**4. MODEL VALIDATION**

**Workstream overview**

The Model Validation workstream is a continuation of the Statistical Quality Standards (SQS), Calibration, Validation and Profit & Loss Attribution (CVP) and External Models & Data (EMD) elements covered in the 2010 Dry Run. The focus of the workstream will be to ensure that syndicate models produce an appropriately calibrated SCR and that models are demonstrably compliant with the relevant tests and standards of the Directive.

The key workstream deliverable for agents will be a validation report due in draft on 26 August and final version on 31 October 2011.

**Primary Audience:** Risk Management Function, Actuarial Function, Capital modelling actuaries, IT Department

<table>
<thead>
<tr>
<th>Objectives</th>
<th>2010 Dry Run</th>
<th>Directive Article(s):</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Demonstrate that syndicate models meet the tests and standards set out in Articles 121 to 124 and 126.</td>
<td>CVP, SQS &amp; EMD</td>
<td>121-124; 126</td>
</tr>
<tr>
<td>• Ensure that agents provide a validation report to verify appropriate calibration of the SCR and substantiate compliance with the tests and standards set out in Articles 121 to 124 and 126.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Demonstrate that syndicate internal models have been validated to a standard that is sufficient for the purposes of the Lloyd’s Internal Model and capital setting.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Core modules & indicative topics**

**Core Validation I**
- Assumptions & expert judgement
- Model robustness
- Stress & scenario testing
- Back-testing
- Calibration

**Core Validation II**
- Dependencies
- Probability distribution forecast
- P&L attribution
- External models

**Validation Policies & Criteria**
- Risk materiality
- Methodological adequacy, consistency & credibility
- Validation policy
- Data directory & Data policy
- Risk mitigation techniques
- Future management actions
- Financial guarantees; contractual options; non-contractual payments

**Review techniques:**
- Walkthroughs of model inputs, calculations and outputs (including controls for each stage)
- Quantitative scenarios
- Interviews
- Board sign off documentation
- Follow up evidence referenced in validation reports
The Draft Validation Report is an interim deliverable intended to document an agent’s planned validation processes and initial results, as a basis for discussion and feedback with Lloyd’s prior to the final report.

The Final Validation Report will be expected to document the set of activities and results of independent assurance undertaken or commissioned by a syndicate to confirm that the model complies with the tests and standards of the Directive. Lloyd’s will provide further guidance on the required content of the Validation Report but will not mandate the format.