By Tim Pauza and Christopher Bellomo

With actuaries’ increasing reliance on data and information technology, forging a strong partnership with information technology (IT) professionals is critical to a company’s success.

This article discusses the evolution of business needs and the corresponding relationship between actuarial and IT, key challenges to collaboration, and ways to develop a more progressive and effective partnership. While life insurers are particularly impacted by these trends, due to their high dependency on actuarial models, many of the topics discussed here apply to health and general insurance as well, especially given the growing importance of analytics.
In the past, regulatory and reporting requirements in the industry were more stable and simpler and did not require as much specialized software, data management and reporting capabilities or computing power. Actuaries often worked relatively autonomously with limited IT support, and got by using a combination of vendor software, end-user computing tools and familiar programming languages such as Visual Basic or C++. Often the tools selected were based on the personal preference of the actuary and not aligned with company strategies and/or department standards.

The actuaries often viewed formal project management, systems development life cycle (SDLC), and controls as administrative burdens and obstacles to timely completion of their projects; they felt they could solve problems faster and more efficiently without IT support.

Over time, the actuarial solution set and environment evolved to a more complex collection of source systems providing key data, vendor software packages for modeling and/or valuation, internally developed programs for specific needs, grid computing, and a web of databases and spreadsheets to produce and report the results. This operating model resulted in siloed solutions that rarely scaled well and were difficult to support in the long term. It also resulted in control deficiencies and errors; key person risks; inadequate responsiveness to the key business needs; and costly, inefficient manual processes. The accumulation of years of short-term, cost-effective fixes has led to a high long-term total cost of ownership.

Sarbanes-Oxley Section 404 (SOX 404) internal control requirements exposed the extent of the problem; it was not uncommon to find hundreds if not thousands of spreadsheets and/or databases used in the valuation process — sometimes for a single line of business!
In the last decade, the life insurance industry has seen a surge of complex products, including variable annuities with riders, equity indexed annuities with and without riders, and equity indexed universal life. Reporting standards and regulatory requirements have also evolved, with the introduction of principle-based reserves and capital, Solvency II, Solvency Modernization and the Own Risk and Solvency Assessment (ORSA), and proposed changes to generally accepted accounting principles (GAAP) and international financial reporting standards (IFRS) reporting for insurance contracts. Furthermore, risk management programs have been strengthened in response to product guarantees; the financial crisis; and the expectations of boards of directors, rating agencies and investors. The life insurance industry has become highly model dependent — including best estimate, sensitivity or stress tests, and/or stochastic valuations — and there is a clear need for companies to have better IT solutions, controls, and enhanced governance and validation of their models and processes. More reliance on advanced models has increased the need for end-to-end automation, grid computing, and better data management and reporting capabilities to deal with large amounts of data. Senior management teams are demanding improved and timelier analytics and decision support for key financial, risk and capital management decisions.

Nevertheless, “if we can do it, we will do it on our own” and “we avoid using IT at all costs” are all too often still common sentiments among actuaries. Actuaries in too many companies still view the formal IT process as a barrier to progress. At the same time, company IT professionals view actuarial practices as a “black box” — old school, inefficient, and an uncontrolled threat to the company and its data security. They may feel they have been walled off from the actuarial world where they know they could help, but are not allowed access. In some cases, these opinions persist due to both parties stubbornly clinging to historical attitudes. More often, though, the organization has failed to establish an appropriate operating model that encourages a collaborative relationship between the two groups.

Current approaches to the actuarial technology support model are varied and are receiving mixed reviews. In a recent EY Actuarial Transformation® Benchmarking Study, company actuaries were somewhat ambivalent regarding their satisfaction with the level and quality of technology support. Less than 30% of companies were “satisfied” with the level of technology support provided, and, from a quality standpoint, slightly more than half were “neutral.” No one was “very satisfied” on either measure. These results were slightly better when only companies with IT resources dedicated to the actuarial function were considered.
Telling comments from study participants, such as the following, provide clues as to what is behind this lack of enthusiasm:

- “Support is slow and tends to be well hidden behind bureaucratic requirements”
- “[We need] better communication between the actuaries and the IT staff”
- “[We need] better integration of the system support group and the actuarial function to reduce system development and cycle time”
- “The key area for improvement would be a more highly trained IT staff”
- “[We need a] problem-solving/solutions focused approach from IT, not just complying with the requirements”

Despite some challenges, at many companies the relationship between actuaries and their IT counterparts has evolved and adapted to the changing business needs. Actuaries are partnering with IT to set up and maintain complex grid and cloud computing systems, and provide data warehouse support, as well as adding flexibility through robust sandbox, testing and production environments. By deploying these infrastructure enhancements, actuarial teams are able to remove manual processes and design better ways to manage and maintain data, improve reporting and analytic capabilities for a variety of enterprise customers, and implement further automation and controls around the actuarial processes. This new collaborative relationship has often experienced growing pains as companies challenge established operational norms.
The future relationship we need

At EY’s most recent Actuarial Transformation® Roundtable, attended by chief actuaries and other executives from leading life insurance companies, it was clear that the vast majority of large companies have programs under way to centralize certain actuarial functions, implement new actuarial software and/or improve their critical actuarial processes. Increasingly, these programs are focused on end-to-end automation of most ongoing activities. The goal of many organizations is to have both (1) a scalable “hands off” solution in place for routine financial reporting, modeling and risk management requirements that need to be timely and accurate, and (2) the flexibility to respond quickly to ad hoc requests for sensitivity analysis and decision support. This highly automated yet flexible environment will help reduce the risk of error; provide quicker cycle and turnaround times; and improve management reporting, analytics and transparency. Actuaries will be able to spend more of their time performing value-added analysis and less time manipulating data and executing manual processes.

The operating model of the future will be characterized by close collaboration between risk, finance, actuarial and IT professionals who work in teams to solve business problems. Team members will have roles and responsibilities aligned with their experience and skills. Actuaries will leverage their strengths in modeling and performing financial and risk analysis, and IT professionals will leverage their expertise in systems integration, systems architecture, data management, business intelligence technologies and automation.
The ideal operating model will vary by company, but the effective model is one that encourages teaming and collaboration between IT and actuarial and deploys resources to their highest and best use. Companies making progress toward achieving a high performing partnership are taking steps such as the following:

- Strong tone at the top: driving an effective relationship at all levels begins with the chief actuary and chief information officer setting a strong tone of collaboration to achieve shared corporate goals.

- Dedicated leadership: it has proven essential to identify senior executives from both organizations who have shared responsibility for the actuarial technology strategy and environment, serve as liaisons between the organizations to identify the right resources and solutions, and manage the day-to-day partnership.

- Dedicated technology team: it has proven very effective, if not essential, to establish a dedicated core team of technology professionals responsible for actuarial systems that can be scaled by leveraging business unit, enterprise or external IT resources for specific project needs.

- Clearly defined roles and responsibilities: support for actuarial functions involves a variety of roles. In some cases, the appropriate choice for a given role is clear. In other cases, the role could be performed by either an actuarial or IT resource (or both) depending on the situation, and organizations have taken different approaches. The roles should align with the skills of the people, be clearly defined and foster a collaborative teaming environment. The associated chart (see page 9) includes some typical support roles and an indication of how responsibilities are commonly assigned.

- Adapting to a culture of change: organizations tend to emphasize the “build” components of a transformation and underestimate the importance of organizational change management (OCM). A strong OCM program implemented at the beginning of an operating model adoption can help drive engagement, effective communications and sustainable business improvements. (See “Managing Corporate Change” in the November/December 2013 issue of Contingencies.)

- Business outcome-driven SDLC: while the philosophy of how flexible a SDLC should be varies between Actuarial and IT, there should be a balance between responding to business needs, the importance of the business application and complexity of the change, and the
desire for maintaining a sound control environment. Advancements in software development frameworks and methodologies such as AGILE have helped some organizations to achieve that balance.

- Designing solutions to provide both automation and flexibility: end-to-end automation is great, but in the real world, change happens quickly and your competitors are on the move. For the partnership to work, the production processes need to be flexible to address the need for decision support and ad hoc requests that are sure to arise.

- Defined and agreed-upon accountability: clearly defined service level agreements (SLAs) for key processes will need to be established between IT and Actuarial. Within those SLAs, there will need to be a set of escalation procedures to address “unexpected” requests by regulators, the board and executive management teams.

- Foster a culture of innovation: establish an innovation forum for technology and actuarial leaders to collaboratively determine solutions to current business problems. In this forum, issues such as increasing the accuracy of customer behavior models through the application of customer “big data” could be discussed. By establishing a formalized forum and innovation project pipeline, and potentially dedicated actuarial and IT resources, the organization can apply emerging technologies to the business issues that are top of mind for senior executives.

- Performance management: to effectively manage a cross-functional team, a set of monitoring protocols and measurements will need to be established. The measure should align with specific corporate scorecard goals and demonstrate incremental progress in achieving those goals. Effective management outcomes will be driven by a blend of quantitative and qualitative measurements that provide transparency into the following:
  - Progress and status of key delivery milestones
  - Build velocity, which measures weekly progress agnostic of SDLC methodology
  - Resource utilization to identify under- or overallocations
  - Monitoring of business case metrics, such as overall spend and ROI

Conclusion

There is no magic bullet. Organizational change is always difficult, but the stakes are high. To succeed, insurance companies need their actuarial and IT functions to operate together more effectively. Actuaries need to focus on analysis of the key product, financial, risk and competitive issues facing the company, and with the right IT partnership they can achieve the automated, controlled and flexible technology environment they need to be successful.
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