SOCIETY OF ACTUARIES

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Effective Data Governance Strategies for Actuaries

Tim Pauza

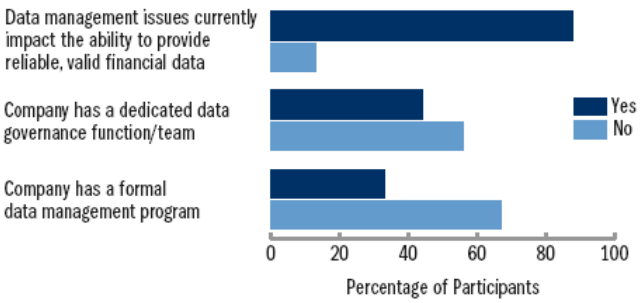
Editor's note: The following is an excerpt from a report by Ernst & Young LLP, and is reprinted with their permission. An Ernst & Young Actuarial TransformationTM Roundtable discussion, held in New York in August of 2007, was attended by close to 20 actuarial and IT executives from major insurance companies in the United States. Joining several Ernst & Young facilitators were two insurance company executives: Paula Hodges (past technology section chair and current friend to the council) from Allstate Financial, and Eric Lin from Prudential Financial. For a complete reprint of this article or information about the Ernst & Young Actuarial Transformation Roundtable series, please contact Steve Goren (steve.goren@ey.com), or visit the Ernst & Young Insurance and Actuarial Advisory Services Web site (www.ey.com/us/actuarial).

At most insurance companies today—and actuarial departments are no exception—high-quality, timely financial reporting is a top-level problem. Discussions about how to report and analyze financial results, as well as how to forecast, lead to conversations about company processes that underlie difficulties in valuation systems and data management. Data quality and data management are common concerns throughout these discussions and are often the Achilles heel of high-quality financial and management reporting.

Behind such practices as data assessment, validation and certification, reporting and management of metadata, there are day-to-day horror stories about poor data quality and insufficient and slow data integration in actuarial and financial reporting processes. At many companies, there is still debate about who should be in charge of the financial and actuarial data, how to avoid duplicate versions of them, where they should be kept, how they should be accessed and so forth.

Tim Pauza is a manager in Ernst & Young LLP's Insurance and Actuarial Advisory Services practice, and is based in Philadelphia, Pennsylvania. He can be reached at 215.448.5836 or tim.pauza@ey.com.

Figure 1. Roundtable Participant Views – Basic Data Management Issues Today



At the Roundtable, it was clear that data governance was on everyone's mind. In fact, 88 percent of attendees felt data management issues negatively impacted their ability to provide reliable financial data. But yet over half—56 percent—said they did not have a dedicated data governance functional team in place. And 67 percent said they had no data management program in place at all. These results point to why data governance and data management remain significant insurance industry and actuarial department issues.

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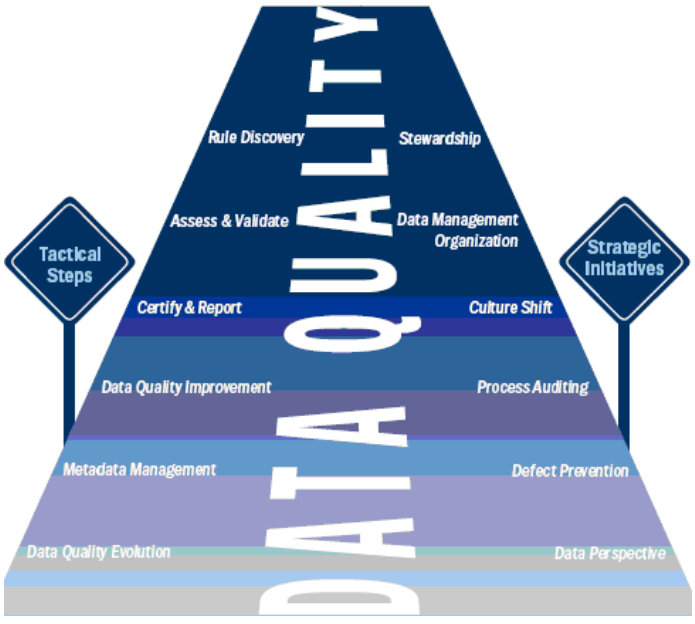
Data Governance: Tactical and Strategic Views

A fair question asked by insurance industry leaders is why data governance is still such a big and nagging issue. The simplest answer is that over decades of growth—through consolidations and constant product innovations, new demands on financial analysis and reporting, and diversification into new distribution channels—policy administration and actuarial technologies have become quite complex. This creates challenges related to the integration of disparate data, how to prepare them for input into the various valuation and modeling engines and how to report and analyze results.

Figure 2. Data Governance Path for Improved Data Quality



Data management becomes complicated fast, and the case for an overall, integrated approach to data governance becomes stronger as companies come to recognize that quick fixes and end-user computing solutions that have worked in the past are no longer sustainable.

There are problems with data governance with which company management must contend because they impact a company's decision-making, valuation calculations and financial reporting:

- Companies have vast quantities and types of data.
- Each system that provides data can have different rule sets and different data definitions.
- There are questions about which organizational or administrative structures within the company actually "own" the data—stewardship of the data is important.
- How are the data best maintained? How should the data be brought together and integrated to make them most useful? How should data be stored and at what level of granularity? How should the data be made available to the people who need it?

Raw data are used in many different applications; therefore, the data are put into many formats. This leads to situations in which the same raw data are reformatted and presented to different users for different purposes. So it is critical to have clearly defined data standards and rule sets that can streamline and keep the multiple versions of the data better organized.

One of the keys to an effective data governance strategy is a strong metadata component. Metadata are the data about the data—the complete set of data definitions as well as the technical information about the data, how they are formatted where and when they were obtained. Metadata repre-

sent an entire, additional layer of data that need to be stored and managed. Actuarial input to metadata management is critical. How the required data that are input to the actuarial process are created, what they mean, and how they will be used, how the calculations and assumptions are defined—all add to improved data quality. This business perspective on data usage is an area of best practice in data governance that offers help to companies in their struggle to obtain control of their data.

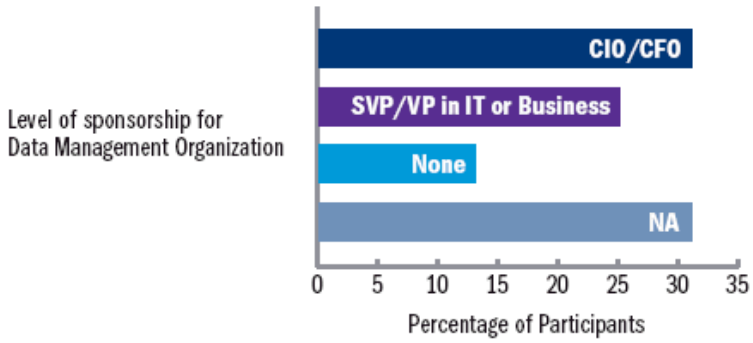
Companies are also paying closer attention to the assumptions they need to make when performing valuation and modeling processes. Almost 90 percent of the people at the Roundtable thought the assumptions they used in their actuarial models constituted data that should be managed in the same manner as the raw data from their policy administration systems.

A company's data archival process and data storage are also critical because they are integrally related to version control. Company users must be able to go back into historical time periods and review what data and assumptions were used for financial and product performance in the past.

Data Governance Organization Structure

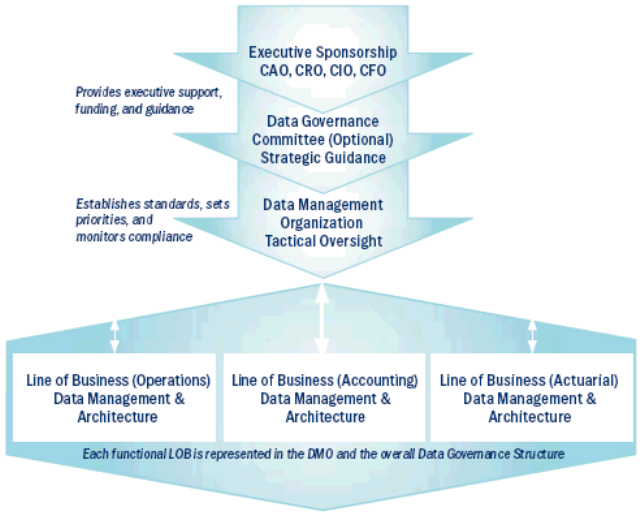
To address the issues and increasing needs of users of data, many companies are working to evolve organizational structures and approaches for effective governance of mission critical data. It was clear from Roundtable participants that "sponsorship" or ownership of data varies broadly—from the chief investment officer, to the chief financial officer, to IT executives in the business units, to no specific ownership at all.

Figure 3. Roundtable Participant Views — Data Governance Organizational Issues



Between the corporate C-Suite and business-line operations, some companies are establishing a dedicated Data Management Organization (DMO). The DMO is guided by the C-Suite and, in some cases, an executive-level data governance committee.

Figure 4. Data Governance Organization Structure



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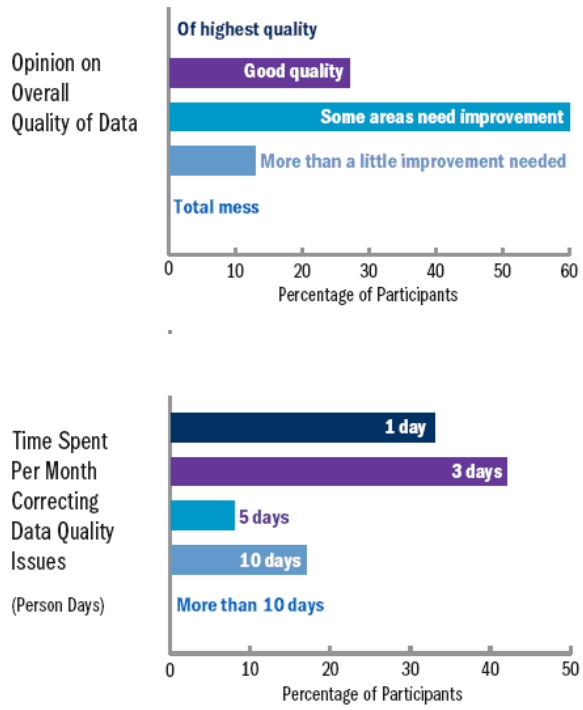
The DMO serves as the center of collaboration with the lines of business—specifically, the operations, accounting, IT and actuarial people in those lines of business as well as with corporate functional areas. The responsibility of the DMO is to establish the standards and rules for managing data, maintaining legacy data and handling incoming data from new products or systems. Ideally, the DMO becomes the conduit across all organizations that use the data and that are involved in developing the rules and strategies for managing the data.

Figure 5. Roundtable Participant Views—Data Quality



A requisite for any effective organizational approach is executive sponsorship and governance that support having a single, trusted source for financial and actuarial data. In addition, companies must also engineer a culture shift. They need everyone to believe data governance and data quality are key corporate priorities and will pay back dividends in terms of lower cycle times, lower total cost of ownership, and higher-quality actuarial analysis and financial reporting.

Data Quality

Not surprisingly, quality of data was a topic of spirited dialogue at the Roundtable, with 60 percent of attendees saying their company data need at least some improvement and all attendees saying their actuarial team spends at least some time each month correcting data quality issues.

There is a strong argument that the biggest issue of poor data quality has everything to do with increased risk. Wrong data or bad data translate into:

- Inaccurate numbers on financial statements.
- Bad business decisions.
- Missed deadlines and budget overruns.
- Time spent fixing data.

Fundamentally, management cannot depend on bad data when operating the business.

Figure 6. Common Data Quality Problems

Definitions and Standards
- Ambiguous Business Rules
- Multiple Formats for Same Data Elements
- Different Meanings for the Same Code Value
- Multiple Code Values with the Same Meaning
- Field Used for Unintended Data

Data Content
- Missing Data
- Invalid Data
- Data outside Legal Domain
- Illogical Combinations of Data
- Rogue Data

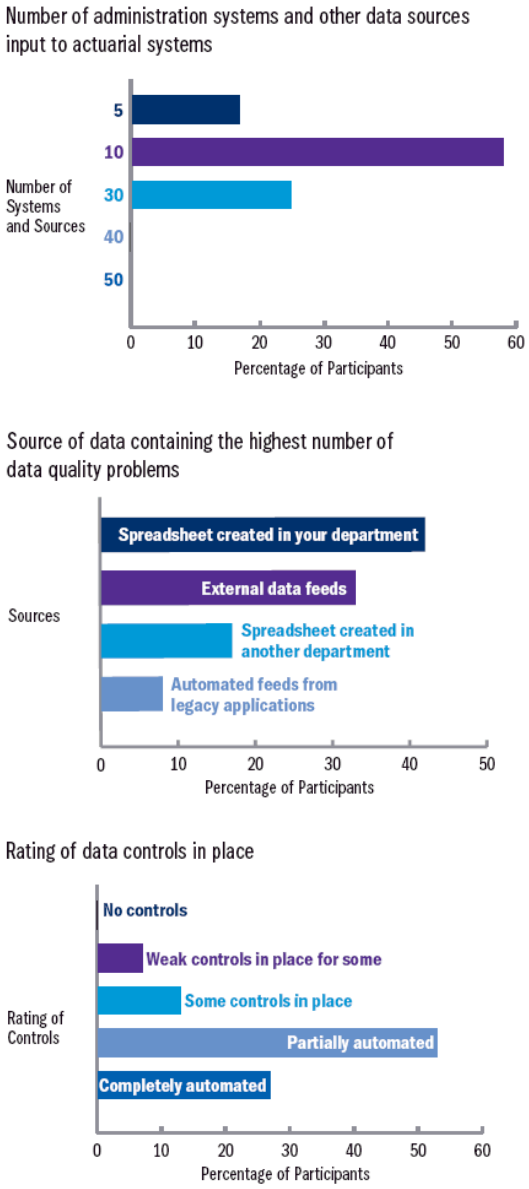
Migration/ Integration
- Rationalization Anomalies
- Duplicate or Lost Data

Roundtable participants shared the most common data quality problems and provided personal horror stories about many of them. They also recognized many of the same root causes of the problems, including:

- Multiple policy administration systems and other data sources that are entered into multiple valuation, modeling, hedging and other actuarial systems.
- Excessive use of spreadsheets and other end-user computing tools.
- Only partially automated or weak controls over the data.

As many companies are learning, effective data governance is not a project—it is a permanent process and way of doing business. It requires strategic thinking, consistent and disciplined practices, well-thought-through training, continuous testing and continuous assessment and scoring of data accuracy to ensure a single version of the truth.

Figure 7. Roundtable Participant Views—Causes of Data Quality Problems



Sustaining and improving this process over time are possible only through mutual cooperation and support among the producers, managers and consumers of the data. Over time, this broad collaboration becomes ingrained in the company culture and is

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reflected at all levels—from the C-Suite to the business units.

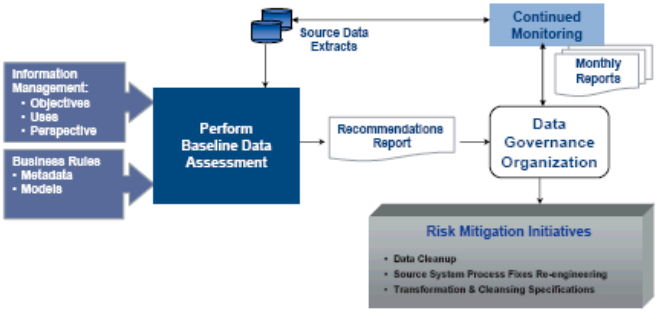
Of limited value are efforts that come and go, become short-term fire drills, and then disappear until the next "data crisis." Instead, companies need to work on building the appropriate financial and actuarial data repositories, adopting clear metadata rules and using industry-standard business intelligence tools. This commitment and discipline will help ensure high quality actuarial valuation, analysis, risk management and modeling processes and results.

Spreadsheets: Use and Management in Actuarial Environments

Sarbanes-Oxley (SOX) Section 404 work has shown that spreadsheet and Access database use is out of control in actuarial departments.

Many companies say they use hundreds of spreadsheets within a single business unit to complete the quarterly close. Controlling and updating hundreds of spreadsheets can lead to situations in which valuation actuaries spend most of their time manipulating data and calculating reserves rather than analyzing and explaining results.

Figure 8. Data Quality Improvement Program – Assess, Improve, Monitor



Spreadsheets are and will most likely continue to be used by financial reporting actuaries for some purposes, such as:

- Direct calculation of selected financial statement amounts.
- Validation of system calculations.
- Limited top-side adjustments to values that are typically calculated in production or automated processes.
- Ad hoc analysis.

However, the industry has developed a "culture" of spreadsheets in actuarial departments that is not responsive to business needs, nor will it accommodate the introduction of future reporting requirements associated with fair value, principle-based reserves and capital, Solvency II and International Financial Reporting Standards. Spreadsheets offer the benefits of flexibility and transparency, and they are easy to create and customize to specific needs. On the downside, spreadsheets are arguably too flexible and difficult to control in a sustainable and efficient manner in a SOX 404 or Model Audit Rule environment. Most significant is that spreadsheets are not conducive to moving into full production mode.

With those downsides, companies are setting informal goals to significantly reduce their use of spreadsheets in actuarial valuation and modeling areas. Many Roundtable participants indicated a desire to reduce spreadsheet use by 90 percent. And even though Access databases allow actuarial end-users to manipulate data easily, they too have downsides.

Conclusion: Improving Data Governance for Stronger Financial Reporting and Business Decisions

Two emphatic conclusions resulted from this Ernst & Young Actuarial Transformation Roundtable. First, companies will not succeed over time without effective actuarial valuation, decision support, modeling and risk management capabilities, especially if the demands on actuarial processes continue to increase. Improved data management is the lynchpin to transformational improvements to these actuarial processes.

Second, effective data management and governance require a collaborative and executive-sponsored organizational commitment and appropriate use of finance and actuarial data repositories and data management tools.

The cultural implications and impending global reporting considerations demand a sense of urgency—one that, in the end, will serve to raise credibility and transparency for actuaries and lead to better decisions and stronger reporting for insurers in the changing environment.

Summary of Key Points

Effective data governance is not a project—it is a permanent process and way of doing business, requiring consistent and disciplined practices, well-thought-through training, continuous testing and continuous assessment and scoring of data accuracy.

Many companies are evolving organizational structures and approaches for effective data governance, including dedicated Data Management Organizations (DMOs) that actively collaborate with the actuarial department.

More than half of the Roundtable participants (56 percent) do not have a dedicated data governance functional team in place; 67 percent have no data management program in place.

The biggest issue of poor data quality is increased risk.

Metadata (data about the data) management is an emerging area of best practice in data governance, offering promise to companies in their struggle to gain control of their data.

Actuarial departments are seeking to automate processes and improve their analysis and controls; they are making better use of data repositories and setting informal goals to reduce significantly their use of spreadsheets in actuarial valuation and modeling areas.