



ACCELERATING ACTUARIAL PROCESSES

By William Freitag

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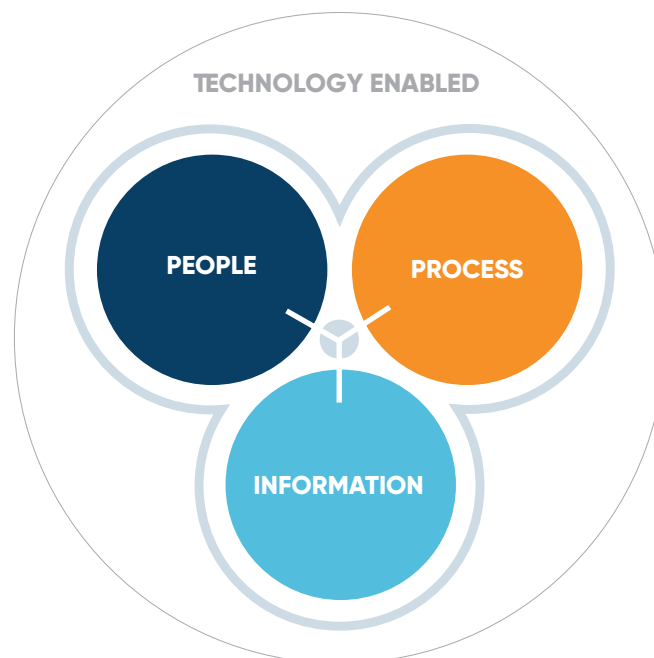
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Actuaries dwell in the very heart of the insurance enterprise.

Using the most accurate and timely information at their disposal, they evaluate the probability of events, quantify associated risks and outcomes and calculate the right price for the right risk. They provide the rationale for the bets that an insurance company makes. With an increasing need for analytics to accommodate digital products and channels, the role of actuaries within the insurance enterprise continues to expand. Real innovation in actuarial processes, however, has not kept pace. Today actuaries work within information silos with less than current data in multiple formats that require reconciliation; as a result, they spend a significant portion of their time on manually intensive processes. In this paper we will discuss how insurers can liberate their actuaries for higher-value work by first getting their data house in order and then applying tools that enable the automation of a wide variety of processes.

Figure 1

INSURANCE EXPERIENCE ACCELERATES PROCESS INNOVATION



Prioritizing Actuarial Innovation

The role of actuaries is changing rapidly in the insurance industry. Regulatory demands for transparency have grown more intense and the trend towards “real time” risk analysis as well as enterprise risk management is driving actuarial involvement from traditional reserving and pricing activities to an increasing variety of risk assessment activities related to nearly every aspect of the business.

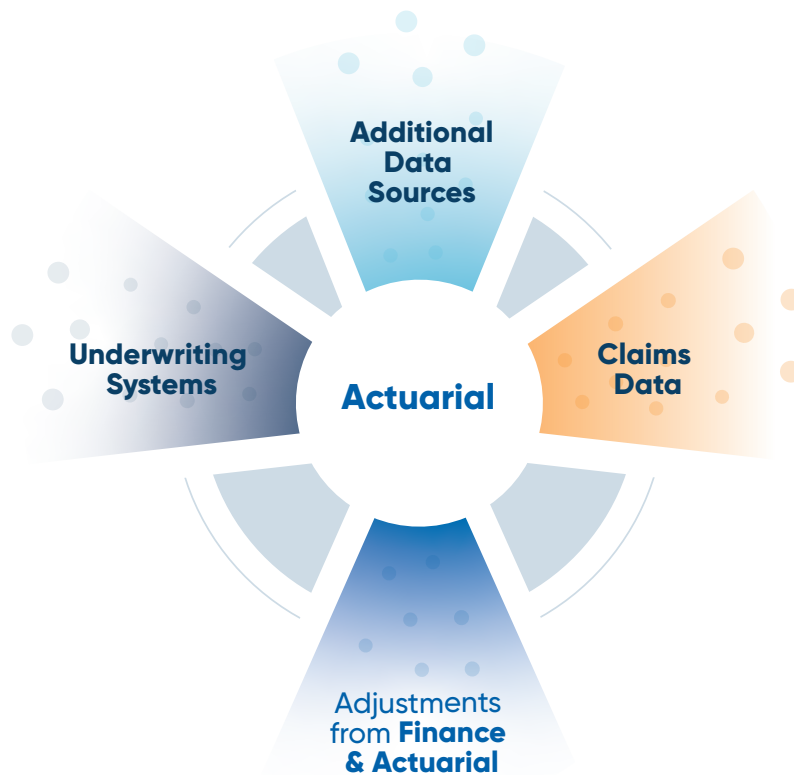
Given this expanding role, and the actuarial impact upon bottom line profits, one might expect insurers to focus modernization efforts on actuarial processes in advance of other technological improvements, but for the most part this has not been the case. Actuarial processes remain manually intensive and cumbersome, with little of the transparency and efficiency that automation can provide. The current state of actuarial processes has served insurers adequately and there’s something to be said for “if it isn’t broken, don’t fix it.” However, both the way risks behave and the velocity with which businesses can respond to those risks have changed.

Actuaries are among the least technophobic of senior insurance officers, and they have eagerly adopted new

technology in the past. However, their do-it-yourself ethos has also resulted in a siloed, opaque and inefficient information processing environment. Insurers can continue to be profitable under these conditions, but because of the plethora of new data sources and the increase of digitally-relevant products, it is a matter of time before those who fail to modernize their actuarial processes will cede competitive ground to those who succeed in doing so.

Conversely, those carriers that prioritize actuarial modernization will not merely gain huge efficiencies in the way their actuaries currently work, but they will open the door to expanding the impact of actuarial expertise across the insurance enterprise. A prerequisite of success in this regard is an evaluation of actuaries’ role within the Business Architecture of the insurance. A well-designed Business Architecture anatomizes key functions, capabilities and constituencies and ties them to enabling technology infrastructure and applications. The Business Architecture provides the basis for evaluating and re-engineering business processes and thus for business and technology planning.

Figure 2



Evaluating Your Actuarial Environment

Actuarial modernization is, in significant measure, a process re-engineering effort, and as such it must begin with an evaluation of existing processes. Carriers should chart all incoming and outgoing data flows and thoroughly map workflows within the actuarial organization and how it interacts with other organizations. Where does the data that actuaries use come from? What formats is the data collected and stored in? Carriers will also need to inventory all tools used by their actuaries as a prelude to consolidation of the data they hold.

Most actuarial departments have a proliferation of spreadsheets and other data files created in applications such as Microsoft Excel and Access. Compounding the issue is the creation of large numbers of files that are inaccessible outside actuarial departments (and even individual users). This causes insurers to suffer a lack of data clarity, a lack of format consistency, and frequently, a considerable loss of valuable business intelligence. This lack of transparency into vital data will increasingly fall outside companies' current tolerance for inaccuracy for both regulatory compliance and pricing purposes.

To the extent that carriers continue to do profitable business despite this complex environment, it is at the expense of actuaries working to reconcile data instead of devoting themselves to more valuable tasks. Furthermore, since most controls are manual in actuarial departments today, there is a limit to the amount of detail available for actuaries to analyze. These deficiencies point to opportunities for standardizing the collection, analysis and archiving of data, as well as the consolidation and networking of tools. This will not only improve workflow and results, but it will also improve operations and the training and mentoring of new actuaries.

Before old tools and processes can be replaced, insurers need to determine the role of actuaries in their company and create a vision for the future. Every insurer uses actuaries differently, so each company must ask several questions about their actuaries' day-to-day functions. Do they include pricing, reserving, reserve analysis, price monitoring, predictive modeling financial analysis and/or risk management? What percentage of a single actuary's time would be spent on each of these activities during a normal day?

The answers to these questions will help you determine the role of actuaries within the actuarial organization and as they interact with the company in general. It is important to note that there is no right or wrong answer here. Whereas some exercises are undertaken to detect flaws and inefficiencies, this one is to determine the role of the actuaries, and how they shape the unique way you do business. Your actuaries' methods and workflows are inextricably tied to your characteristic company strengths. However, this should be considered a starting point. As actuaries are freed to take on more high-value tasks, their organizational reach is expanding. Today actuaries are increasingly involved in business activities beyond traditional pricing and reserve analysis. For example, actuaries equipped with the proper access to information and tools for its further analysis are empowered to undertake product development and risk management across the company.

Enterprise Actuarial Data Architecture

Data integrity and quality is the foundation of actuarial modernization. In order to manage the increasing diversity of high-value actuarial tasks in the enterprise, insurers need a unified reporting and reserving architecture that automates the collection, manipulation and transmission of data to a high degree. This architecture, based on common tools under institutional control accessing an enterprise actuarial database, ensures the circulation of consistent information and provides a foundation for enterprise risk management (ERM). The essence of the architecture is the extraction of relevant data from diverse sources, such as multiple policy administration, claims, reinsurance and corporate systems.

While the basic scheme of the architecture is simple in principle, its success depends on effective data

consolidation and standardization. Data must be translated to a common format and adjusted to the right level of granularity in order to facilitate more precise analysis. However, standardization is not merely a matter of scrubbing stores of existing data and normalizing it; it also involves creating standards for collecting new data at all entry points, including an increasing number of external data sources. Data collection becomes a shared responsibility to establish and consistently apply valid definitions across all departments that input and transmit relevant data.

Once a carriers' data is in order, they are in a position to implement new tools that enable the automation of a range of processes including reserving, pricing, performance management, IBNR calculation and allocation and financial reporting (see fig. 3).

POTENTIAL SOLUTIONS Figure 3

Project	Benefit	Discussion Topics
Consolidated Enterprise Reserve and Reporting Information	<ul style="list-style-type: none"> • Satisfy external inquiries • Increase global analysis • Increase productivity • Enable peer reviews 	<ul style="list-style-type: none"> • Inconsistency of data formats and elements between business segments • Determine a feasible approach to satisfy the requirements
Common Reserving Tool	<ul style="list-style-type: none"> • Increase consistency in reporting • Increase transparency • Increase control • Reduce End User Tools • Increase productivity 	<ul style="list-style-type: none"> • Limited number of tools available on the market • Data quality and availability
Predictive Analytics	<ul style="list-style-type: none"> • Better pricing and risk selection • Identification of high priority claims 	<ul style="list-style-type: none"> • Quality of data • Model performance
Enterprise Price Monitor	<ul style="list-style-type: none"> • Increase transparency • Increase accessibility • Increase analysis capabilities (multiples years, etc.) 	<ul style="list-style-type: none"> • Different approaches to price monitoring for each business segment
Performance Management	<ul style="list-style-type: none"> • Satisfy external inquiries • Increase accessibility • Increase analysis capabilities • Automate feeds 	<ul style="list-style-type: none"> • Level of detail for measurement
Automate IBNR Calculation and Allocation	<ul style="list-style-type: none"> • Increased consistency • Accelerated reporting time-frames • Increased number of scenarios and analysis • Compliance 	<ul style="list-style-type: none"> • Allocation media • Granularity
Financial Reporting	<ul style="list-style-type: none"> • Accelerated Schedule F and P reporting • Increased analysis • Reduced effort • Compliance 	<ul style="list-style-type: none"> • Management Reporting Structure
Detailed Pricing and Segmentation	<ul style="list-style-type: none"> • Better risk selection • Affinity products 	<ul style="list-style-type: none"> • Including pricing tools in the UW process

By connecting to a global database through tools designed for specified high-value tasks, actuaries are liberated from the need to assemble and manipulate data. That freedom results in a huge gain in raw productivity in an actuary's daily work, but the benefits only begin there.

Because an actuary's work results are registered in a common data store, the output does not need to be manually reconciled later — another significant productivity gain. A shared repository also ensures

that vital information is constantly updated as work is performed. That means that all users of the system have access to accurate and timely information, and that reports can be produced in a small fraction of the time needed in traditional actuarial and financial reporting environments. The timeliness of the data means carriers can react more quickly to market shifts, and its accuracy means that it can produce more reliable analysis of the data, allowing for more precision in pricing.

Critical Success Factors

The benefits of actuarial modernization reside in great measure with the simplicity of the information system within which actuaries work. The complexity and difficulty of the modernization process, however, should not be underestimated. Carriers must build their actuarial culture on the foundation of a Business Architecture aligned to strategic goals and based on the company's unique strengths. As with any transformational effort, carriers must focus on up-front preparation to ensure the project's success.

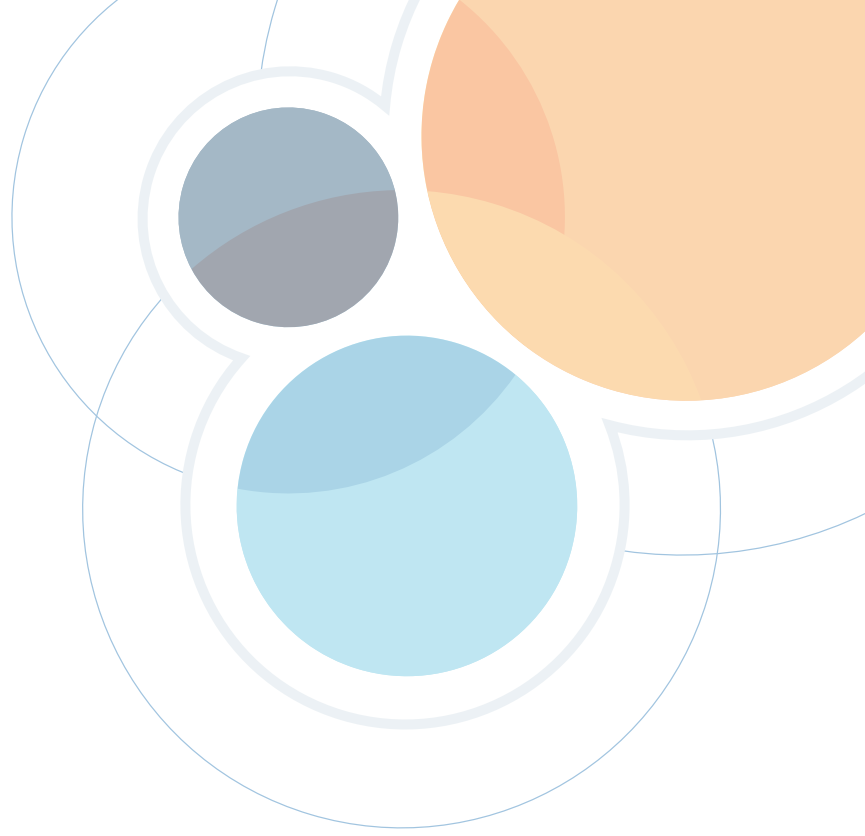
For example, carriers should:

- **Create well-defined requirements**
- **Identify desired results before executing**
- **Clearly define accountabilities**
- **Plot critical paths with clearly identified interdependencies**

As important as technical rigor is to mitigating project risks, carriers should continually strive to make sure that management of the initiative is guided by the principle that business drives technology. To the extent that execution diverges from the original plan — as it invariably does — it is critical to keep one's eye on the business impact of technology decisions.

Ultimately, the success of the initiative depends upon agreement within all constituencies regarding the end state. This means that actuarial modernization must be pursued as a cultural transformation above all other considerations. No modernization initiative should enter the execution stage without an agreed vision of how the actuarial organization will operate in the new end state. This will ensure sustainability over time and serve as a perpetual compass through personnel shifts and technology enhancements. Success will depend not only on recognition of change but management of change as it occurs.

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