Solvency II
What is Solvency II?
Three Pillar Requirements

Pillar 1: Capital Adequacy
- Minimum Capital Requirement (MCR)
- Solvency Capital Requirement (SCR)
- Technical provisions
- Internal model or standard formula
- Regulatory approval

Pillar 2: Risk Management
- Risk management processes
- Own Risk & Solvency Assessment (ORSA)
- Use Test Implementation
- Model and Risk Management Dox

Pillar 3: Transparency
- Market Disclosure - SCFR
- Transparency
- QRT/SCFR/RSR

Key Issues
- Understanding Risk dependencies
- Capital aggregation & allocation
- Control & repeatability
- Quality of risk data
- Consistent risk management
- Security, audit, control processes
- Embedding risk culture in business
- Information readily available to business - e.g. solvency monitoring, capital allocation
- Robust mechanisms and processes for external reporting
- Providing consistent information on a timely basis

Actuarial/Risk Calculation Engines
- Market
- Credit
- Insurance
- Operational
- Risk Engines
- Compute Grid

SII Technology Platform
- Enterprise deployment
- Audit, security & control technology
- Computing power
- Data Management
- Collaboration/integration
- Real-time Reporting
- Analytics
- Dashboards
Internal Stakeholder Requirements

**Chief Actuary**
- Faster production of information in real time
- **Graphical and analytical reports** for the regulators and the business
- Sensitivity and what if analysis
- Centralised and consistent modelling platform for all actuarial users
- Automated modeling processes
- Audit & security controls for Models and associated data

**Chief Risk Officer**
- Internal model approval
- Understanding of key assumptions
- Risk calculations to accurately reflect the underlying risk profile
- Enterprise-wide consistent risk management standards
- Auditable and transparent modelling and risk processes
- **Graphical and analytical reports** for the regulators and the business – SCFR/RSR/QRT/ORSA

**Chief Information Officer**
- Robust IT governance
- Power to run complex models
- Centralised modeling platform based on enterprise technologies
- Deployment across the enterprise
- Seamless integration with other enterprise systems and **Automated** data extraction/ transformation
- Centralised SII Database for enterprise access

**Chief Financial Officer**
- Consistency of external reporting (e.g. IFRS, SII, MCEV)
- Financial Consolidation - QRTs
- Faster, controlled production of accounting reports – e.g. inputs to IFRS statements
- **Graphical and analytical reports** for the regulators and the business
- Faster financial close
Most Insurers are still in planning, and evaluation phases.
SII Programs – Key Issues with our Clients

- **QRT Process** – Insurers have completed their QIS5 exercise and now the focus is on the QRT Reporting Process and the associated SFCR/RSR processes. *Key focus on Regulatory Reporting*

- **Data Quality** – how do we ensure that the input data is consolidated, accurate and validated? *Can we trust the data!*

- **Use Test/ORSA Implementation** – is the internal model genuinely important to the business? Is it widely used in decision making? *How do we demonstrate to the regulators we are using the capital/risk information in business decision making?*

- **Actuarial/Risk Management Processes** - do we actually have defined, controlled and documented processes? *How do we demonstrate full audit trail?*

- **Spread Sheets** - *How do you reduce the dependency on Spread Sheets – Insurers can have 100s of spread sheets that are difficult to audit & control*

- **Auditability & Transparency** - how do we audit, track and control our actuarial and risk management processes? *Particularly as most of the existing systems are Desktop based*

- **Documentation Standards** – is there a proper documentation to describe the models, the supporting processes and how is it kept up to date? *Documentation is a real issue*
Current Solvency II technology landscape

- Traditional actuarial and risk systems are desktop oriented and supplemented heavily with manual controls
- Often insurers have multiple risk systems as a result of multinational structures or M&A activity
- These systems tend to lack enterprise capabilities making security, auditability and control difficult
- Risk data is collected from multiple sources and generally lacks consistency, quality and controls
- Reporting is split across multiple systems making it difficult to aggregate risk information
- Desktop computing power inhibits the ability to undertake frequent and ever more complex actuarial/risk models
Case study of Actuarial Spaghetti!

Current financial reporting and actuarial systems processes
Solvency II Projects
SII – Lineage and Compliance

For compliance with SII you need to have lineage from an individual policy to through to the ultimate SCR.

- Reporting Engine
- Capital Aggregation Engine
- Risk/Financial Engines/Assets
- Actuarial Modelling Engines
- Model Points
- Data Quality/Ware Houses/Integration Technologies
- Source Systems

Risk Management Processes

Capital/Risk Information for Use Test/ORSA

Risk Management process to provide auditability & governance

ORSA

Use Test
Secrets of Success

- There is no one-size fits all solution to Solvency II - *no vendor has one and no insurer would buy one!*
- Insurers already have a number of existing SII related components - these will have to be integrated into any strategic SII framework
- Plan strategically but implement in a phased manner delivering defined functionality in other words identify a number of quick wins
- Components must be capable of meeting both today's and tomorrows requirements – they must be flexible – data model, warehouse, reporting engine etc....
- IT must work closely with Actuarial, Risk and Finance to *understand* the business requirements
- Ultimately business benefits have to be derived from a SII program so plan for SII plus and finally ..................................

**IT represents 50% upwards of total SII Budget**
1. **Stable, repeatable and robust technology platform for risk management**

2. **Full audit, security and control around risk systems**

3. **Version control and change management around risk models and process**

4. **Full documentation of risk models and associated risk management process**
Oracle Solution
Typical SII Architecture

1. Source Systems
   - Policy Admin Systems
   - Claims
   - Asset Data
   - Bloomberg
   - Risk
   - GLs

2. Manual Data Entry
   - ETL
   - Data Quality
   - Process Flow Automation

3. Data Staging Area

4. SII Repository
   - Policy/Assets Data
   - Actuarial tables
   - External Data
   - Financial Data
   - Cash flow projection output
   - QIS5/QRT/SII Data
   - Aggregation, Analyses
   - Reconciliation

5. Validation Engine
   - P&C
   - Assets
   - LIFE
   - Economic Capital
   - ALM
   - Operational Risk

6. Pillar II Compliance
   - ORSA
   - Use Test

7. Analytics
   - BI Reporting & Analysis
     - Monthly KPIs
     - Business Dashboards
     - Risk/Management
     - Regulatory

8. Actuarial Engines
   - P&C
   - Assets
   - LIFE
   - Economic Capital
   - ALM
   - Operational Risk

9. Financial Consolidation Engine
   - Balance Sheet Forecasting
   - Financial Consolidation
   - Annual Reporting - QRTs

Typical SII Architecture

1. Source Systems
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   - Claims
   - Asset Data
   - Bloomberg
   - Risk
   - GLs

2. Manual Data Entry
   - Data Quality
   - Data ETL
   - Data Staging & Validation
   - Data Repository
   - Process Flows
   - Calculations & Aggregation

3. Oracle OFSFA
   - SII Reporting
   - Dash Boards
   - KPIs
   - Integrated Risk, Actuarial & Finance
   - Solvency II Plus

4. Oracle HFM
   - Financial Consolidation
   - SII Reporting
   - XBRL
   - Audit & Security
   - Process Flows

5. Validation Engine
   - P&C
   - Assets
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9. Financial Consolidation
   - Financial Consolidation
   - SII Reporting
   - XBRL
   - Audit & Security
   - Process Flows

10. Governance Risk & Compliance Systems
    - Risk Process definition
    - Risk Process flows & controls
    - Risk Reporting
QMR (SII Regulatory) Reporting Application
Using the HFM platform
What is QMR for SII? (Quantitative Management Reporting)

- “Out of the Box” solution for SII reporting – QRTs, SFCR, RSR
- Based on the existing Oracle financial consolidation engine – Hyperion Financial Management (HFM)
- HFM comprises:
  - Powerful Financial Consolidation Engine with process flow controls (HFM)
  - Data Quality and Integration Tool (FDQM)
  - Reporting (Disclosure Management)
- QMR is a dedicated application that operates with the HFM environment to specifically provide for QRT, SFCR, RSR functionality.
- The QMR application will be maintained and developed by Oracle to keep pace with EIOPA regulations.

All insurers need to capture QRT information from all their legal entities, reporting entities, branches or any other organisational structure of the respective insurer.

Many insurers are using manual Excel procedures to capture and consolidate information.

This is could be a violation of upcoming Solvency II reporting requirements (Pillar II) and will impose future liabilities regarding insurers filling Solvency II (based on further developments of QRT principles).
QMR Process Flow

**SII Cycles**
- Financial
- Actuarial
- Asset
- other

**Data Sources**
- Process Management
- Rules Engine
- Validations
- Journals
- Audit Tracking
- Inter-company Processing

**Processing**
- QRT specific calculations
- QRT Data forms
- QRT Report structures
- Dimensionality to support QRTS
- SFCR/RSR Templates

**QMR**
- User Driven ETL
- Data Load Repository
- Audit, Security & Control
- Drill-through

**ETL**
- Manual Entry

**Reporting**
- OBIEE, Smart View & Financial Reports
- Disclosure Management & FCM

- QRT
- SFCR
- RSR

**FDQM**
- Report Generation (pdf/html/MS Office)
- Adjustments
- Explanations
- XBRL Tagging
- Qualitative Text
- Dashboards

**Source → Mappings → Target**
QMR Application within HFM

- Pre-Built application that supports (both independently and in conjunction with Oracle S-II Repository) the generation of the QRT reporting requirements as prescribed by the European Insurance regulators (EIOPA) for both for solo and group reporting
- Incorporates calculations for SCR/MCR and Diversification calculations
- Our approach and release management will support future upgrades in the underlying platform (HFM) and future regulations – e.g. QRTs/SFCRs/RSRs....
- QMR supports both Life, Non-life business and composite Insurers
- Capability for the customisation of QRT templates (for local regulator requirements) and generation of user specific templates

QRT specific calculations
QRT Data forms
QRT Reports
Dimensionality to support QRTS
SFCR/RSR Templates
The announcement that XBRL will be the reporting standard for Solvency II has been welcomed by many. Now EIOPA has revealed that in July it will launch the first of two public consultations on the use of the XBRL for Solvency II. For Solvency II this data is defined by the final reporting template.

“The final draft of the taxonomy will depend on the final reporting template, which will be decided upon in the EIOPA Board meeting of October 2011. It is, however, possible that some small modification will be needed due to changes in the Level 2 Text”

After the Board approves the taxonomy in October, EIOPA will launch a full public consultation of the reporting templates and the underlying taxonomy. The July consultation will focus on technical aspects.

“The July consultation will relate to the design of the taxonomy” Mr. Hoedjes explained. “It will not relate to the reporting templates, just the pure technical XBRL solutions chosen to accommodate the complexity of the reporting templates.”
Benefits of QMR

1. “Out of the Box” solution for QRT - Specially bundled package of HFM/QMR for SII reporting

2. Fully supported and maintained by Oracle with a discounted “bundled price” for SII reporting

3. Fully customisable to an insurer’s specific legal structures, regulatory environment and internal requirements

4. Relatively quick implementation process – estimated 3-4 months to support SII reporting - can be quicker in an existing HFM client

5. More than just a reporting solution – it provides essential capabilities for Pillar 2/3 SII controls:
   - Data Quality, Auditability, ETL
   - Validations and Calculation capabilities
   - Embedded process flows with inbuilt approvals and signs-off procedures
   - Support for Internal and Standard Models
## EIOPA QRT Templates

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<th>Template</th>
<th>Content</th>
<th>S</th>
<th>G</th>
<th>QS</th>
<th>IAG</th>
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Oracle - SII Reporting Pack
Solvency II – Repository

Capital Aggregation Inputs/Results (Algo- Risk, Ortec)

Actuarial Modelling Input Data (MoSes, Profit, Igloo, ReMetrica, Mo.Net)

Actuarial Modelling Results Data (MoSes, Profit, Igloo, ReMetrica, Mo.Net)

External Data

Asset Data

Financial Data

Reporting Data

QRTs, SFCR, RSR, MVEV, IFRS etc...

Actuarial Results Files, Risk Factors, Asset Data (super-set). Results – Curve Fitting, Replicating Portfolios

Results Files, Cash Flows etc........

Assumptions Tables, Yield Tables, Mortality Tables, Run Parameters, Policy Data

ESG files, Catastrophe Models, Reuters, Bloomberg etc

Portfolio, Asset Types, Duration ,QRT inputs etc

Balance Sheet, P&L, IFRS, GAAP

SCR
Solvency II – Reporting

Statutory/SII
- QIS5, QRT, SFCR, RSR → ORSA, Use Test

Management Reports/Dashboards
- Management/Business Information

Executive
- Economic Capital/KPIs/SCR
- SCR Projection/SCR Breaches/SCR Breakdown

Risk Management
- Risk Factors/Capital/Risk Analysis/Geographies

Asset Management
- Asset Mix/Asset Durations/Intangible Assets

Actuarial
- Shocks/SCR Scenarios/Sensitivity Analyses

Finance
- Operating Expenses/Income, Claims Analysis, Liquidity, Key Ratios, Capital Adequacy etc

Reports
- Ad Hoc
Risk Reports

SCR Breach Level

MCR Breach Level

Risk Factors over Time

SCR by Region
Impact of the 26 EIOPA Shocks

Impact of the 26 EIOPA Shocks – Projected Forward

Internal v Standard Models

SCR Killer Scenarios
SII is spreading around the globe

South Africa is adopting a SII regime by 2014

Australia is also considering an SII regime

Japan is adopting an SII regime

Mexico is adopting SII Equivalence for 2012

Israel is considering SII type regime

USA currently has Principal Based Approach regulation but likely to move to SII regime in a few years
Rating Agencies have similar requirements…

- “All insurers will need to have at a strong enterprise risk management assessment before we will consider undertaking an Economic Capital Review”

- These insurers will have demonstrated to us that their Economic Capital Model (e.g. Internal Model) is an integral part of the way in which they manage their business and thus will tend to have better and more robust models

- It is important that management relies on the ECM as a key management tool and not just as a determinate of capital adequacy

Source S&P