



Solvency II: Will your data let you down?

A Detica white paper

Solvency II: Will your data let you down?

Executive summary

After having faced successive waves of regulatory change, the UK insurance industry is now confronting the challenges posed by Solvency II. Insurers now face a significant data management challenge in terms of the scope of risks to be assessed and the level of regulatory scrutiny they will face. They need only to look to the experience of the banking industry where, in preparing for the adoption of Basel II, many banks underestimated the scale of data quality problems and the level of effort required to fix them. These unresolved issues have not only driven up day-to-day operating costs but have also required the banks to hold a higher level of capital to compensate for the increased uncertainty arising from unresolved data issues. Those insurers who underestimate the significance of scaling up their data management capability in the Solvency II equation do so at their peril.

A step change in risk management

The UK insurance industry continues to work hard to accommodate wave after wave of regulatory change. Following the upgrade in capital calculation processes required for the adoption of the FSA's Individual Capital Adequacy Standards (ICAS), the industry is now shifting its focus to confront the challenges posed by Solvency II.

Solvency II takes a more holistic approach to risk management. It goes beyond the assessment of insurance risk, already covered by Solvency I, to take into account market, credit and operational risk as part of the capital calculation process. In addition, like Basel II in the banking sector, Solvency II provides the opportunity for insurance firms to develop their own bespoke assessment of their capital requirements. This will enable a much more tailored assessment of risks and provide the potential to drive down the level of capital required to meet the regulations and make a positive impact on the bottom line.

Having set out valuation standards and capital requirements under Pillar 1, Solvency II introduces a more rigorous supervisory process under Pillar 2, while Pillar 3 covers the increased disclosure which is required to both the regulator and the market. This is closely in line with Basel II, as is the 'principles-based' (rather than 'rules-based') approach to compliance which places the onus on the insurer to interpret 'what good looks like' when meeting the regulator's requirements.

While the focus to date has been on developing new modelling processes for Pillar 1, it is Pillars 2 and 3 that will require the greatest changes in working practices, placing demands for greater governance of over the capital calculation process and a clear demonstration of their application in day-to-day risk management processes (the so-called 'use test').

The focus on data management

Under Solvency II, the introduction of the Own Risk and Solvency Assessment (ORSA) as part of Pillar 2 simply formalises what should already be considered good practice across the UK insurance industry. However, the supervisory review process also introduced under Pillar 2 places increased regulatory scrutiny on how the ORSA is achieved, in particular the requirement to:

- establish robust internal controls around the collection and storage of risk data;
- demonstrate that risk assessments are based on accurate, complete and appropriate historical data;
- demonstrate accuracy and consistency between the data used to support the capital calculation and wider management and financial reporting across the organisation.

Having aligned their existing capital calculation processes with ICAS, insurers now face a further data management challenge in terms of the scope of risks to be assessed and the level of regulatory scrutiny they will face. However, data management in the insurance sector, in particular within the risk management function, has traditionally been managed as a 'cottage industry' rather than as part of the core MI capability. With many actuarial departments sourcing data from outside the central finance and management information systems, Solvency II presents a major data quality, control and reconciliation challenge. Those insurers who underestimate the significance of scaling up their data management capability in the Solvency II equation do so at their peril.

	Minimum capital requirements	Supervisory review process	Market Discipline
Basel II	<ul style="list-style-type: none"> • Credit risk • Market risk • Operational risk 	<ul style="list-style-type: none"> • Internal Capital Adequacy • Assessment • Supervisory framework 	<ul style="list-style-type: none"> • Disclosure requirements for banks
	Pillar I	Pillar II	Pillar III

Robust internal controls around risk data collection and storage
 Risk assessments based on accurate, complete and appropriate historical data
 Accuracy and consistency between capital calculation data and wider reporting data

	Quantitative requirements	Supervisory review process	Disclosure requirements
Solvency II	<ul style="list-style-type: none"> • Technical provisions • Investment rules and ALM • Capital rules 	<ul style="list-style-type: none"> • Own Risk and Solvency Assessment (ORSA) • Supervisory intervention 	<ul style="list-style-type: none"> • Disclosure Solvency & Financial Condition report • Market Discipline
	Pillar I	Pillar II	Pillar III

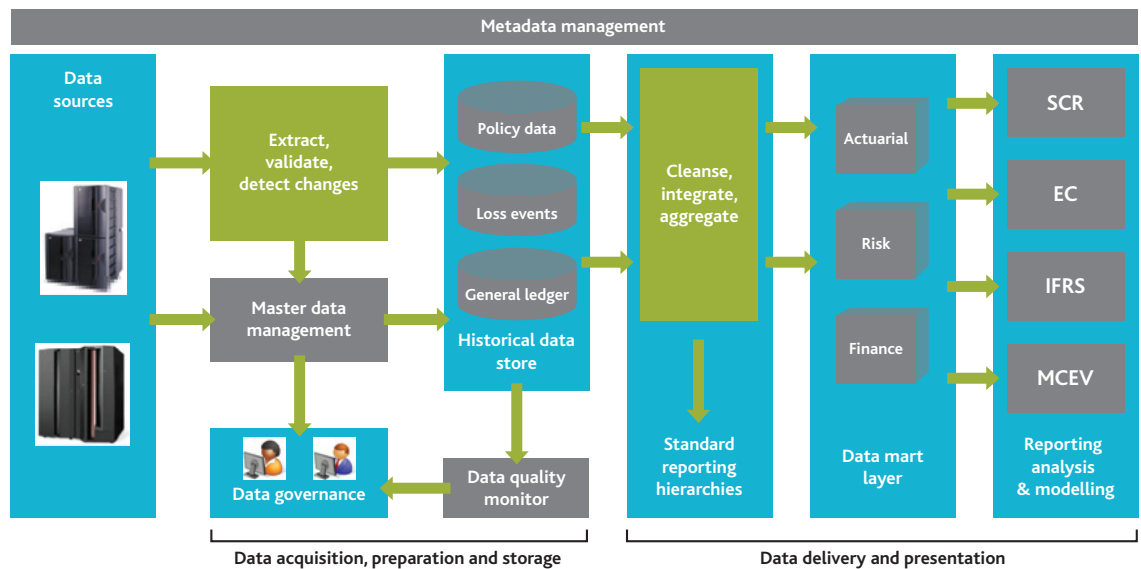
Learning from the Basel II experience

Insurers need only to look to the challenges their colleagues in the banking industry have encountered in meeting the revised regulatory regime of Basel II. Banks have been required to demonstrate much stronger governance over how data is managed across the organisation, from the point where it is first captured, through the various interim repositories in which it is stored to the point at which it becomes available for analysis.

The most common mistake made by many banks in preparing for the adoption of Basel II was to underestimate significantly the scale of data quality problems and the level of effort required to fix them. All too often the focus of attention was on perfecting the capital adequacy algorithms with little attention given to the quality of the data that would ultimately feed them.

Many banks have had to revisit their existing processes for data management as these were not sufficiently robust to meet the requirements. Tight timescales have compelled many to force through short-term tactical fixes and, as a result, many continue to face ongoing data clean-up exercises today. These unresolved issues have not only driven up day-to-day operating costs but have also required the banks to hold a higher level of capital to compensate for the increased uncertainty arising from unresolved data issues — thereby directly hitting the bottom line.

Under Basel II, the data management requirement was translated into a series of best practice principles, against which banks were required to demonstrate good data management processes and policies. While there is a similar focus on governance under Solvency II, the detail of the best practice remains to be defined in detail. Despite this ambiguity, one thing is certain: insurers should begin now by addressing the issues that have caused the banks the greatest pain.



Experience has shown that best practice data management is key to achieving Basel II compliance and that 'getting the data right' can be one of the most time-consuming parts of the wider programme — and one of the hardest to fix retrospectively. To avoid this pitfall in Solvency II, insurers should deploy a data management framework based on three key components, namely data architecture, data quality and data governance. By tackling the data management challenge early and on all three fronts simultaneously, insurers can get their data into the right shape to exploit the capital efficiencies offered by Solvency II.

Choosing the right data architecture

The first component in the data management framework is the data architecture. This provides an essential blueprint for managing data in a structured manner as it flows across the organisation. By ensuring greater consistency in how data is sourced, stored, documented and presented it will improve an insurer's confidence in the accuracy of inputs into the modelling and analysis processes.

Under Solvency II, there will be an increased demand for historical data to support capital calculation and model verification processes. While actuarial teams have traditionally sourced the data they need on a piecemeal basis, rather than integrating their processes into the mainstream data management systems, this will no longer be a viable approach given both the scale of data requirements and increased scrutiny by the regulator around how data is sourced. Ease of auditing data is also important and insurers will be required to demonstrate how they reconcile data across the different sources used within the analytical process. A robust, well-documented data architecture will therefore be a key enabler for achieving compliance, as has been the case with Basel II.

Although it may seem attractive to build a single, centralised data store to support analysis and reporting across the organisation, very few major UK financial services organisations have successfully taken this route. There are many reasons for this, not least of which is the expense and complexity of the delivery of a robust solution to address changing requirements across a wide and diverse user base. Consequently, many organisations have found themselves managing multiple 'golden sources' with each new data-dependent project building a new, 'definitive' data store. Unsurprisingly this had resulted in a proliferation of data stores and an increased risk of inconsistent management reporting and decision making across the organisation.

The best data architecture for Solvency II purposes will be one based on a hybrid approach. This balances consistency in data sourcing, data quality management and master data management while enabling the independent creation of specialised data stores for analysis and reporting. This approach is based on centralising the acquisition, preparation and storage of historical data, but recognises the need to respond quickly to uncertainty in requirements by decentralising the development of the data stores to be used for analysis and reporting. Many banks have found that this model ensures that investments made for regulatory compliance purposes (such as Basel II) can also provide a strong data foundation for delivering management information to the wider community beyond the risk department.

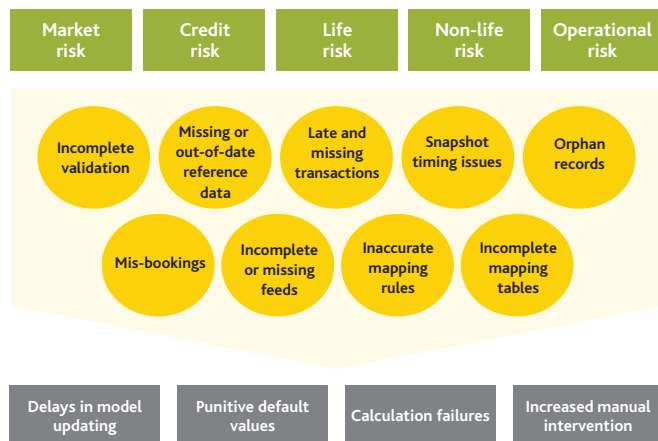
Centralising the sourcing and management of all reference data (such as customer types, regions, insurance risk categories and transaction types) means that data is validated once within the architecture and any data quality exceptions

can be remedied as close to the source as possible. Agreeing a master source for data will avoid the inconsistency around reporting which occurs when different source systems have been used by different departments for reporting and analysis. This will facilitate robust reconciliation and control, in particular across general ledger and transactional systems, to ensure that regulatory financial reporting and risk management are supported from the same underlying data sources. Analysts within Actuarial, Risk and Finance functions will then be able to access the information they need, using a consistent set of data to underpin both capital reserving and day-to-day underwriting decision making, whilst also helping to meet the Solvency II use test.

Resolving and monitoring data quality issues

The second component in the data management framework is data quality. While adopting an internal modelling approach can offer a significant capital reduction, this will only be achieved against a backdrop of “accurate, complete and appropriate” data as stated in the Draft Solvency II Directive. In other words, the effectiveness of insurers’ internal models cannot be guaranteed without easily available, high quality historical data feeding into the modelling process.

Data quality issues



Impact on modelling process



While initial attention has focused on getting the capital calculations right, this investment will not pay off until the calculations are underpinned by good quality data. Poor data quality can impact the modelling process in a number of ways such as delays in model updating, calculation failures, punitive default values and increased manual intervention. This can ultimately lead to an increase in the level of capital to be held as the regulator places a capital charge on top of the firm’s own assessment.

A key point to note is that tackling data quality cannot be an isolated exercise within individual departments. It should instead take the form of a cultural change exercise across the organisation that leads to data being treated and managed as a core business asset. Experience has shown that fixing data issues at source is much more effective than adding new reconciliation layers into the process.

Data quality management should be based on the development of a ‘virtuous circle’ of assessment and improvement. While data quality is identified as a challenge by almost every financial services organisation, few can specifically identify where their greatest challenges are or where to begin prioritising problems for resolution. The data quality management circle implements two key business processes, namely the profiling and measurement of data quality and the subsequent investigation and resolution of the issues identified.



The first step in the circle is to begin by gaining a good understanding of the gap between the current state of an insurer’s data quality and the end goal of data that is “accurate, complete and appropriate”. Data profiling techniques can be used to assess data against business rules of varying complexity to determine where gaps or issues may lie in the captured data. For any issues found, business owners should be identified to take action on resolving them. In this way, the insurer can move towards a culture where a commitment to improved data quality becomes embedded into all stages of the data lifecycle from capture to usage. This will also ensure issues are resolved at source rather than being addressed by the development of new workarounds.

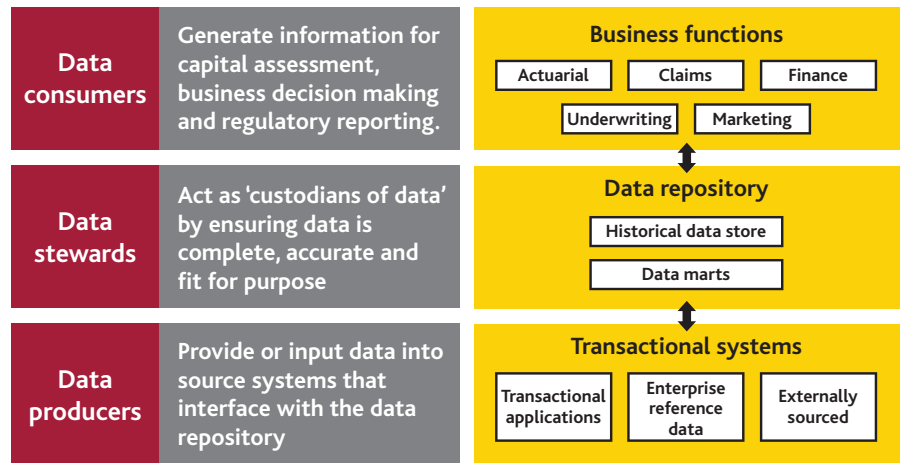
In addition to identifying and resolving data quality issues, adopting an automated data quality scorecard on an ongoing basis will enable quality to be monitored against a set of pre-agreed targets. This will enable insurers to monitor progress against a core set of data quality performance indicators as new issues are identified, captured and then resolved. Over time, as data quality improves, insurers can add new measures and set new targets.

The experience of Basel II has shown that there can be a significant investment required to bring data quality up to a level where it can provide a strong foundation for risk assessment. It is also prudent to begin work early on tackling data quality improvement. Under Basel II, large banks found themselves facing hundreds of millions of data quality errors every month, leading to significant 'noise' in the capital calculation and a major effort to just prioritise the issues — let alone begin to fix them. In the period leading up to and immediately after implementation, when their attention should have been focused on refining the capital modelling process, banks found their most significant project risks to be in the data quality area. Rather than face a last-minute scramble to clean their data, insurers should mitigate the risk by including remedial work on data quality at the outset of their planning.

Enforcing data governance across the organisation

The final component in the data management framework is data governance. Enforcing strong governance across data management and analysis processes will ensure that the data platform will stand up to regulatory scrutiny and provide a robust foundation for wider business decision-making. Under Solvency II it will not be sufficient to demonstrate that those responsible for the capital calculation and risk management process possess a good understanding of data ownership and responsibility. With greater scrutiny of the data sourcing process as part of Pillar 2, the same level of rigour must be demonstrated across the organisation as a whole. This means that an insurer must demonstrate the same standards of ownership at every point where data is captured, stored or analysed across its organisation.

To support the roll out of good data governance, there are three distinct data management roles that need to be more formally recognised, namely 'data consumer', 'data steward' and 'data producer', each of which has its own particular data management responsibilities. In addition to these, 'data champions' need to be identified who can take ownership for each business and technology area involved.



As Solvency II moves from a change programme into 'business as usual', these data management roles will become even more important by ensuring that the increased focus on data is not simply a 'one-off' but remains a sustained part of the organisation's culture.

Finally, governance must also be applied across analytical processes. With greater scrutiny from the regulator, insurers will be required to demonstrate the robustness of their analytical methods. Having clear documentation of their capital calculation methodologies will be critical to avoid an additional capital charge from the regulator. While the capital calculation process has remained in the back office, with PC-based analytical tools deployed on the analysts' desktops, their tools and methods have not yet been subject to the 'industrialisation' that will be required for the wider risk management demands of Solvency II.

The 2012 capital challenge

The 2012 transition to the Solvency II regime should not simply be seen as a 'must do' regulatory requirement but also an opportunity to introduce a more responsive risk management culture underpinned by a robust set of data assets. Insurers that stand to benefit most from Solvency II will be those that seize the opportunity to take a more risk-based approach to day-to-day business decision making. A high level of data quality will be an essential prerequisite and remains the most significant barrier to reaping the benefits of Solvency II.

For those that do get it right, improvements to data architecture and implementation of stronger governance will enable them to not only achieve more efficient capital management but also gain wider benefits — such as lower operating costs — from more effective use of their data assets. This will enable a truly risk-centric approach to underwriting and pricing, responding to each new risk as it is encountered in the market.

Although the Solvency II implementation date of 2012 may seem to be a long way off, insurers need to get to grips with the compliance task that lies ahead — and soon. The lessons learnt from the banking industry in achieving Basel II compliance show that costs can get out of control if planning is left too late in the day. Many banking organisations have been forced to initiate multi-million pound programmes to

remedy data issues preventing them from optimising their capital under the Basel II regime. If insurers are to learn from the experiences of the banking industry then now is the time to take remedial action before it is too late.

As 2012 looms ever closer, insurers should also look to the experience of organisers of previous Olympics games for inspiration. While Sydney was well planned, with early engagement of all stakeholders and a plan to make ongoing use of the assets built for the games, Athens saw poor planning, last-minute cost increases and the construction of white elephants that proved redundant after the games. Without timely and appropriate planning, investments made for Solvency II are at risk of going the same way. While the final outcome of the London Olympics will not be known for some time, the winners and losers of Solvency II will become apparent long before the curtain is raised on the 2012 games.

About Detica

Detica is the only consultancy to specialise in helping clients collect, manage and exploit information to reveal actionable intelligence.

We focus on identifying and countering those who threaten the safety of the public, the security of the state or seek to commit serious and organised crime. We also use our skills to assist clients with other information-intensive problems such as achieving regulatory compliance and understanding customer behaviour.

We have world-class expertise in delivering solutions within the areas of information exploitation, security and resilience, threat intelligence and customer insight. We can deliver every aspect of a solution, from strategy formulation through people and process change to the development and support of technology.

From our roots in national security, we have built in-depth experience and domain expertise in government, financial services and telecoms. Based in the UK, we have a presence in Europe and the US in global financial markets, and a strong US position in homeland security.



© 2008 Detica Limited. ALL RIGHTS RESERVED. This document is copyright of Detica Limited and/or its affiliated companies. Detica, the Detica logo and/or names of Detica products referenced herein are trademarks of Detica Limited and/or its affiliated companies and may be registered in certain jurisdictions. Other company names, marks, products, logos and symbols referenced herein may be the trademarks or registered trademarks of their owners. Detica Limited is registered in England under number 1337451 and has its registered office at Surrey Research Park, Guildford, England, GU2 7YP.

Find out more:

If you require further information please contact:

Max Richter
T +44 (0)207 812 4882
M +44 (0)7799 415 281
max.richter@detica.com

Maggie Scott
T +44 (0)207 812 4487
M +44 (0)7500 964 118
maggie.scott@detica.com

Detica
2nd Floor
Regis House
45 King William Street
London
EC4R 9AR

www.detica.com