

CompAct

TECHNOLOGY SECTION

"A KNOWLEDGE COMMUNITY FOR THE SOCIETY OF ACTUARIES"

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Actuaries

The Best-Kept Secret in Business™

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Articles Needed for the *CompAct Electronic Newsletter*

Your help and participation is needed and welcomed. All articles will include a byline to give you full credit for your effort. *CompAct* is pleased to publish articles in a second language if a translation is provided by the author. For those of you interested in working on *CompAct*, several associate editors are needed to handle various specialty areas such as meetings, seminars, symposia, continuing education meetings, new research and studies by SOA committees and so on. If you would like to submit an article or be an associate editor, please call Nariankadu Shyamalkumar, editor, at 319.335.1980.

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Preferred Format

In order to efficiently handle articles, please use the following format when submitting material:

Please e-mail your articles as attachments in either MS Word (.doc) or Simple Text (.txt) files. We are able to convert most PC-compatible software packages. Headlines are typed upper and lower case. Please use a 10-point Times New Roman font for the body text. Carriage returns are put in only at the end of paragraphs. The right-hand margin is not justified.

If you must submit articles in another manner, please call Joe Adduci, 847.706.3548 at the Society of Actuaries for assistance.

Please send electronic copies of the articles to:

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Thank you for your help.

Notes from the Chair

by Phil Gold

The Technology Section 2005 survey has given us a good indication where we should be concentrating our efforts. This year we have selected a few key areas where we can improve, and we are working hard to meet your expectations.


Improved communication was singled out as our key objective. We have initiated a technology e-mail update to be distributed several times a year. The Technology Section Newsletter is now being published more regularly, and I hope you are enjoying the content. You can improve it by making your own contributions in terms of articles, letters, puzzles and suggestions.

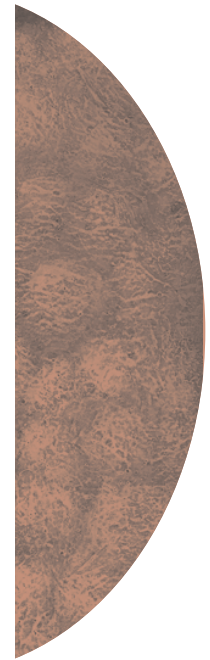
We have contacted those members who indicated in the 2005 survey their willingness to

volunteer in some way for the activities of the Technology Section. If you would like to contribute in any way to the section, we would be delighted to hear from you.

We are working now to create an interesting set of Technology Section sessions at the Annual Meeting in Chicago. We hope to set up a social event for section members at that meeting. We'll send details as soon as we have them. I look forward to meeting you there.

Cheers,
Phil Gold

You can reach me at pg@ggy.com or 416.250.6777 extension 224. 




Open vs. Closed-Code Debate

by Kevin Pledge

The goliaths of the software industry spend millions arguing over the pros and cons of open and closed code. Similar arguments can be made over actuarial software - do you need to personally go through source code to be comfortable with an application?

Software vendors prefer to use the term "vendor supported," and argue that protecting code is not only necessary to protect their intellectual property, but is important to support clients and manage system development.

We want your opinions, is it important whether actuarial applications have open code? If you use a system with closed code, what steps can you take to verify the application?

We plan to carry articles on this topic in the September issue of the Technology Section newsletter with August 1 as the deadline for submission. Please send your comments to Kevin Pledge at kpledge@insightdecision.com. 



Phil Gold, ASA, FIA, MAAA, is a founding partner of GGY and chairperson of the Technology Section. He can be reached at pg@ggy.com.



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Attention Potential CompAct Authors!

Announcement of the CompAct Article of the Year Prize

The Technology Section Council will choose a *CompAct* article published between June 2006 and May 2007 for the award of the *CompAct* Article of the Year Prize 06-07. The author of the chosen article will either receive an iPod Shuffle® 1GB or equivalent MP3 Player. In the case of multiple authors, each author will receive the stated prize.

Controlling Your Data 1—Strategies

by Kevin Pledge

This is the first of two articles discussing technologies used to control data. This article covers data management strategies, while the second article will cover extraction, transformation and loading tools, and the technology most likely to be used for analytical applications in insurance businesses.

What Do We Mean by “Controlling Data?”

The primary purpose of data management technology is to deliver high-quality data. By this we generally mean:

- data that can be verified against its source,
- a single agreed-upon definition for the data, and
- being in compliance with data standards

In addition, there are a number of secondary goals that must also be met by any tool used to control data. It must be able to handle large volumes of data and move it efficiently. The system must maintain the security of the data. Processes must be verifiable and support audit and testing. Finally, depending on the environment and application, there may be some additional requirements, such as the ability to handle data from multiple sources, multiple platforms or in real time.

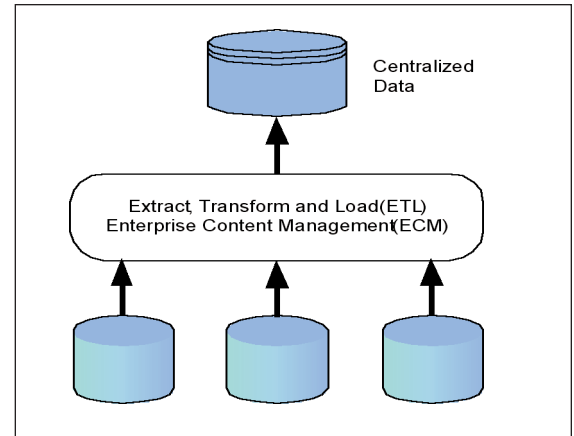
There are three data management approaches:

- consolidation
- federation
- propagation

Consolidation

Consolidation involves moving data from multiple sources to a single, consolidated source. The two types of tools designed for this are enterprise content management (ECM) tools and extraction, transformation and loading (ETL) tools. ECM is typically used for knowledge management, such as organizing and accessing information from documents, while ETL is used for data.

Consolidation is typically very scalable and can support complex data transformation. Its main weakness is that the data is not available in real time.



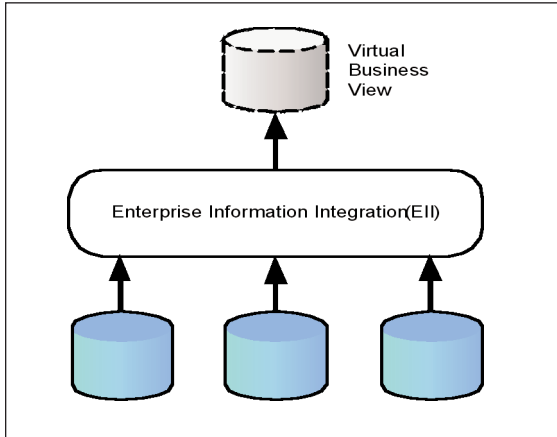
Federation

Federation involves creating a virtual business view of the primary data sources. These tools are typically referred to as enterprise information integration (EII).



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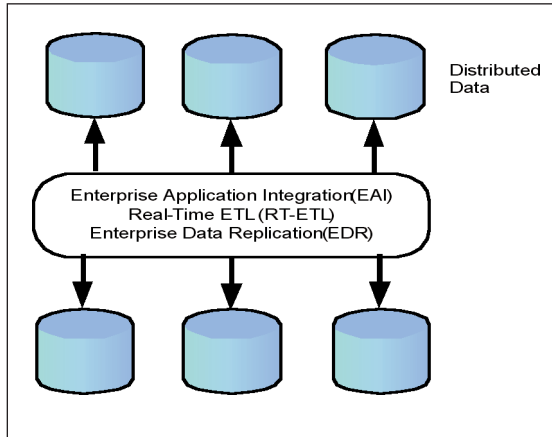
As a virtual view of the business, any changes in data are reflected in the virtual-business view in real time. The downside of this is that data cleansing and transformation is limited.



Propagation

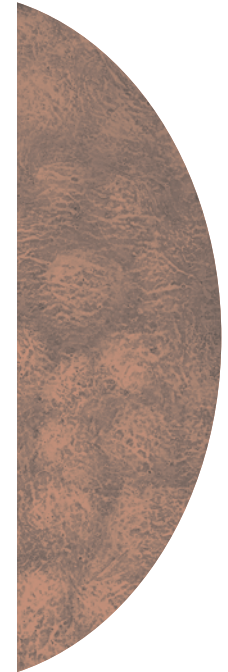
Propagation tools distribute and replicate or copy data between multiple systems, often in real time. These tools may be referred to as enterprise application integration (EAI), real-time ETL (RT-ETL) or enterprise data replication (EDR).

Once again, the main advantage is that data can be available in real time, however performance can vary and the tools may be difficult to set up.



In Summary

There are three fundamental approaches for data control—consolidation, federation and propagation. Federation and propagation can share data in real time, but are limited in their ability to apply complex transformations and manage large volumes of data. For this reason a consolidation strategy is of most relevance for data management for actuarial applications. ETL tools are the topic of the next article in this series. 🖥️



Best-of Breed Data Warehousing

by Robert J. LaLonde

Many data warehouse (DW) projects start with the best of intentions, that is, to get at the truth of what is going on in an insurance company. However, success has been a mixed bag with many projects only having limited usability.

DWs come in many flavors. The first DW effort by a company is usually to support sales in some way; the objective to data mine the inventory of insureds to support cross selling or generate leads for the field force. Some DWs are set up solely to support actuarial studies. Others are designed to query the general ledger and are transaction based. A number of companies have multiple DWs set up in various silos, but they don't share information. These are the examples of DWs that have limited usability, examples that are unfortunately too common.

Very few, if any, are designed to support financial-based analytics that relate to contracts and the agents who write the business. DWs set up around accounting systems rarely include any reserve information and are not connected to agent reporting. Most often the database is nothing but transaction data and does not include any reserve information or calculated items for insurance analytical processing. With these kinds of designs companies can access some of the truths about their operations, but this approach creates many problems, namely:

- Department exclusivity—department heads each want their own reporting expressly for their needs because of their own priorities and budget needs. Each department has its own favorite data source.

- Lack of coordination—the reporting for one department is never related to the reporting of another department.
- Lack of intelligent design—although a company is overwhelmed with data, too little information is extracted and analyzed in a useful way.
- Reporting inconsistency—many of the reports do not tie together because they are not based upon data from the same source files, which can lead to management confusion and lack of credibility. Users make data grabs from different and disparate data sources. Measures, data fields and metrics will have the same words but be computed differently between departments.
- Lack of analytical controls—extensive use of Excel® and Access®, although sounding like a cheap solution to reporting, actually promotes different calculation methods because the maintenance of the data is decentralized.
- Reliance on manual labor—the effort to prepare reports is mostly manual and inherently expensive because of the extensive aggregation and reconciliation process.
- Lateness—by the time the data is analyzed, the next month or quarter has arrived.

A successful DW requires significant business knowledge covering all facets of the business. The DW should be cross organizational and translate business knowledge into the DW rather than letting users try and apply the business knowledge in the reporting process. For example, in order to analyze policy reserves, the reserve type, reserve components and change in reserve should be readily accessible in the DW. Users will need audits



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to verify the validity of reserves relative to policy status and reasonableness of the reserves. They will also need to be able to analyze multiple time periods and view reserves based on either a product grouping of the business or a grouping based on the individual riders. The list of issues goes on, overlapping and integrating other business areas. These considerations should be modeled into the design of the DW rather than relying on users to generate business rules when building reports.

A DW that does not become a true cross-organizational tool serving the executive, financial, actuarial, underwriting, claims, operations and reinsurance units is not an optimized DW. An optimized DW would provide validated data and applications based on population dynamics, such as policy roll-forward, reserve analysis and sources-of-earnings; specialized applications such as financial analysis, claim-lag development and expense analysis; applications that cross departments such as underwriting performance, persistency analysis and reinsurance profitability; all within the same design.

“Can You Explain Why We Did Not Meet Our Plan?”

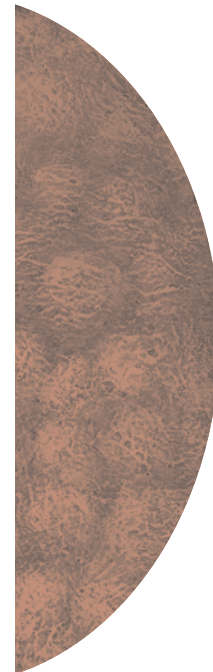
This simple question, when asked at the executive level, will send actuaries, accountants, IT and executive resources into an around-the-clock crash study to answer it. If the company has an optimized DW system, the question has a trivial solution, that is, the answer can be obtained in a matter of minutes and is universally accepted by all areas. The answer is not trivial for a DW with a database philosophy lacking an insurance business model. Answering the question will often require special extracts, staging databases and multiple days to arrive at a passable answer.

In Pursuit of the Truth

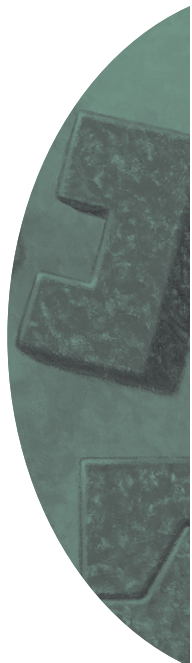
Many companies struggle to obtain the truth with their reporting and analysis. The truth represents a concept of reporting what actually happened to a company. What was true yesterday has to be true today. Running a report today as of a prior date should produce exactly the same numbers that would have been produced had the report been run at that prior date. A policy issued today but backdated should not change any of the reporting for the prior period. This principle of reporting stability is fundamental to data warehousing. Insurance business presents some challenges to this, such as restatement of reserves, late reporting of claims and changes due to subsequent events.

The appropriate DW design will eliminate the faults listed above:

- Department consistency—department heads can still have their own reports, but the underlying data comes from one centralized database. Now, reports built by a department will agree and intersect with another department’s reports.
- Reporting consistency—the multiple data grabs from different and disparate data sources are no longer needed. Reporting will have consistently defined measures, data fields and metrics. And, if the data model is open, everyone will be able to see how the metric is computed.
- Control of reporting tools—Excel® and Access® reporting is replaced by the pivot table functionality of the querying tool built into the DW.
- Savings due to automation—huge savings can be realized by eliminating all the manual effort to produce the same report over and over again.
- Immediacy—answers to difficult analysis will arrive instantly.



(continued on page 8)



- Intelligent design—lastly, everyone will be working from a data file that is cleansed and represents the truth, so everyone’s credibility is no longer at risk.

Best-of-Breed Tools, Best-of-Breed System

One type of sub-optimal system comes from the project being led by IT requirements and the search for the best-of-breed tools to build a DW. Buying the so-called best DW component such as SQL Server® or Oracle®, an extract, transform and load (ETL) tool, analytical tool, reporting tool, etc. does not guarantee a best-of-breed DW installation. Integration of components and the data model are the two key factors. A business model suited for your business means it should include all the pertinent information for informed decision-making specific for an insurance company and the analytical applications associated with that data.

“IT Will Take Care of the Data Model.”

This is a recipe for failure because many IT people do not know your business needs like you do. Some DWs are built with little thought about how the business will be analyzed. For example, executives will want to see lapse rates by agent and financial people will want to see source of earnings and compare their actual earnings to expected earnings. Actuaries will be interested in actual to expected metrics relative to pricing assumptions. Sales and marketing will want to see agent performance.

If the design of the DW expects the end user to build the specialized applications with the data, then the design is at risk for failure. The DW will not have the necessary data to do the analysis, or the data must be again off loaded to a data mart where the analysis is carried out. A single integrated design is

critical for consistency. For example sales and marketing analysis of persistency rates by agents should be related to product lapse rates presented by actuarial analysis.

The DW should be based on an insurance data model and include insurance functionality. The data model should robustly manage status transitions, data relationships and changes over time; functionality should certainly include experience studies, underwriting lag time studies, claim runoff, agent productivity, etc. Just putting transactions into a DW and using a query tool will not suffice.

The DW will also certainly include transactions, but it should include any calculated measures or pieces of information such as exposures, assumptions relating to expected experience, and relationships between information. Consider an experience study; analysts will want to look at the results as rates, exposures, events and actual-to-expected ratios. They will want to slice-and-dice this information based on experience. This will involve looking at it by gender, duration, band, geographical area, month-by-month, or this quarter to a comparable quarter last year; views that cannot be predicted in advance. Conventional systems designed for experience studies require another run to get each slice of information because it has to build the entire computation for each study, including the parameters that define the view.

“Do You Need Valuation System Results?”

Most DW installations will include data from the available systems in the company. These range from multiple administrative systems; claims, commission, agent, client relationship management (CRM), general ledger, accounting and valuation. This last item, valuation, is vital because of the need to query and reconcile reserve movements. Most DW installations at

companies do not even consider linking to the valuation system because of not knowing what to do with the data.

Insurance people like to look at results at both a specific point in time and over a period of time. Most importantly, they also want to look at events based on timing within a policy such as duration since issue, duration since claiming or event duration since entering a certain claim stage. In addition they might want to know how many policies are in a certain claiming status, how many are in their first, second or nth month. These statuses and the transition between statuses are the cornerstones of insurance analysis and lead to the need for specialized temporal functionality.

“I’m Not Interested in This Detail Right Now.”

A good DW will be structured for the questions that might be asked and questions that may arise from the answers received from questions. Too often managers ask questions and don’t get the answers they expect or are not consistent with information from other business areas. The answers need further investigation. The ability to respond to these problems is the greatest asset of a well designed DW as they provide the greatest

insight to the company’s operations; unfortunately it is also the most common failing of a poorly designed system. Clearly success is only possible with an enterprise solution designed at a level of granularity beyond your current business questions.

A comprehensive DW solution must have an efficient way to deliver information. In today’s world, Web delivery is standard, as is a range of delivery methods incorporating pivots, statistical analysis and formatted reports. The tools used should be proven to work together and proven for the demands placed on them by the nature of the business and the data model. Finally the deliver tool should accommodate a wide range of users from executives to actuaries. Compared with other industries, actuaries should be thought of as super-power users, and are not as easy to satisfy as many of the tool vendors believe.

You really can have it all: readily available and relevant information derived from consistent and understood data. Having a best-of-breed DW requires a good DW design and an appropriate business data model. Add a powerful and flexible Web-based analytical interface to get at the data, and success in the pursuit of truth will happen. 🖥️



Towards a Standard File Format for Economic Scenarios

by Steve Strommen

Stochastic scenario generators are a popular topic these days. The complexity of the stochastic process and maintenance of the scenario data demands quite a bit of time in the management of the information. As scenario generation becomes a mainstream process, the Technology Section council would like to begin a discussion forum to standardize the data format, enabling actuaries to spend more time on analyzing risks rather than handling scenario files. Please read on to see how you can participate in this important effort taking place in the Technology Section of the SOA.

Stochastic analysis is becoming necessary to analyze the risks associated with new types of insurance and investment products, and to actively manage those risks. Insurance regulators are beginning to require stochastic analysis in the development of risk-based capital, and the currently exposed proposals for principles-based life insurance reserves include stochastic calculation as part of the methodology. This means that if your actuarial job involves pricing, risk management or financial reporting, you can expect to be doing more stochastic analysis in the future.

One of the central problems of stochastic modeling is simply getting the stochastic scenarios into the stochastic model. Sets of stochastic scenarios can be very large files, and there is no standard layout or description for those files. One often has to spend tedious time translating the scenarios from the format provided by a scenario generator into a format expected by a stochastic model. An example is the set of 10,000 scenarios provided by the AAA for use in C3 phase II risk-based capital calculations. Most users of those scenarios needed to carry out some tedious data extraction and translation to use the scenarios.

One can imagine a better world where files containing collections of economic scenarios were as easily exchangeable as MP3 files. Any software designed to work with a standard, comprehensive and agreed-upon scenario file format could use scenario files generated by any other such software, with no need for any tedious and detailed extraction or translation.

It is with that vision in mind that the Technology Section is proposing to start a project to develop such a file format. More than that, though, because adoption of such a format could be made easier if an object-oriented software interface to the data were defined and one or more sample implementations were provided. That way, early adoption by independent software developers could be made simpler and more likely to occur.

Persons interested in participating in this Technology Section effort are invited to email the author of this article. In addition, a discussion thread has been started on the SOA discussion forums.

The remainder of this article focuses on the content of scenario files, and the issues that arise in defining a flexible file structure for that content.

Overall File Description

Let's start with an abstract description of the content of scenario files. There should be two main types of content: metadata and data.

- Metadata: a description of the content of the file. In a MP3 file this might include the name of the song and the artist. In a scenario file this would include information that would identify the scenario generator, the parameters used, the starting date and kinds of information included in each scenario, and probably much more.



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- Data: the actual scenario(s). This data can be described as a collection of collections of sets of economic conditions. That's a complicated data structure. At the lowest level we have one set of economic conditions for one date within one scenario. We'll discuss below what might be included in a "set of economic conditions." A collection of such sets, with a date associated with each set, is a scenario. A collection of such scenarios is the "data" part of the file.

To be flexible, we could use a system of tags to identify the information contained in the file. XML comes to mind as a ready-made abstract file structure using tags, and we should probably consider an XML schema for our file content. However, we may wish to invent a specialized binary format for several reasons including the following:

- Files with collections of scenarios can be very large, and XML is not a compact format.
- We may wish to have random access to the set of economic conditions on any date in any scenario, and XML does not provide for random access.
- Speed is an important consideration in stochastic modeling and a binary format might allow faster processing.

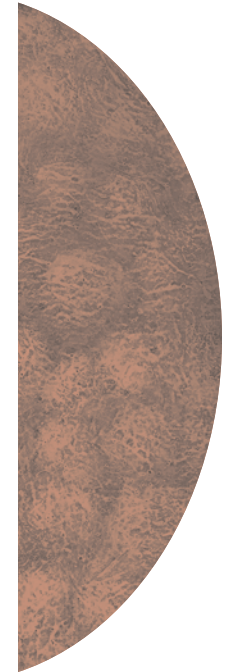
Specific Contents

A set of economic conditions might contain some or all of the following. We could require that each set of economic conditions in one file contain the same subset of these items.

- Risk-free yield curve, or government securities yield curve
- Other yield curves with quality and security type for each
- Interest rate volatility (single value or volatility curve)
- Equity returns (current income and total return) by equity class
- Unemployment rate
- GDP growth rate
- Inflation rate
- Foreign currency exchange rates by currency code

The metadata may contain some or all of the following.

- Identity of the scenario generator
- Number of parameters input to the scenario generator and the description and value of each
- Starting date
- Time interval between dates and number of dates in each scenario
- Number of scenarios
- List of the content of each set of economic conditions
 - o Indicators for which scalars are available (interest rate volatility, unemployment, inflation, GDP)
 - o List of yield curve quality and security types included in each set of economic conditions
 - o List of equity classes
 - o List of foreign currency codes
- Yield curve storage method
 - o If specific points with software interpolation
 - List of yield curve points stored
 - List of yield curve interpolation factors
 - o If stored parametrically with software regeneration
 - What parametric method?
 - How many parameters?
 - Any static constants used by the method?
- Text comments – free form text entered by the scenario generator



Other Issues

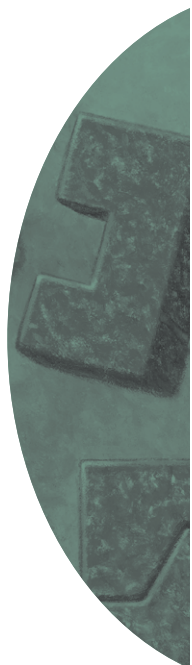
There are several other issues about which decisions would be needed.

Basic underlying file structure

We touched on this topic once earlier in the article. However, here are some considerations involved with three general approaches:

- XML is very flexible and platform independent, but does not provide random access, is not compact, and speed may be an issue due to the need to translate text to binary.

(continued on page 12)



- Custom binary could be very complex and requires the most custom-written code. It puts the greatest burden on providing good sample implementations. But could provide random access and possibly the fastest data retrieval. And, with implementation in a portable language, could be nearly as platform independent as XML.
- A database could make coding the data interface much easier, but might require the user to own specific third party software (the database platform). It could provide random access and fast data retrieval.

Yield Curve Storage Methods


Any set of economic conditions can include separate yield curves for many types of securities, and each curve can involve forward rates, spot rates and bond rates. To save space, each yield curve can be stored using just a few numbers or points on the curve, with some sort of software reconstruction of the remainder of the curve on demand. Various methods are available for

doing this, and one or more would need to be chosen and implemented.

Identifying Classes of Equities and Other Securities

It may be useful to adopt a standard set of numerical codes to identify various types of securities or to tag the equity returns for various equity classes. Numerical codes provide more secure standardization than text descriptors, and take less space (which is important if multiple codes are stored in each set of economic conditions for each date within each scenario).

Getting Involved

As mentioned earlier, persons interested in participating in this effort are invited to e-mail the author or join the discussion on the SOA forums. The hope is to manage this as an open-source initiative, and offer any results to the public at large in the same manner as other open-source initiatives. 

SOA Technology Section Survey Results

by Tim Rozar

The Technology Section Council conducted an online survey of the section membership late last year. We are happy to report that over 200 section members participated in the survey. Given the fact that the survey was largely presented in a free-form text format, it is clear from the length and quality of the survey responses that the participants put a great deal of time and thought into their answers. The impressive participation level, high quality of responses, and number of individuals offering to volunteer their time demonstrate that this section has a wealth of bench strength and "potential energy."

The Section Council has gone over the survey results exhaustively and used these results to set priorities for the year. The most important message received is that survey respondents feel that communication of section activities needs to be improved. It is with this in mind this newsletter and the "Technology Section Updates" blast e-mails have been developed.

The remainder of this article provides a summary of the survey results.

Participation/Demographics

Over 200 section members participated in the survey. Over 40 percent of respondents were either currently volunteering in Technology Section activities or expressed an interest in volunteering in the future. Respondents represented a wide cross section of actuarial professionals, including both traditional and non-traditional actuarial roles. Over half of the survey respondents had over 20 years of experience, and 77 percent of respondents felt that technology plays a major role in their job or career.

Level of Satisfaction with Section

Over 40 percent of respondents were either satisfied or very satisfied with the section. However, over 50 percent responded "No Opinion" to this question. The Section Council has taken this as an indication that more needs to be done to communicate with and involve the membership in its activities.

Forums for Communication

Survey participants were asked which of several forums for communication they found most beneficial. Respondents were allowed to check all that apply. The following responses were received:

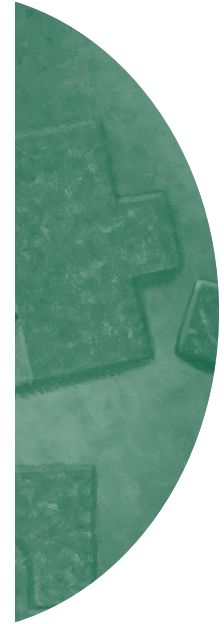
Newsletters	130
Seminars in conjunction with SOA Meetings	114
SOA Meeting Sessions	101
Webinars	95
Current Event Updates	82
Stand-Alone Seminars	46

Activities of the Technology Section

Survey participants were asked to rank the priority of a number of current or potential activities of the Technology Section. These activities are listed below in descending order of importance. The "Index" was calculated by assigning a value of 10 to "High", 7 to "Medium", 4 to "Low" and 0 to "Zero:"

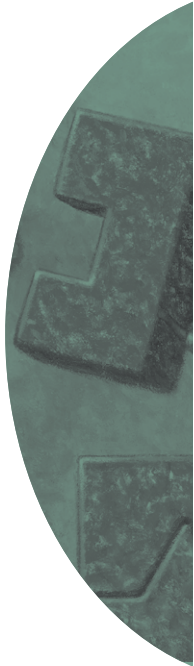
Leading Technology Issues Facing the Profession Today

Survey participants were given the option, in a free-form text format, to discuss the three leading technological issues facing the actuarial profession. The comments obviously covered a wide range of topics, but a few of the most prominent recurring themes were as follows:



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- 1) Keeping up-to-date on technology issues
- 2) Training employees in technology
- 3) Using technology to improve workflow efficiency and automation
- 4) Technological demands of valuation, administration, and regulatory requirements
- 5) Developing standardized processes and internal controls
- 6) Data security and virus protection
- 7) Privacy concerns with personal data
- 8) Data quality
- 9) Maintenance of legacy systems
- 10) Communication between IT and actuarial departments

What can the Technology Section do for you? Survey participants were given the option, in a free-form text format, to answer the question “What do you look for from the Technology Section to support you and your interests?” The comments fell into a few broad categories. A sample of the responses within each category is included below:

- 1) Provide education and training.
 - A resource for information about technology
 - Interesting sessions at SOA meetings and practical information that can help me work more efficiently using technology.
 - Educational opportunities, resources, and news/information

Activity	Index	Relative Importance			
		High	Med	Low	Zero
Providing thought leadership to the SOA regarding technology	8.53	56%	39%	4%	1%
Environmental scanning for technology issues affecting the profession	8.31	52%	40%	7%	1%
Having a publishing plan for the section and creating informational materials (newsletters, Web sites, etc.)	7.70	33%	57%	10%	0%
Setting section objectives and priorities	7.59	34%	51%	14%	1%
Identifying and developing content for continuing education programs	7.45	34%	48%	16%	2%
Providing a sense of community for actuaries interested in technology	7.22	30%	47%	22%	1%
Providing input into the SOA basic education process	6.21	14%	52%	29%	5%
Identifying, overseeing or somehow being involved with research initiatives	6.17	14%	50%	32%	4%
Communicating and advocating with the Board of Governors	6.15	12%	51%	35%	2%
Establishing and maintaining external relationships with other non-actuarial organizations	5.95	14%	44%	38%	4%
Advocating externally for actuaries who share an interest and expertise in technology	5.93	15%	43%	36%	6%
Influencing or being somehow involved with experience studies	5.69	14%	40%	37%	9%
Implementing Board of Governors/Issues Advisory Council/Strategic Advisory Team requests	5.67	9%	43%	44%	4%

- 2) Provide regular communications in the form of newsletters, e-mail, discussion forums, etc.
 - A platform for sharing ideas, problems, and solutions
 - Communication of how technology is used to the benefit of actuaries
 - Periodic newsletters, updates, e-mails, etc.
 - Interesting, educational newsletters and meeting sessions
- 3) Keep members updated on the newest technology and trends.
 - Articles or sessions that highlight new technology or new software that might be useful
 - Watching and commenting on new technologies
 - Assistance with keeping current with technology trends and developments
 - Keep members informed of new developments going on of which they might otherwise not be aware
- 4) Inform members about technology “best practices” within the industry.
 - What are the best practices in various areas of technology?
 - To raise my awareness of what other companies are doing in a technology direction
 - To gain knowledge or insight into how others are using technology to accomplish same or similar tasks
 - General information about what is going on in other firms and other industries with similar needs

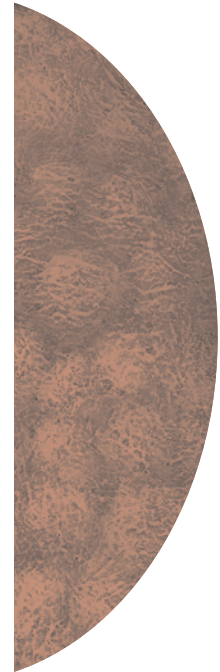
Focus for Next 12-18 Months

Survey participants were given the option, in a free-form text format, to answer the question “What should our focus be over the next 12-18 months?” Fewer respondents provided an answer to this question, with the responses ranging from very specific to very broad. A sample of the responses is listed below:

- Getting back in touch with membership on a less haphazard basis via more regular newsletters or at least articles on the section Web site
- Building/promoting a chat board for Q&A that interested actuaries can share information on various topics
- Clarify the role of the section. Work on identifying and sharing information about best practices.
- Clarify mission; put out a new newsletter!
- Getting some quality content into the newsletter, and some quality sessions at the SOA meetings.
- Defining the mission more clearly (this survey was a good idea)
- Build a reservoir of tools and libraries that actuaries can use in their jobs. Finding simple, easy ways (probably Web-site related) to keep the SOA membership abreast of technological solutions.

Conclusion

The clear message from the section membership is that they are interested in a more visible and active Technology Section. The Section Council will continue working to improve communication with the membership and will call upon those who have volunteered to make this year’s section activities even more successful. 🖨️



Web Site Redesign

by **Tim Rozar**

Over the past several months, the SOA and the Special Interest Sections have been working on redesigning the section Web sites. The Technology Section's Web site will soon have a new look consistent with a standardized format to be used by all Professional Interest Sections. We hope that this format will make it much easier to navigate from one special interest section's site to another. The main page of the Technology Section's Web site will be broken up into the following major categories:

About the Technology Section

Learn about Technology Section's council, structure and plans. Join the section or explore volunteer opportunities.

Agendas, Notes & Meetings

Read the agenda or the minutes from the most recent call or meeting, access archived minutes, and get all the details on the next call or meeting.

Connections: Discussion Forums & Suggestions

Connect with other section members! Discuss the hottest topics with your peers in our discussion forums, join a listserv, or submit a comment or suggestion.

Continuing Education Events

Learn about upcoming seminars, webcasts or conferences, and register here!

Career Center

Access the new SOA Career Center to search openings by designation, location and more. Keep current on career issues and choices.

Links of Interest

Follow these links and find valuable information from other industries, associations and regulatory organizations.

In Print


Read the latest issue of *Compact* or browse past issues. Peruse at a whimsical collection of actuarial fiction written by actuaries.

Papers, Presentations & Resources

Papers, presentations, research and useful tools: a wealth of resources for the technology-minded actuary. (Includes a link to the SOA Table Manager.)

Surveys & Stats

See the results of our section membership survey.

In addition, there will be a "Top Announcements" column, which will link to the most popular or most recent additions to the site. Please stop by the Tech Section's new site at SOA.org and let us know what you think! 



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2004 LTC Operations and Technology Survey

by Van Beach

(Reprinted with permission, from September 2005 LTC Newsletter)

Introduction

The budget for claims processing seems very high—is it reasonable for a company our size? It seems to take a long time to get a policy issued—how does our time to issue compare with other companies? Are we certain there isn't a new technology that we should be pursuing? What initiatives and challenges are other companies addressing? These and other questions were the drivers behind the creation of an operations and technology benchmark survey specific to the long-term care industry.

The goals of the first Annual LTC Operations and Technology Benchmark Survey were to develop time and cost benchmarks for LTC operations, identify the most pressing operations and technology issues, and gain insight into the technologies that are being used to administer long-term care business. The survey was conducted through the SOA, and was sponsored by the operations track of the Long-Term Care Section. The full 2004 Summary Report can be found on the SOA Web site at www.soaltci.org.

Methodology

The 2004 Long-Term Care Operations and Technology Survey responses are based on data from the first two quarters of 2004. Point-in-time data is as of June 30, 2004, while annualized data is based on the period from January 1 through June 30, 2004.

The survey questions were categorized into four sections:

- Company information, Part 1 (new business premium, in-force premium, employees, etc. for all lines of business); and Part 2 (new business premium, policy counts, new business applications, employees, claims, etc. for group and individual LTCI lines of business).
- General questions (use of various technologies, challenges and initiatives, etc.).
- Costs (budgets, staff, internal versus external costs, information technology versus other functional costs, etc.).
- Times (time to issue, time to receive underwriting requirements, time to complete home office requests, etc.).

Survey questionnaires were submitted to 40 companies, and several follow-up e-mails and calls were made in an attempt to maximize participation rates (the survey committee quickly found that one of the challenges of a new survey is developing an appropriate distribution list). All survey responses were de-identified and confidential.

Participating Companies

Companies participating in the survey include those that are currently marketing and selling new long-term care insurance policies as well as others that have ceased writing new policies and are administering a closed block. Of the 40

Table 1: Participating Companies

	Group	Individual	Total
Average	193,203,355	201,287,731	225,388,752
25th Percentile	184,805,033	16,236,775	16,273,323
50th Percentile	142,992,506	80,835,502	103,926,531
75th Percentile	276,496,253	121,558,166	232,075,050

* Note that for the calculation of the percentiles and average, only non-zero responses were included (e.g., the calculation of the average group premium in force only considers those companies with non-zero amount of group LTC).

(continued on page 18)



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Table 2: New Business Budget per LTC Policy Issued

	2004 Total Policies Issued	NB Budget Per Policy Issued
Average	15,495	435
25th Percentile	3,088	208
50th Percentile	9,170	386
75th Percentile	13,133	459

* Total 2004 policies issued per company were estimated based on the policies issued per company through June 30, 2004).

Table 3: Costs of Not Taken and Declined Policies

	New Business Budget per Application	Percent of Applications Not Taken or Declined	\$ Spent on Applications Not Resulting In Issues	\$ per Policy Issues Spent on Policies Not Issued
Average	354	30%	1,058,365	99
25th Percentile	144	18%	42,579	64
50th Percentile	278	31%	932,308	65
75th Percentile	325	38%	1,495,905	108

* Total applications per company were estimated based on the applications per company through June 30, 2004).

companies, to which survey questionnaires were distributed, 17 responded (42.5 percent). However, when measured by annualized LTCI premium or by LTCI premium in-force, it has been estimated that over 70 percent of the industry is represented by the survey participants.

The participating companies represented 2.5 million in-force policies, \$3.6 billion of annualized in-force premium, and 50,000 open claims (as of June 30, 2004). The participating companies, categorized by LTC annualized premium in-force as of June 30, 2004 are shown in Table 1 on page 17.

Sample Benchmarks Based on 2004 Results
With the information that was gathered, a wide array of benchmark metrics can be calculated. Just a few of the many examples of the types of benchmarks include:

- The cost to issue a LTC policy,
- The cost associated with not taken or declined applications.
- The cost to administer an open claim, and

- The overall budget supported by each in-force policy.

Those included here are an example of the types of benchmarks that can be gleaned from the survey results. As mentioned above, the full 2004 Summary Report is available on the SOA Web site under the Operations Track of the LTC Section at www.soaaltci.org.

New Business Budget per LTC Policy Issued

Table 2 details the new business budget per policy issued. Here the “new business budge” includes operational costs associated with underwriting (including underwriting requirements) and other new business administration and processing costs. The new business budget does not include any commissions shown in Table 2 above.

Costs of Not Taken and Declined Polices

For Table 3, the new business budge described above is allocated to all LTC new business applications. The applications that resulted in issued policies are subtracted to get the number of applications “not taken or declined.” The

Table 4: Operational Claim Costs

	Open Claims	New Claims	Open Claims/ 1,000 Policies In-force	New Claims/ 1,000 Policies In-force	2004 Claims Budget per Open Claim
Average	2,823	1,079	12.7	4.7	965
25th Percentile	63	8	2.1	1.0	397
50th Percentile	246	89	7.2	3.3	637
75th Percentile	2,217	863	16.0	4.9	843

* Total 2004 new claims per company were estimated based on the new claims per company through June 30, 2004.

* Open Claims and Policies in-force were as of June 30, 2004.

Table 5: Total Cost per Policy and Cost per \$1,000 Premium

	Total LTC Budget Per \$1,000	Total LTC Budget Per Policy Premium
Average	113	82
25th Percentile	48	31
50th Percentile	100	74
75th Percentile	167	110
75th Percentile	13,133	459

absolute amount spent on applications that don't result in issued policies is shown as well as this amount allocated to issued policies. These results are shown in Table 3 on page 18.

Operational Claim Costs

Claim information collected for the first two quarters of 2004 was used to estimate the total 2004 new claims. Open claims and policies inforce were as of June 30, 2004. The operational claims budge (i.e., does not include claim payments) was used to calculate the budget per open claim. Results are shown in Table 4 above.

Total Cost per Policy and Cost per \$1,000 Premium

For the calculation of the per-policy expense and the per-premium expense, the total 2004 LTC budgets (internal and external, individual and group) were included and divided by the in-force amounts as of June 30, 2004. The results are shown in Table 5 above.

Comments on the 2005 Survey

In future releases of the survey, we (the Survey Committee) anticipate that the results will be released in the fourth quarter

of the year of the survey (e.g., 2005 results would be released in fourth quarter of 2005). Collection of data for the 2005 survey will begin in September. We anticipate that the survey will close on Oct. 31, 2005. In order to continue providing this valuable industry information, it is very important that all companies are represented. If you have any questions or would like more information, contact Van Beach, 2005 survey chairperson.

Thanks

Thanks to all of those who invested the time to respond to the survey and a special thank you to the 2004 Survey Committee for their diligence and hard work in creating this first annual survey.

2004 Survey Committee

- Chairperson: Van Beach, Milliman
- Maryellen Beach, Society of Actuaries
- Kimber Howard, Society of Actuaries
- Lynn Hartung, Aegon
- Sandra Latham, LTCI Partners
- Pete Peterson, Northwestern Mutual 