Use of technology and software in Solvency II compliance programs

By Patrick HENNION, CEO ADDACTIS BeLux & Pierre MIEHE, Deputy CEO ADDACTIS Worldwide

What are the key drivers behind the introduction of the Solvency II Directive? How have its provisions been received by insurers?

Patrick Hennion: Solvency II is a part of the wider ambition of the European Union to organise a common market for insurance. Part of this plan is to provide the same level of protection to all policyholders in Europe. This is a first step toward the creation of a unified market. Insurers have been associated with the elaboration of the Directive through the Lamfalussy Process. Some provisions have been well received while others have fuelled intensive discussions with regulators, especially for long-term guarantees. Not all questions are currently solved and a lot of fine tuning will be required during the implementation phase.

Do you have any concerns as to how the Solvency II Directive has been developed? What changes, if any, would you like to see before it comes into effect on 1 January 2016?

Pierre Miehe: We have no real concerns as to how the Directive has been developed. Consultation with the industry has been intensive but not all of the desires of the industry have been fulfilled by regulators. In fact, discussions are continuing and the implementation phase will bring new adaptations. More worrying seems to be divergence between the application of Solvency II in different countries. The organisation of convergence by the European regulator will play a major role in delivering standardised solutions all over Europe. Regulators should also pay special attention to the accounting issues surrounding Solvency II and the implementation of IFRS.

Could you provide a brief overview of the operational and compliance issues for insurers that will arise from the EU Solvency II Directive?

Patrick Hennion: Even if most insurers have solved the issue of calculations of capital requirement, they have a lot of work to perform to be fully compliant. The tasks they have to perform are now many, but we would like to stress one aspect: data quality. Insurers are paying more and more attention to it, as are regulators. Data management in insurance companies is dominated by many legacy issues: systems of data are often siloed and data may come from diverse systems following mergers and acquisitions. Consequently, actuaries do not always have at their disposal a good level of quality data. In the foreseeable future, regulators will pay more and more attention to this item and insurers have to prepare for it.

In the run-up to Solvency II, what preparations can insurers make in relation to their data management solutions, system platforms and data warehousing?

Pierre Miehe: There are many fields in which insurers will have to increase attention and preparedness. We would like to stick to two aspects: data quality and calculations speed. Data has always been a thorny issue for insurers. Insurance is a complex activity, and it impacts the collection of data. In some companies which result from merged or acquired operations, guaranteeing the uniformity of data is not simple. For more recent data, accurate traceability of extraction is difficult to achieve. Insurers will have to put in place processes to organise data which can provide a way to evaluate appropriateness, completeness and accuracy as mentioned in the Directive. Indeed, Solvency II is a computing challenge, with a clear trend toward stochastic calculations. Insurers have to review their existing tools to ensure they can move to the stochastic world.

In your opinion, are the requirements set out by the Directive too demanding? How can effective data analytics ease the burden and assist compliance?

Patrick Hennion: Some consider the requirements of the Directive are too demanding. However, one should take into account that the Directive is designed to protect policyholders, which will always place higher demands on financial institutions. Fortunately, better technology helps companies to achieve all or significant parts of the requirements placed on them. Data analytics can ease the burden of compliance, and it has never been easier to keep track of operations, to store data and to organise them. However, it means paying more attention to integrated process and, for actuaries in particular, relying less on unprotected spreadsheet calculations.

To what extent will the Solvency II Directive impact on third party service providers? What IT solutions might insurers consider to manage and monitor their operations?

Pierre Miehe: Impacts are many and special reference could be made to article 49 of the Directive on subcontracting, which puts significant constraints on relationships between insurers and sub-contractors. We would like to stress that transparency will prevail in all fields of activity in insurance. The era of black boxes is over. The idea that 'as long as it works, I don't care how it works', will not be acceptable to regulators in the future. The software and solutions used by companies will have to be as transparent as possible. Relationship with contractors will include a significant part of reporting and knowledge sharing between the parties.

Looking ahead, how do you expect insurers to adapt to the Solvency II Directive? How key will technology and software solutions be to this process?

Patrick Hennion: Insurers will have no significant problems adapting to Solvency II which, by and large, corrects processes and risk metrics generally used informally in the past. Solvency II is also very dependent on new technology. The traceability it requires would not be possible without modern databases and storage capabilities. The calculations recommended, especially stochastic, would not be possible without modern calculation platforms and CPUs. The diffusion of risk culture within companies that it demands would not be possible without modern internal communication techniques. For companies, the most difficult aspects will be forgetting silos and adopting more unified views, limiting main calculations on spreadsheets, and being more formal when documenting their activities.

Why are software packages more and more important for actuaries?

At ADDACTIS Worldwide, we started out as actuarial consultants and we made a point of not losing this speciality as we expanded in France and across Europe. However, we realized at the same time that software was to play an increasing role in the lives and work of modern actuaries. So we went into the software business and developed a range of products now used by more than 100 clients worldwide and reputed for their quality. They cover a wide range of needs from reserving to pricing, reporting, modelling or closing for insurance companies in more than 45 countries.

Why develop software for actuaries?

Professional software is already used in companies but perhaps not to the extent it should be. And there are some who doubt the interest of actuarial software. Not that they doubt the need for calculation tools. They have a feeling that there is already a «software package» that performs all the calculations actuarial departments need. In fact, their reluctance is often due to the prominence of spreadsheets (regarded as «professional software») used for actuarial calculations in actuarial departments.

The actuarial profession discovered its Shangri-La with spreadsheets in the 80's. The quality of the concept and its versatility («from shopping lists to simulations») made it a well accepted solution in the actuarial world as well as in all fields of management. Even though professional software is in widespread use, some insurance technical departments still rely heavily on spreadsheets. This is true even in some government departments and/or - horresco referens - accounting firms. The spreadsheet is for some, so to speak, the «Swiss army knife» of the industry. However, the tasks we perform as consultant actuaries regularly show up the shortcomings of spreadsheets, offsetting their ease of use. These shortcomings could be summarized under two main headings: for all their other qualities, spreadsheets are not a good way of enhancing the productivity of actuarial work; and they do not provide satisfactory traceability of calculations performed.

Organizing productivity of actuarial work

Productivity of actuarial work is a constant concern for insurance executives. Actuarial resource and knowledge are scarce and can be expected to remain so. Consequently, the best use of these resources is of the utmost importance for the C-suite.

And spreadsheets do not prove to be the best way of ensuring productivity. Who in the insurance industry does not know about chain ladders developed several times in very similar forms?

Achieving productivity with spreadsheets requires:
- Spreadsheets already feature basic calculation methods, but more importantly one needs a library of all «models» developed. Maintaining the internal library of spreadsheets is a long and arduous task, and one that is not always performed correctly. Products are available to address this issue but they are not in widespread use. One should not discard the strong feeling that a spreadsheet is seen as «only a try», just to get an idea and that it will be rapidly deleted. In fact, this «limited trial» very often becomes a well-established tool still used 10 years later, having been progressively made more complex without being properly documented.
- Documentation must be available; it makes the spreadsheet easily accessible to other actuaries. Documenting models and calculations can be much harder than developing algorithms and formulas. This is the prerequisite for proper circulation of models and results in the company. This is the way to coordinate work between actuaries without lengthy explanations and undue time-wasting. No specific features are built into spreadsheets to produce proper documentation.

Experience shows that the two pillars of productivity in actuarial work (existence of organized libraries of calculations and documentation of each and every calculation) are rarely found in companies. This is why it could be achieved more easily with actuarial software. For example, ADDACTIS IBNRS®, the reserving software of ADDACTIS Worldwide, embeds these two aspects. Common reserving methods are included and readily available to the user, such as chain ladders, Munich chain ladders, bootstraps, etc. But the application also features less common algorithms such as Fisher Lange, or even RJMCMC (on request).

With ADDACTIS IBNRS®, ADDACTIS Worldwide offers companies and their actuaries standardized libraries of functionalities, with no need to re-invent and re-program older methods. The different methods are documented in the program itself. Productivity is boosted by the presence of ADDACTIS IBNRS® in many companies; actuaries who already use ADDACTIS IBNRS® can quickly get into the calculations of reserves of their new company.

Traceable calculations

Auditability is as serious and important as productivity. If productivity is the consequence of scarcity of actuarial resources, auditability is the child of repeated financial crises since 2000. The central role of actuaries (providing some of the most sensitive figures in ruling and balancing (reserves) or in future profits construction (pricing)) makes their work a key target for auditability issues.

And spreadsheets, notwithstanding all their qualities, are not the best tools for auditability due to the lack of traceability. One often finds spreadsheets that have been changed without warning after the end of the year, making it difficult to go back to previous results. The level of discipline an organisation would need to achieve to guarantee the audit trail of a process mainly based on a spreadsheet would make the discipline of an 18th century Navy ship look benign. «Audit trails» can be broken in many ways, including: substituting a formula after closing, substituting data, using an outdated spreadsheet file in a calculation, changing a formula used in only one cell when it applies to several examples abound and practitioners have seen several in their careers.

In this field as in productivity, spreadsheets are victims to their best qualities: easy to understand, easy to use, highly versatile. These qualities make them a quick and easy solution for most basic problems actuaries and other professions are facing. Unfortunately these qualities are achieved to the detriment of productivity and traceability. That is why professional software should be used in actuarial departments for clearly identified needs: reserving, where traceability is of the utmost importance, modelling (increasingly the source of SCR calculations), and pricing, because future profits depend on it. ADDACTIS Worldwide's software packages feature a complete audit log.

Who changed the inputs? When were the formulas modified, what is the new value of parameter?

The answers to these vital questions are kept in a safe, non-modifiable log. This log is essential for managers and actuaries to keep track of their calculations or for auditors to control work performed.

Consequently, it is perhaps time for companies to dig into the use of spreadsheets and determine how acceptable it is to «let spreadsheets lead the calculations». Not those spreadsheets have to disappear, but that in some cases they do not address the issues at stake for actuaries.

The basic questions the insurance company may ask regarding each and every calculation is: What discipline is applied to keep a trace of this calculation in my audit trail? Is the calculation properly locked? Are the inputs locked? Who accessed it? Where were changes documented? Are the different versions properly stored and accessible? We regularly ask our clients these questions at ADDACTIS Worldwide to work out the necessary changes in their data collecting, processing and reporting. When their answers are not satisfactory, clients consider it is time to use more dedicated software to improve the productivity and traceability of actuarial work.

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