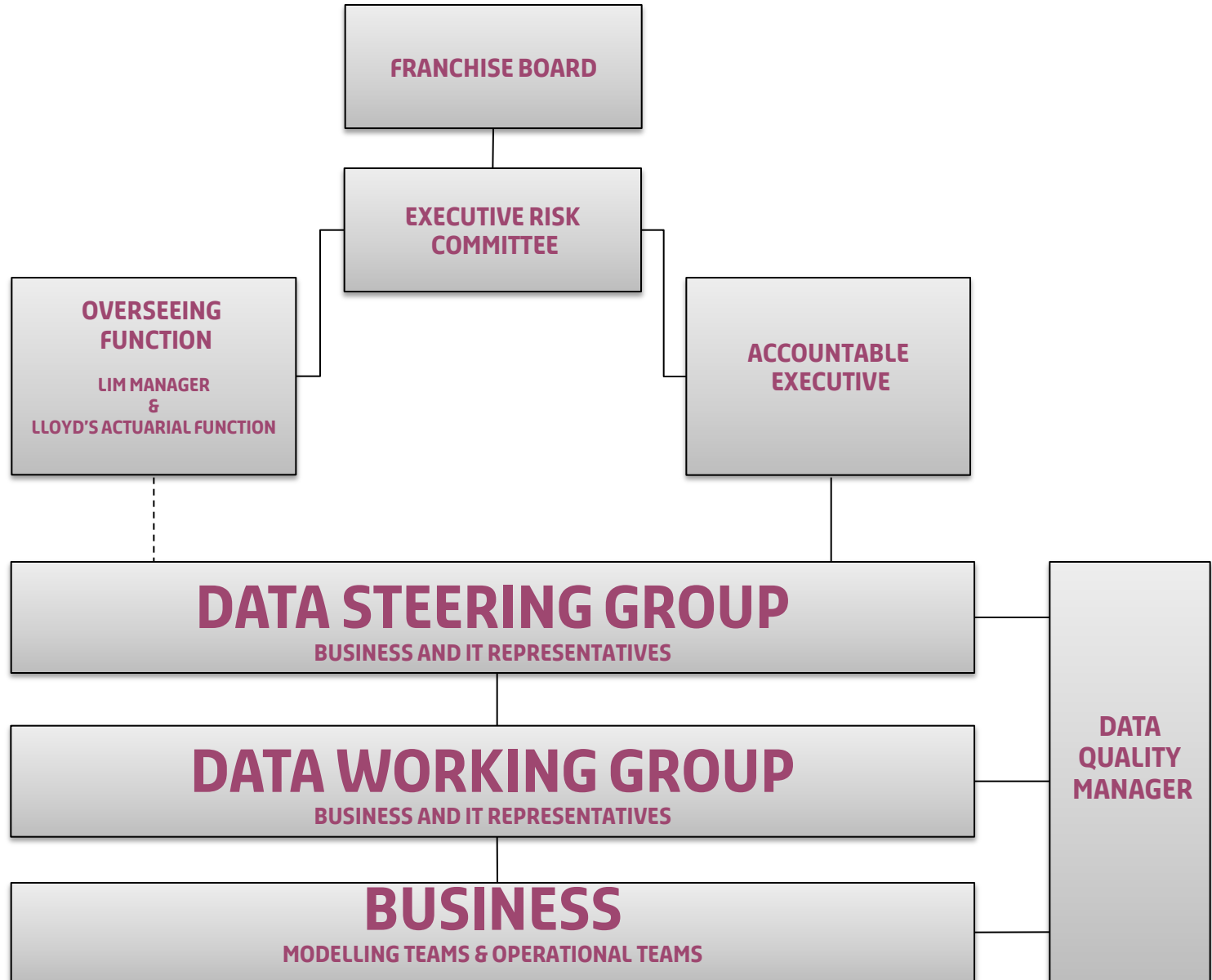


# **CORPORATION'S APPROACH TO MEETING DATA STANDARDS**

# Lloyd's operates six data principles .....

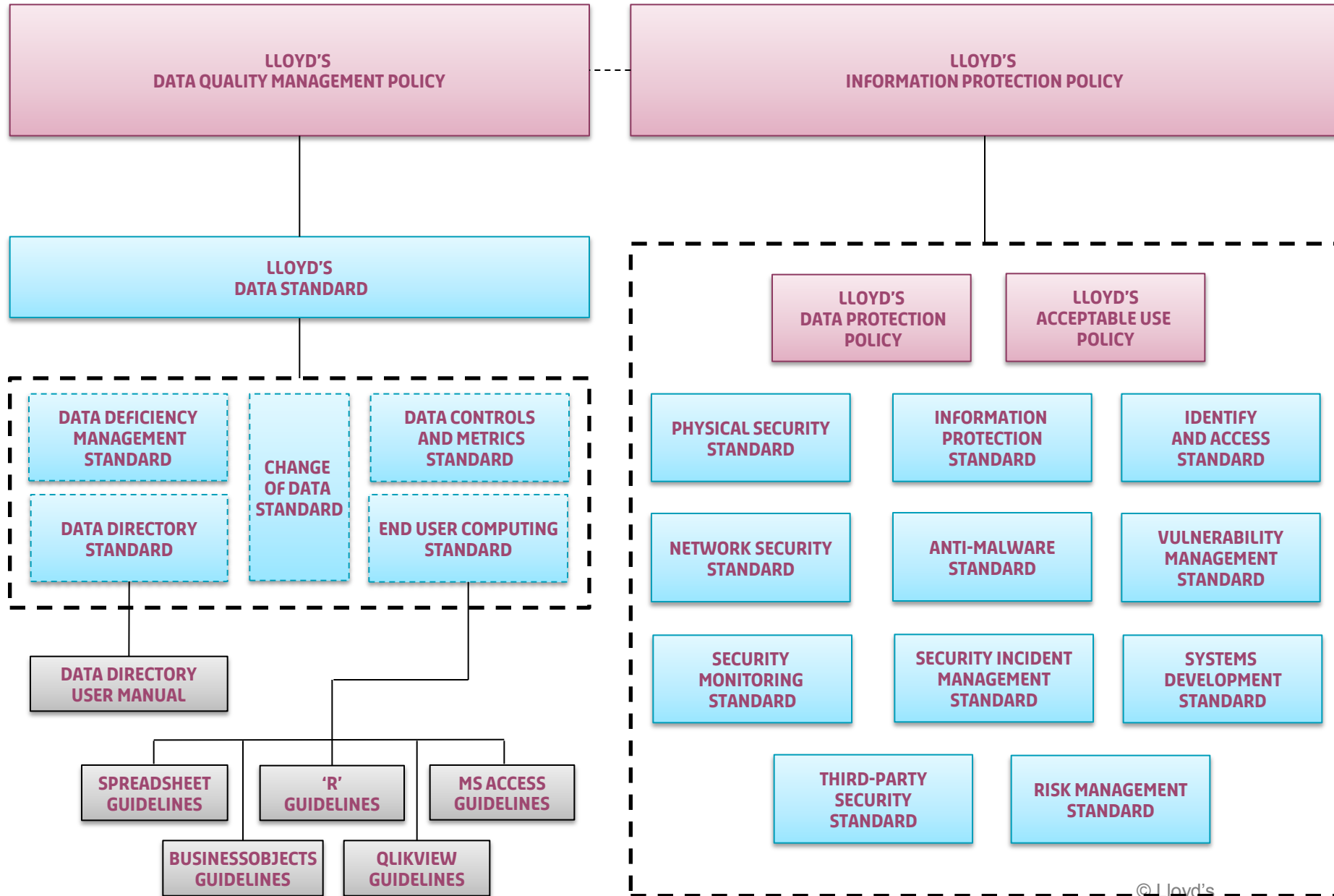
- Understand your data
- Define your data quality requirements
- Implement controls to meet your DQ requirements
- Monitor your controls
- Improve (or account for) poor data
- Assess change impact before implementing

# ...with a strong governance structure....

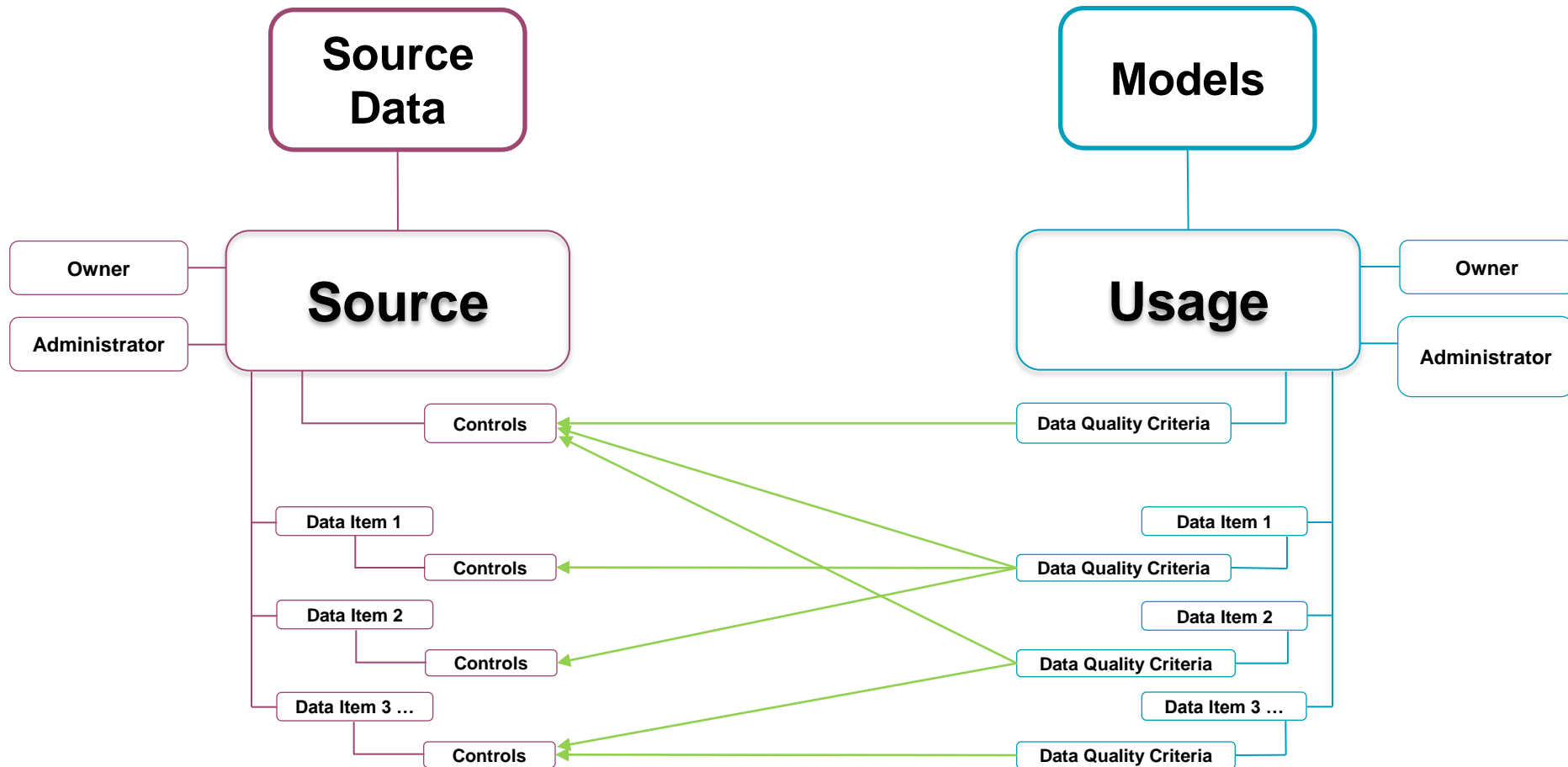




# ...using policies, standards and guidelines...



# ...and processes / tools like the Data Directory



# Process designed to understand impact on change and deficiencies ...

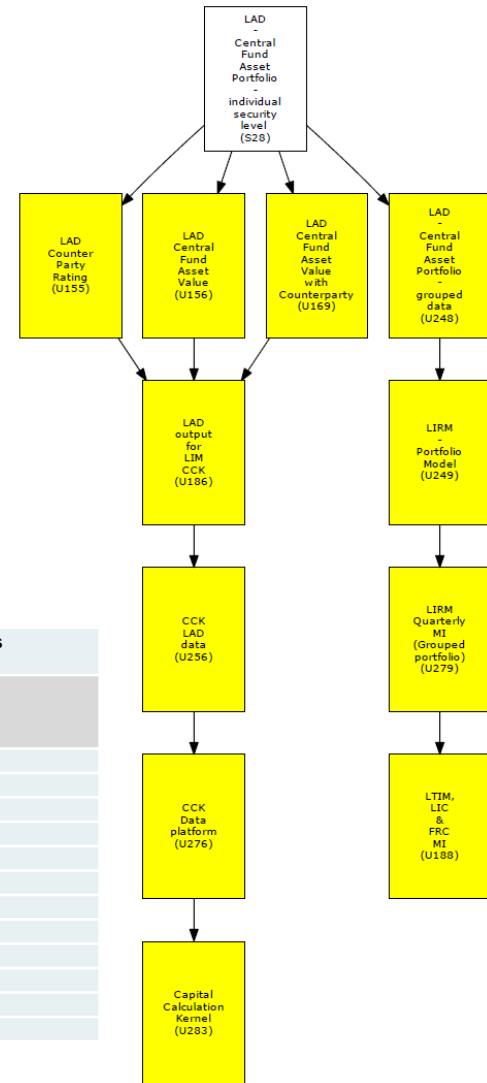
## Owners Impacted Report

### Impacted Owners

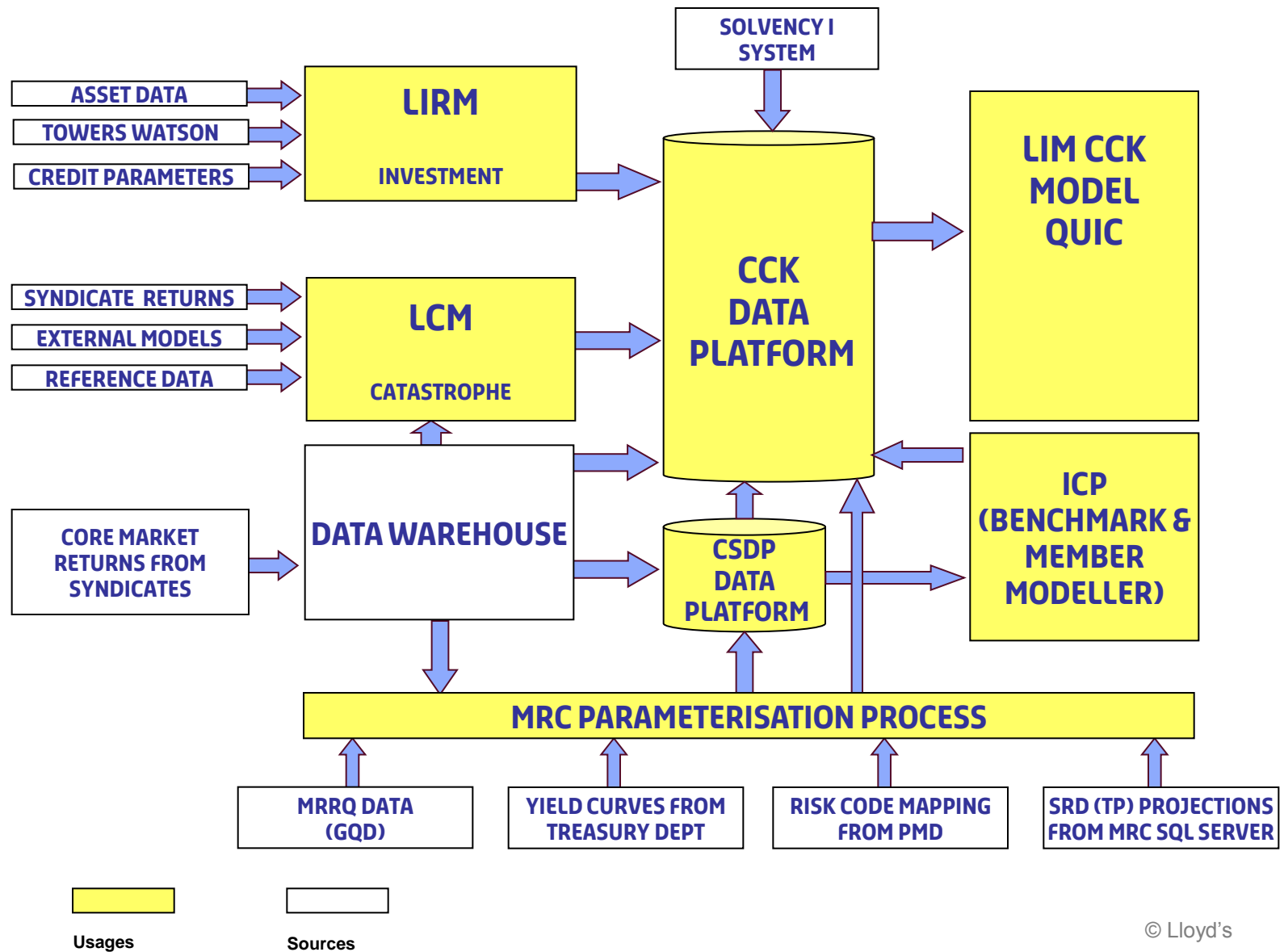
John Smith  
Peter Jones  
Mo Grayson  
Sally Brown  
Roger Green  
Sue Friday

## Owners Impacted Report: Detail

ID	Type	Description	Affected ID	Affected Type	Affected Description	Affected Category	Affected Owners
28	SOURCE	LAD - Central Fund Asset Portfolio - individual security level	28	SOURCE	LAD - Central Fund Asset Portfolio - individual security level	LAD	John Smith, Peter Jones
			156	USAGE	LAD Central Fund Asset Value	LAD	John Smith, Peter Jones
			169	USAGE	LAD Central Fund Asset Value with Counterparty	LAD	John Smith, Peter Jones
			155	USAGE	LAD Counter Party Rating	LAD	John Smith, Peter Jones
			248	USAGE	LAD - Central Fund Asset Portfolio - grouped data	LAD	John Smith, Peter Jones
			186	USAGE	LAD output for LIM CCK	LAD	John Smith, Mo Grayson
			249	USAGE	LIRM - Portfolio Model	LIRM	Sally Brown, Peter Jones
			256	USAGE	CCK LAD data	CCK	John Smith
			279	USAGE	LIRM Quarterly MI (Grouped portfolio)	LIRM	Sally Brown, Peter Jones
			276	USAGE	CCK Data platform	CCK	Roger Green
			188	USAGE	LTIM, LIC & FRC MI	LIRM	Sally Brown, Peter Jones
			283	USAGE	Capital Calculation Kernel	CCK	Roger Green, Sue Friday



# ...and we also have built data platforms to support the framework



# There have been challenges .....

- Implementing a Corporate framework !
- Deciding where the “stake in the ground” was for Data Quality
- Defining accurate, appropriate and complete criteria
- Defining boundaries & interfaces between Data Quality, Model Validation and Model Processes
- Setting and implementing End User Computing Standards
- Deciding when to move from project mode to BAU
- Deciding how to maintain the framework when in BAU

# ... and now we are being reviewed ...

## Observations

- Points of Clarity – Policy and Standards (e.g. assumptions)
- Documentation – (e.g. all manual controls logged, location of documentation)
- Evidence of Monitoring of controls – (e.g. checklist)
- BAU processes not yet active (although designs approved)

# ... but we are moving to BAU

## 2010

- Design governance framework

## 2011

- Implement governance framework

## 2012

- Transition to BAU

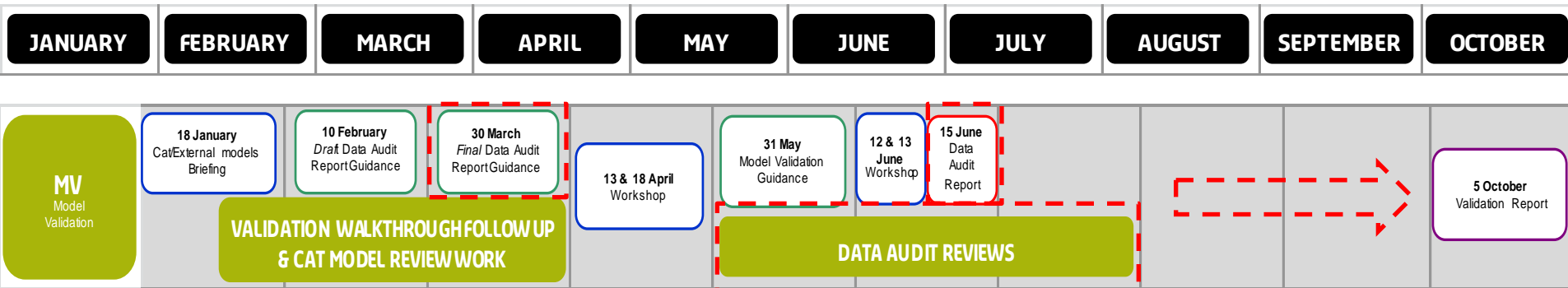
## 2013

- Expand focus to whole of the Corporation

# **DATA AUDIT REVIEWS**



# Data Audit Review Timeline



- Final Data Audit Report Guidance issued 30<sup>th</sup> March
- Data Audit Report due 15<sup>th</sup> June – All agents
- Data Audit Reviews between May and June – Impacts 25% of agents

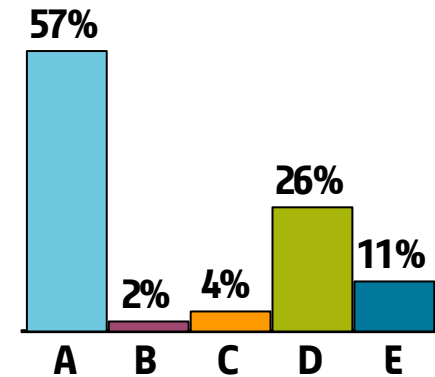
# Data Audit Report - Background

- FSA requirement applicable to all firms (and Lloyd's agents) and based on scoping tool
- Demonstrates compliance with data tests and standards
- Split into five sub-risks covering quality and controls
- Report author to be independent and suitable qualified
- Audit scope based on data materiality – at minimum covering all data within the internal model and material data feeds

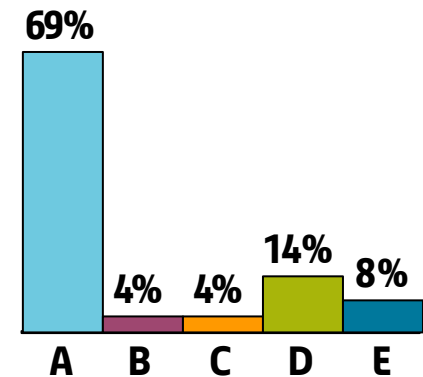
# Who is responsible for authoring your data audit report?

- A. Internal Audit
- B. Risk Management
- C. IT
- D. External Audit
- E. Other

13 APRIL RESULTS



18 APRIL RESULTS



# Scope of review is expected to cover all data that could materially impact the internal model

## DATA AUDIT

**Raw data that can be  
*traced* to source**

*(eg Paid gross claims)*

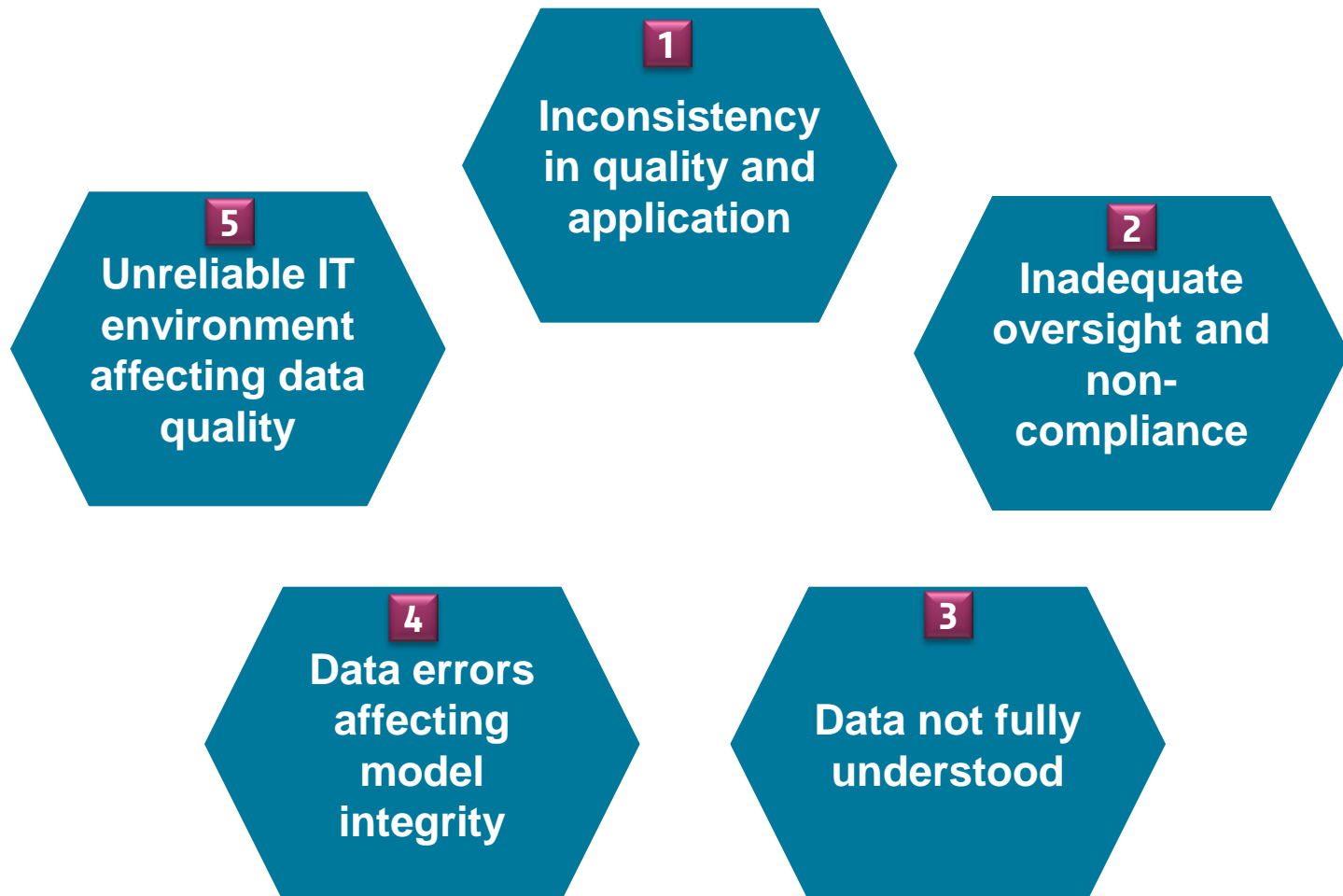
## MODEL VALIDATION

**Derived data that is not  
easily traceable**

*(eg Expert judgement used to  
set parameters)*

*Scope definition needs to be supported by a clear rationale including justification for any data exclusions*

# The scope of assessment must cover the five data sub-risks at a minimum



# The approach to managing data for use in the internal model does not ensure consistency in quality and application

- Assessment focuses on the definition and implementation of the Data Policy
  - Has my data policy been sufficiently challenged by management before being approved?
  - How has this challenge and sign-off been evidenced?
  - Has the policy been communicated to the relevant personnel across the organisation?
  - Do the relevant stakeholders understand their responsibilities with data? How can this be demonstrated?

## Inadequate oversight of the data policy increases the risk of poorly informed decision-making and non-compliance

- **Assessment focuses on the Data Policy, Data Governance and Metrics**
  - Can governance oversight be demonstrated by terms of reference, agendas and minutes of discussions, debates, decisions and approvals?
  - Have I reviewed and assessed the risk through interviews with key personnel, the level of their understanding of their governance responsibilities and MI reports?

## Lack of a clear understanding of the data and its impact and vulnerabilities can create gaps in ownership and control

- Assessment focusses on the Data Policy, Data Directory & Flows
  - Has the data directory been reviewed to determine its clarity, completeness and maintainability?
  - Has the risk and impact assessment for completeness been carried out?
  - Are the tolerance thresholds and materiality used consistent with the reporting to the relevant management groups or governance oversight bodies?



## Errors, omissions, lack of timeliness and inaccuracies in the data can undermine the integrity of the internal model and management decision making

- Assessment focuses on the Data Policy, Management & Data Quality Controls
  - Have I reviewed and evaluated documented control procedures to assess their completeness and appropriateness in meeting the control objective?
  - Have I checked whether those responsible have the right training and experience for critical stages of data checks?
  - Do the key personnel understand the key validations and checks?  
What have I done to satisfy myself that this is the case?

## Unreliable IT environment, technology or tools can compromise the quality of the data and its processing within the internal model

- Assessment focuses on the general IT controls over the data environment
  - Has the design of the key ITGC controls that relate to the data sets been assessed? Has the operational effectiveness of the controls also been assessed as defined and required by the internal model?
  - Have key IT MI reports (e.g. network and security access breaches, system downtime) been reviewed to determine whether there has been any material impact on the internal model? Have these incidents been followed through and resolved appropriately?

# There should be a clear conclusion following the assessment against each sub-risk

Conclusion for each control		Risk Impact	Follow-up
Yes	Controls in place and operating effectively	No material risk	No action required
No	Controls partially in place or not operating effectively	Material risk exists	Remediation plan in place
No	Controls not in place	Material risk exists	Remediation plan in place

# Changes to Data Audit Report guidance following feedback

- Clearer definition of data audit scope
- Further suggestions on report format and structure
- Addition of 'Management Response' section to report
- Clarification on report authoring responsibilities
- No need to inform Lloyd's of scope / materiality prior to assessment
- Reviewer can rely on work of internal (not necessarily independent) personnel as per model validation
- Use of previous audits and assessments

# Additional guidance from FSA for Reviewers

## *Relevant to Sections 2.2.1 & 3.1.2 of Appendix 2 Data Audit Framework in Lloyd's March Guidance*

- What is the **justification** for determining the materiality thresholds? Has this been validated?
- What analysis has been undertaken to identify risk modules or products which **could become material** over the next 6 to 12 months due to changes in the business strategy / risk profile?
- What analysis has been undertaken to identify common sources of data where an error in the data could **impact a number of areas** (which may not be material individually but could have a combined material impact)?
- When an error is identified and a materiality threshold is applied, will **potential aggregation** of data errors be considered?
- What analysis has been undertaken to identify data items that are **key to stress scenarios** (e.g. any error in these may be compounded under the stress scenarios and therefore may have a higher impact).
- What analysis has been conducted to identify material **static / reference** data items (e.g. exchange rates, correlation matrix, organisational hierarchy, etc)?
- What validation has been conducted to identify potential instances where data errors make an item or data **appear immaterial** when it is actually material

# Following submission, Lloyd's will feedback comments in the usual format...

Lloyd's review sheets will classify feedback as:

- *Critical:* Prompting an immediate resubmission or follow-up visit by Lloyd's data review team
- *Material:* Further clarification or enhancement with possible resubmission to *accompany* the Validation Report in October 2012
- *Development:* Observations or minor comments (no further response to Lloyd's required)

MODEL VALIDATION  
DATA AUDIT REPORT REVIEW

AGENT: SYNDICATE:  
PRIMARY LLOYD'S REVIEWER: REVIEW DATE:

FEEDBACK SUMMARY

OVERALL - DOES THE DOCUMENTATION INDEX MEET THE TESTS & STANDARDS?  
L3 - Article XXX, L3 - Article XXX TSAM XX

CRITICAL ISSUE: TO BE ADDRESSED IMMEDIATELY

MATERIAL ISSUE: TO BE ADDRESSED BY END OF Q3 2012

OBSERVATIONAL FEEDBACK: ACTIONS RECOMMENDED BUT NOT REQUIRED

BACKGROUND

SEE FEEDBACK FROM EVIDENCE TEMPLATE REVIEW

# Lloyd's will be conducting its own onsite data reviews between May - July

- Impacts 25% of agents who have already been notified
- Agents have been selected based on reported progress, size, data complexity and risk
- Designed to verify and cross-check agent's own findings with Lloyd's assessment (based on the five data sub-risks)
- Further instructions and advice to be issued by 30 April

# **GROUP DISCUSSIONS**



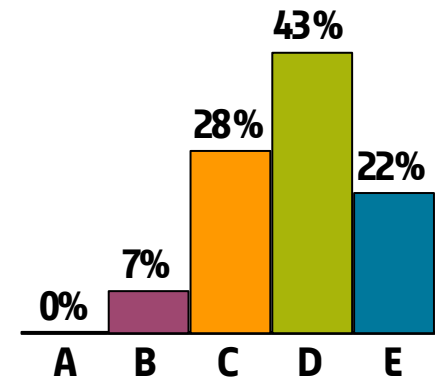
# Suggested topics for discussion

- How far have you progressed with the data audit?
- How have you approached defining the scope of your data audit?
  - On what basis have you determined materiality of data within scope?
- Are you building upon previous data audits or starting fresh?
- Are you using internal or external resource to conduct the review?

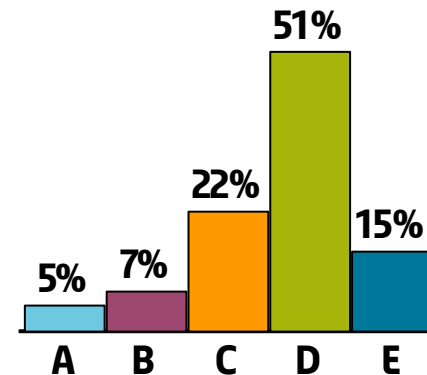
# How far progressed are you with your Data Audit Report?

- A. Completed report
- B. Report writing in progress
- C. Commenced audit
- D. Scope defined
- E. Not started

**13 APRIL RESULTS**



**18 APRIL RESULTS**



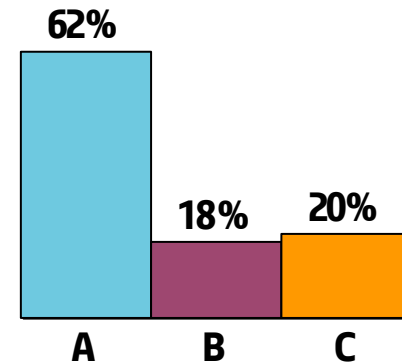
# Are you leveraging previous audits as part of your submission?

A. Yes

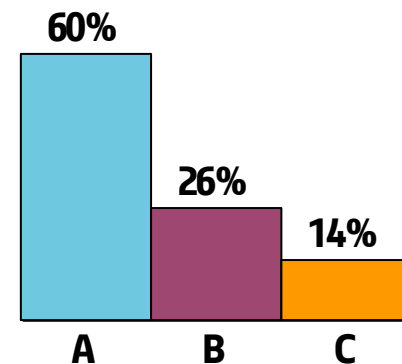
B. No

C. Undecided

**13 APRIL RESULTS**



**18 APRIL RESULTS**



# NEXT STEPS

# Next Steps

- Slides will be made available on [lloyds.com](http://lloyds.com) after both workshops
- All agent Data Audit Report to be submitted to Lloyd's by 15 June 2012
- Agents within the scope of the data audit reviews will receive further instructions in due course to aid preparation
- Other upcoming sessions:
  - IMSCR workshop – 8 & 11 May
  - Reporting and Disclosure – 14 & 15 May



# Data Requirements – Level 1 and Level 2

(Please Note – Level 2 is not finalised and is based on draft text issued Nov 2011)

## Level 1 – Statistical Quality Article 121

Data used for the internal model shall be accurate, complete and appropriate

Insurance and reinsurance undertakings shall update the data sets used in the calculation of the probability distribution forecast at least annually

## Level 2 – Statistical Quality – Article 219 – TSIM 10

- (1) Insurance and reinsurance undertakings shall **compile a directory of all data** used in the internal model, specifying their source, characteristics and usage
- (2) With respect to the data used in the internal model, insurance and reinsurance undertakings shall establish, implement and maintain a **written data policy** which covers the following areas:
  - (a) the data are consistent with the purposes for which it will be used;
  - (b) the amount and nature of the data ensure that the estimations made in the internal model on the basis of the data do not include an undue estimation error;
  - (c) the data are consistent with the assumptions underlying the actuarial and statistical techniques that are applied to them in the internal model;
  - (d) the data appropriately reflect the risks to which the insurance or reinsurance undertaking is exposed.
- (3) Insurance and reinsurance undertakings may not consider the data used in the internal model to be **accurate** unless at least the following conditions are met:
  - (a) the data are free from material errors;
  - (b) data from different time periods used for the same estimation are consistent;
  - (c) the data are recorded in a timely manner and consistently over time.
- (4) Insurance and reinsurance undertakings may not consider the data used in the internal model to be **complete** unless at least the following conditions are met:
  - (a) data are of sufficient granularity and include sufficient historical information to identify trends and to assess the characteristics of the underlying risk;
  - (b) data satisfying the condition in point (a) are available for all relevant model parameters and no such relevant data are excluded from the use in the internal model without justification.
- (5) Insurance and reinsurance undertakings may not consider the data used in the internal model to be **appropriate** unless at least the following conditions are met:
  - (a) the data are consistent with the purposes for which it will be used;
  - (b) the amount and nature of the data ensure that the estimations made in the internal model on the basis of the data do not include an undue estimation error;
  - (c) the data are consistent with the assumptions underlying the actuarial and statistical techniques that are applied to them in the internal model;
  - (d) the data appropriately reflect the risks to which the insurance or reinsurance undertaking is exposed.
- (6) Any assumptions made in the collection, processing and application of data shall be consistent with the data to which they relate and shall comply with the requirements set out in Article TSIM9(2) *[information and assumptions concerning the methods used for the calculation of probability]*
- (7) The **data used in the internal model shall be updated** with a frequency that is appropriate for the use of the internal model in accordance with the use test referred to in Article 120 of Directive 2009/138/EC.
- (8) Insurance and reinsurance undertakings shall ensure that the **data are used consistently over time in the internal model**. Undertakings shall document and be able to justify any inconsistent use of data.

# Data Requirements – Level 1 and Level 2

(Please Note – Level 2 is not finalised and is based on draft text issued Nov 2011)

<b>Level 1 – Validation</b> <b>Article 124</b>	Model validation process shall include an assessment of the accuracy, completeness and appropriateness of the data used by the internal model
<b>Level 2 – Validation Tools – Article 230 – TSIM 19</b>	
(2)	Insurance and reinsurance undertakings shall test the results and the key assumptions of the internal model at least annually against experience and other appropriate data to the extent that data are reasonably available. These tests shall be applied at the level of single outputs as well as at the level of aggregated results. Insurance and reinsurance undertakings shall identify the <b>reason for any significant divergence between assumptions and data</b> and between results and data.
(4)	The model validation process shall include an analysis of the stability of the outputs of the internal model for different calculations of the internal model using the <b>same input data</b> .
<b>Level 1 – Documentation</b> <b>Article 125</b>	<ul style="list-style-type: none"> <li>Insurance and reinsurance undertakings shall document the design and operational details of their internal model.</li> <li>The documentation shall indicate any circumstances under which the internal model does not work effectively.</li> <li>Insurance and reinsurance undertakings shall document all major changes to their internal model, as set out in Article 115.</li> </ul>
<b>Level 2 – Minimum Content of the Documentation – Article 232 – TSIM 21</b>	
(1)(g)	the <b>directory of data</b> used in the internal model referred to in Article TSIM10;
(1)(h)	the <b>data policy</b> referred to in Article TSIM10;
<b>Level 2 – Circumstances under which the internal model does not work effectively– Article 233 – TSIM 22</b>	
(d)	the <b>deficiencies in data</b> used in the internal model and the lack of data for the calculation of the internal model;



# Data Requirements – Level 1 and Level 2

(Please Note – Level 2 is not finalised and is based on draft text issued Nov 2011)

<b>Level 1 – EMD &amp; Data Article 126</b>	The use of a model or data obtained from a third party shall not be considered to be a justification for exemption from any of the requirements for the internal model set out in Articles 120 to 125.
<b>Level 2 – EMD &amp; Data – Article 235 – TSIM 24</b>	
1	Insurance and reinsurance undertakings shall be able to explain the role in their internal model of any parts of the internal model obtained from a third-party (external models) and data used in the internal model obtained from a third-party (external data).
2	Insurance and reinsurance undertakings shall be able to explain the reasons for preferring external models to internally developed models and external data to internal data. They shall also be able to list the alternatives considered and explain the decision in favour of a particular external model or a set of external data.
3	Insurance and reinsurance undertakings shall be able to demonstrate a detailed understanding of external models and external data used in their internal model, including model and data limitations.
4	Insurance and reinsurance undertakings shall monitor any potential restrictions arising from the use of external models or external data in the internal model to the ongoing fulfilment of the requirements set out in Articles 101, 112 and 120 to 125 of Directive 2009/138/EC, and in case of a partial internal model also Article 113 of Directive 2009/138/EC. A particular external model or set of external data may only be used in the internal model if the potential restrictions arising from its use are not material.
<b>Level 1 – Actuarial Function - Article 48</b>	
<b>Level 2 – Actuarial Function – Article 262 SG 10</b>	
1(c)	In coordinating the calculation of the technical provisions, the actuarial function shall in particular: (c) Ensure that any <b>limitations of data</b> used to calculate technical provisions are properly dealt with
3	The actuarial function shall assess whether the <b>information technology systems</b> used in the calculation of the technical provisions sufficiently support the actuarial and statistical procedures