

**RECORD OF SOCIETY OF ACTUARIES  
1995 VOL. 21 NO. 2**

**REENGINEERING ACTUARIAL FUNCTIONS**

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*Companies are undertaking reengineering projects like never before, and actuarial departments are not immune. Technology inevitably plays a key role in the transformation. Panelists will discuss the reengineering process, how it is applied to the actuarial function, and how technology can be used to facilitate the change.*

MR. JAMES F. TOOLE: This session is sponsored by your friends in the Computer Science Section. We hope to make some progress in answering the age-old question, do actuaries function, and if so, is there anything you can do about it?

I am very excited to hear what these panelists have to say. You have assembled before you a wealth of practical reengineering experience. You would pay more money to get less relevant information than you are going to be privy to here.

Our speakers have taken great pains to put together a seamless soup-to-nuts presentation, which covers everything you wanted to know about reengineering but were afraid to ask. It is our expressed goal that no matter what stage of a reengineering project you are in—from merely a gleam in the CEO's eyes to full-blown implementation—you'll be able to proceed with a greater sense of confidence and direction.

How many of you have heard about reengineering but despite all the hype you aren't very sure what it is? The term is being bandied about so much it is hard to get a handle on what it really means. It is always good to review the fundamental concepts even if you do think you know what it is.

How many of you come from companies that are considering initiating a reengineering project but want to find more about what it entails? Are there any people here who think that reengineering is what their company needs, but are trying to learn more to convince someone (what you'll hear described later as a sponsor) that a reengineering project could be critical to your company's survival? When we're done you'll have the information that you need to sign on your sponsor.

How many people here are actually in the middle of a reengineering process? Anne Brnic and Jeff Smith will be focusing on the perils and hazards in the trenches of the implementation phase. Anne is currently on the implementation team reengineering Prudential's valuation area; a very large project, but one with a clearly defined scope. Jeff is in Met Life's financial management reengineering department. Its five-year mission is to give Met new life and reengineer the entire financial management process. This is a project of truly astonishing scope that will in some way affect every aspect of how business is conducted and performance is measured at Met Life, leaving it poised to enter the 21st century.

Now I'd like to introduce our first speaker, Neil Anderson. Neil is a principal at Tillinghast, and in his consulting practice he has worked in business and market planning, financial management, and mergers and acquisitions. He will speak directly to our topic, defining reengineering and a working paradigm of the actuarial function.

MR. NEIL M. ANDERSON: I first want to talk a bit about drawing a distinction between a function and a process. Second, I will examine the product development/management process. This is in contrast to the valuation and corporate perspectives that Anne and Jeff will speak to. Finally, I want to talk briefly about some thoughts from an implementation side, trying to illustrate the smaller-company perspective where appropriate.

Our title is reengineering actuarial functions. What does that really mean? Here is a quote from *Reengineering the Corporation: A Manifesto for Business Revolution*. [Hammer, Michael, and Champy, James. New York: Harper Business, 1993], which I highly recommend: "Reengineering must focus on redesigning a fundamental business process, not on departments or other organizational units." It is telling us to look at actuarial functions in the context of the role that they perform. This would be a process within the company or within a strategic business unit or within a line of business. But they're going to tend to be broader processes than just actuarial functions.

Actuarial functions generally span or cross a number of business processes, within the company. Clearly the actuarial function is a critical support resource to any process that it is involved in. Think for a minute about the product development/management process in which it is clear that the actuary is a very key player. There are also marketing, compliance, and data processing people. All of them are also players in this overall process.

We think that product management is a continuous function that looks something like Chart 1. You start out with an idea and then turn that into a concept that you design and implement. You take it out on the street and then come back and evaluate how you did. Coordination and control is in the middle, indicating this is a very interactive, multi-functional kind of process.

What I've tried to illustrate in Chart 2 is a linear structure. It probably still exists in the product development function in many companies, but I think you find that this linear structure really does not fit very well with the needs of a continuous, interactive process such as what product development really is. If you evaluated this kind of product development/management process in a company, I think you'd find that it fails to deliver what it should according to each of the measures that reengineering focuses on. Those measures will tend to be cost, quality, service delivered, timeliness, and flexibility.

I'd like to leave you these thoughts about accomplishing reengineering. A reengineering project must have a realistic scope. What's realistic, of course, depends upon the situation within the particular company. But for any single reengineering project, the scope must be broad enough so that it will be viewed by others around you as having a worthwhile payoff. Also, the scope must be narrow enough so you have a chance of being able to do it within the time and cost constraints that people around you consider to be reasonable.

REENGINEERING ACTUARIAL FUNCTIONS

CHART 1  
PRODUCT MANAGEMENT CYCLE IS CONTINUOUS

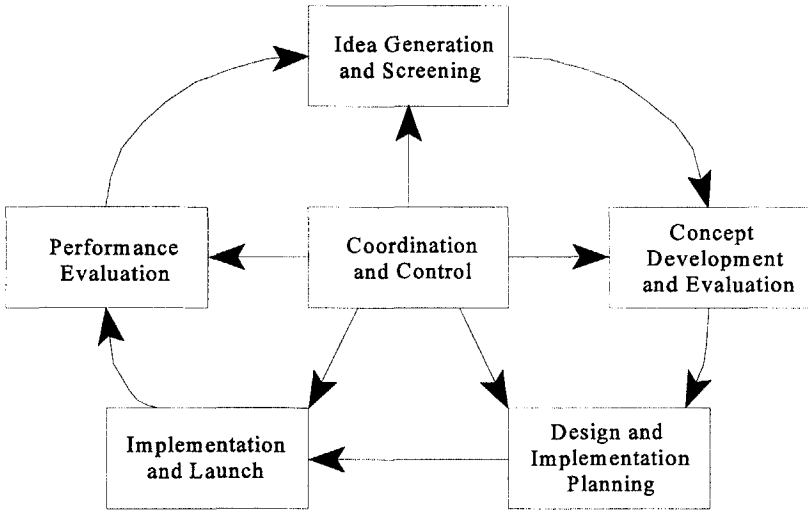
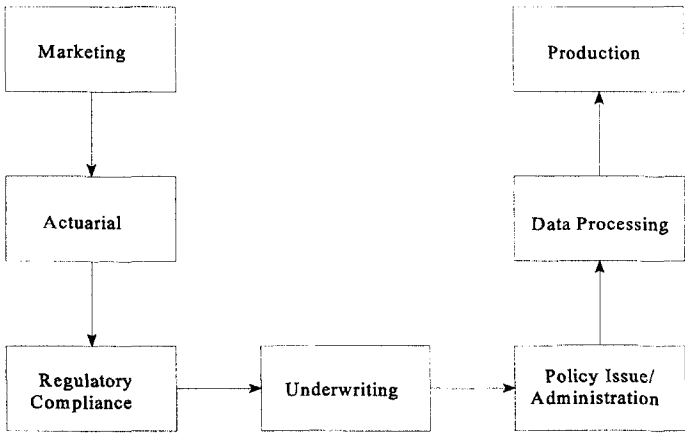


CHART 2  
OPTIMAL PRODUCT MANAGEMENT PROCESS IS NOT LINEAR



To guide the process you must have a strong sponsor. The kind of individual who could be a sponsor depends upon the state of reengineering within your company. If the CEO says the whole company will be reengineered and that everybody's doing it, the sponsor becomes clear. But, if you're looking at just a piece, maybe one process, I think the key thing is that the scope of the sponsor's authority must be at least as broad as the process that you're trying to address. The sponsor needs to have control over the resources to be able to deliver them and maintain the momentum of the project. The worst thing that could happen to you in a reengineering project is for the sponsor to lose enthusiasm halfway through. If that individual is not driving it, it will die.

You can anticipate some resistance throughout the process. When you get into this kind of project, the anxiety level of all the people who might be impacted really goes up. There will be turf issues and people issues among different areas in the company that are involved in the process. There will also be the issue of diverting valuable resources away from the things that the people used to do. Most people had full-time jobs before they started reengineering, and now you're asking people to keep on maintaining the quality of what they've been doing, plus go through this long process. These kinds of things will bring up resistance, and you need to be prepared to deal with it.

If you really want to get into reengineering, I would urge you to take full advantage of whatever external network you have: peer companies, friends in or out of the profession who have been involved in this, etc. Use this as an opportunity to do some benchmarking. Look for good ideas that you can use to give you an edge in your own project.

Ultimately you will get down to aligning people with job requirements. The job requirements will probably be different from what they were originally. You will probably have some competency gaps in which the people and the requirements don't match up as well as they used to. You'll have to make some tough decisions. I think the quality of the analysis that you do here to be able to support and justify your recommendations will really make the difference as to whether they're accepted by the people who are involved.

Take this opportunity to leverage your actuarial resources and free some of them up from doing things that perhaps less expensive or less valuable resources could accomplish for you.

Communication is critical. In any company there are existing communication bridges and networks that are valuable and important. When you start rearranging and redesigning processes, you run the risk of fracturing some of these fairly fragile connections. If you do rupture or break some of them, you must figure out how to compensate for that. They're very important channels.

Finally, on the issue of controls, controls are essential but the big danger is to overdo them. Controls can be costly, and they can impede the efficiency that you're trying to create by going through the reengineering process. On the other hand, you must have controls consistent with the directives of management. If senior management says there will be no unpleasant surprises in this company, that tells you something about the level of control you must try to provide. But the more controls you lay on top of the process, the more drag it will create. Putting in extra controls is not a substitute for dealing with competency

## REENGINEERING ACTUARIAL FUNCTIONS

problems. You can't put controls in and try to protect the company from an individual who is not able to perform his or her job.

Let me finish up here by turning to smaller-company issues. What are the potential roles for actuaries within a smaller company? Depending upon their position within the company, actuaries can participate in this process all the way from being a member of the study project team to being a team leader to even being the sponsor. At the very least, in a company in which it is apparent that reengineering is needed, the actuary should stimulate interest in the person who has the scope of authority to be the sponsor.

So there are a variety of ways in which actuaries can participate here. But before you go back and try to get all the actuaries involved, do not underestimate the level of commitment that will be required of them. Good people need to be involved in this for it to work, but don't sign them all up, because nobody will be left to do quarterly statements!

Another point I'd like to mention is what I call fragmenting the actuarial function. A smaller company might still have a central actuarial department, and when you get into reengineering there's a good possibility that some of the people will be decentralized. A cohesive, fairly close working group will all of a sudden be spread out under different management.

This raises issues (such as cross training, job mobility, etc.) that become more difficult to deal with than when everyone was in one department. It also raises the issue of what I call actuarial governance. Certain things must be decided from time to time in a company that affect all actuaries. If there's no longer one actuary who is clearly in charge of all the actuaries in the company, you must figure out how you're going to achieve this necessary function.

The last point is the organization of professionals and students. I think this gets to be a real issue in smaller organizations, particularly where it is feasible to dedicate the professional staff in the specialized areas. Maybe there isn't a full job at the support level before them. So, rather than setting up teams in which people don't have a full-time job, a possible alternative is to keep at least some of the students or support staff in a pool. There are many arguments that this is better for them in their development process. They can be deployed as needed and where needed, but there will still be the advantage of the senior staff being decentralized.

MR. TOOLE: Our next speaker is Anne Brnic. She's currently the actuarial director of the valuation division at Prudential. Prior to the reengineering effort, her responsibilities included oversight for the calculation of all reserve factors used in Prudential Insurance's valuation system and coordination of new product integration into the valuation system. She was added to the reengineering team midway through the design stage and is now a participating member on the core implementation team. Prudential's reengineering effort embraces the home office valuation and financial reporting functions.

MS. ANNE BRNIC: Pru Insurance is part of Prudential's individual insurance business unit. Our reengineering efforts started in April 1994. A design team spent from April to

October coming up with a new design, and we're now in the implementation phase. I'll be focusing on that aspect.

I won't be talking about the high-level concepts of implementation because there are plenty of books on reengineering. I'm going to share with you what we did in our particular case so that you can see the steps that we went through and see the problems and the successes that we had. Reengineering gets to be very emotional so I let that show, too.

Here is a little background on the scope of our work and what we planned to change. The product areas covered are traditional/ordinary, interest-sensitive, industrial, and individual health. When I say *valuation and financial reporting*, I'm referring to our annual statement production and quarterly reserves (both actuals and projections), the quarterly management financials, multiyear planning, cash-flow testing, and some dividend liability work. These functions are supported by about 120 persons in two physical locations: the business staff in one and the system support staff in another.

A design team was established by the chief actuary of Pru Insurance and was given the charge to reengineer the valuation and financial reporting process. The two main goals were to reduce the current statutory reporting cycle from 30 days to 14 days, and to cut expenses by about 50%. With the reengineered process we expect to increase flexibility, efficiency, and quality for the production of reserves and financial reports. We also wanted increased data availability and improved management information. We have a two-year period in which to do all this.

The design team was composed of associates from valuation, actuarial systems, comptrollers, and the cash-flow area; several associates were outside of the affected areas. These outsiders had prior reengineering experience, and they helped the other members of the design team to question the way that we had always done things.

By October 1994 the design team had come up with a vision of the valuation and financial reporting process of the future. Our vision incorporated changes to how we get the data, process it, store and use the results, and also how we think about the data. We saw that we needed to make changes in three general areas: business practices, system applications and technology, and organizational structure and culture. They cover the systems, the information, the work, the environment, and the people.

First is the systems. We have several large, home-grown mainframe systems that were developed years ago. We can't just run one component of the system. It's an all-or-nothing deal. Therefore, we're proposing to modularize or unbundle the processing, and if there's a calculation program available on the market, we'll give consideration to it rather than just try to build the system ourselves.

Next is the information. Our valuation system uses flat files. If you're familiar with that, you know that you can't really get to the data very easily. So we're looking into database technology. This leads to better management of information. Also, because of Prudential's large volume, we would summarize our results into cells, but we have more need to get information on a policy basis, so we see that a database can help us with that, too. By using

## REENGINEERING ACTUARIAL FUNCTIONS

a database, we plan to have a centralized data source that can be accessed by the valuation, pricing, dividend, and financial areas.

Next is the work. In reengineering you take a look at the work from a process view; how does the work flow through? We found that many people were just doing their tasks and handing off their results to the next person, not really knowing how those results are used. We redefined the work into processes and streamlined it to remove the redundant activities. People will be better able to see and understand the work flow and be better able to respond to business demands. The processes will help people to work as business partners, to work together to solve problems and to not just hand off their work.

We also changed the environment. We needed a work structure designed to support the new processes. The work on a process is done by a team that has the collective skills to get the job done. Moving to a team environment requires changes to the performance measurement and compensation process. Individuals must be team members and feel responsible for the work that the team does. We want to foster an environment that allows associates to feel free to be innovative and make changes.

Lastly is the people. We're trying to take away the focus of someone just being an employee, mechanically doing his or her task, to someone truly having a stake in the business, someone who can work in a team environment. Also, process owners must have an understanding of the process, facilitate getting the work of the process done, manage team resources, and help when the team experiences a roadblock.

So that's a high-level look at our design. Overall our use of new technology—client server, parallel processing, database, and query tools—provides better access and improves speed. Along with that is reengineering the work and the culture to let people work more efficiently.

Now, to take you along on my implementation trip, I've cracked open a few pages of my reengineering diary. The first entry is October 7, 1994. "Dear Diary, We presented our reengineering vision and recommendations to the strategy team. I hope they like it. There's going to be a lot of work implementing this. It sounds scary, but we have big plans."

The next entry is October 14. "Dear Diary, Green light! The strategy team gave us the A-OK. Now we can tell everybody else about this."

November 10—"Dear Diary, We gave our presentation to the affected associates. The turnout was lighter than we expected, but people were asking questions. I think we showed them why we have to reengineer."

We held a general information session for all associates in the affected areas. We introduced the reengineering vision and addressed why it was so necessary to reengineer. We described all the components of the new vision and described the new processes. Advantages were highlighted, showing what the benefit was for the individual. We gave each associate a package with the information that was presented and also examples demonstrating how things would work in a reengineered world. So by the end of the presentation we thought everybody knew what our design was. Little did we know.

Now we actually had to get into implementation. In addition to coming up with a vision, the design team had also developed an implementation approach. These are some of the components:

- Establish a core implementation team
- Establish a stakeholder team
- Establish the program management office
- Define the subprojects to implement the vision
- Develop an overall schedule for the subprojects
- Define roles and responsibilities
- Maintain relationships with various related initiatives
- Complete a risk assessment
- Assign subproject managers and get started!

In setting up a core implementation team, we wanted to make sure that our reengineering vision was carried forward, so we wanted some of the design team members to be on the implementation team. We settled on a six-member team, with five of the members coming from the design team. Currently, the team is made up of three members with a business background and three members with a systems background.

We also wanted a stakeholder team. These are the people whose areas will be directly affected by our reengineering. This group helps the core team get resources for reengineering, helps with the major business decisions, helps build the associate support, and lets the core team know about any developments going on in the areas that could affect reengineering.

The program management office (PMO) is a central point for project management support, advice, and guidance. The PMO is staffed with people who handle the project planning, work breakdown, scheduling, monitoring and control for the overall implementation project. We've adopted the project's methodology to handle all this in doing our factor analysis, statement work, and change procedures.

The PMO took the overall vision, broke it down into manageable projects, and grouped them into reengineering subprojects:

- Infrastructure Projects:
  - Develop systems architecture
  - Implement systems architecture
  - Data definition
- Early Deliverable:
  - Reporting database
  - Reserves by Purpose and Type
- Modeling Projects:
  - Projections
  - Cash-flow testing
  - What if scenario



## REENGINEERING ACTUARIAL FUNCTIONS

### ●Process Support Projects:

- Training
- Environment—organization structure/measurements
- Beliefs and values
- Communications

We're making many systems and technology changes, so the first category is an infrastructure project. Our first subproject was to define the infrastructure for communication, client server, operations system, our disk storage, relational database management system, and interfaces with local area networks (LANs). It also looked at our volume of data, the number of users, security needs, and the frequency and type of access processing. A consultant is helping determine what machinery makes the most sense for us and whether parallel processing is the way for us to go.

Our next subproject was to actually implement systems architecture, working from the blueprint developed by the systems architecture project. This includes evaluating specific equipment and establishing procedures. A data definition subproject identified all the general data components for our database. It takes into consideration who accesses the data, what the current and future reporting needs are, how the data are used, and how the data flow.

We also wanted to have an early deliverable, and because we wanted to use database technology, we decided to start experimenting to get some of the end users more familiar with database concepts. In the future we want querying to be very easy for people, so we've been looking at currently available tools on the market so that people can start getting familiar with what we call our reporting database.

Now the end product of the reserves-by-purpose-and-type subproject is a fully functioning process for reserve calculation analysis and reporting. Required policy information needs to be defined. The calculation processing needs to be broken down into modules, and the print file reads need to be changed now that we're accessing data from a database. Of course, we need query tools for reporting.

I group these next three together under modeling projects: projections, cash-flow testing, and what-if scenarios. These three activities use the same type of information that we would use during our normal valuation processing, but they're of a smaller scale. We want to implement tools that facilitate our projections, improve our cash-flow testing, and help us to better test new formulas and assumptions. A key component of this will be access to data.

Last is the process support subprojects. These have turned out to be the most interesting, in my opinion, because we're looking to create a new organization and a new culture. We established a training subproject to identify and provide training for those implementing the reengineered processes and also those who are going to have to learn the new processes. Associates were very concerned that their current skill levels would not be adequate for the reengineered processes.

We also chose to have the environment/organization projects and the beliefs-and-values projects be separate, even though they really go hand in hand. We wanted them to be manageable, but we realized that collaboration between the two of them was critical. The main goal for the environment subproject is to lay the foundation for all the changes we want to make to the environment—expanded jobs, opportunity for advancement and recognition, and the organizational structure centered around these processes, which are supported by shared responsibility teams. We knew we needed help here so we're working with a consultant to define the structure and the culture, the work roles and responsibilities, and also to help us define the necessary skills, competencies, and behaviors.

Communications is last on my list, but it is one of the most important, if not the most important, element of a reengineering effort. Many reengineering efforts falter or fail because of insufficient communication. There is a need to build enthusiasm, increase everyone's understanding, and obtain support. People need to get excited about reengineering. A major deliverable of this subproject is a communications strategy that identifies how various audiences are targeted for different messages.

We're using various communication vehicles now, such as general information sessions, E-mail, newsletters, question boxes, information bulletin boards, small-group meetings, and status updates.

Because communication is so important we hired a consultant to help us with the strategy. Before developing strategy, the consultant interviewed our stakeholders. She formed focus groups with the associates and conducted a survey. This was done to see what excites people about our initiative and what concerns them. What type of communications do they like best? What obstacles do they think we face, and how do the people want to get involved?

Looking at the remaining steps, we developed the subproject schedules and the role of responsibilities for the PMO members. We think it is very important to keep in touch with other initiatives throughout the company, because we're not an isolated area. Also, up front we identified the risks to the reengineering project and actions that the core team could take in case these risks occurred.

Lastly, we assigned subproject managers. We met with all the subproject managers to make it clear what their responsibilities were. We also gave them a set of guidelines to follow for their status reporting, scheduling, time tracking, and communications.

So there we had a plan for implementation. Now back to my diary. January 1995—"Dear Diary, We started a pilot team to handle the annual statement production runs. They're working very well together, and they've managed to cut down the run time."

Well, one of the design goals we had was to get associates working together as teams. We formed a team of business and system associates and gave them the responsibility to run all the production for our annual statement and management reporting. This team had a team leader and a process owner. The team determined how often it had to meet and who would complete which task. The team members actually started to crosstrain each other. They were allowed to make changes, and we received a great deal of positive feedback from that.

## REENGINEERING ACTUARIAL FUNCTIONS

This team was a tangible thing that people could see. When you're implementing, it's good to have milestones to show people that you're actually making progress.

February 1995—"Dear Diary, We are behind on many of the subprojects. We're having trouble getting the resources we need."

Like many companies we have a resource drain, and it is hard to get key individuals away from their regular day-to-day work. The PMO worked with the supervisors of these individuals to plan how the normal work could be handled while all this reengineering was going on.

We're trying to hold any changes to our systems down to a bare minimum until they are reengineered. We're also looking for opportunities to use the technologies that we're bringing in for reengineering to help us with our current work. We've also set up teams of business and systems associates to help us get our normal work done.

April 1995—"Dear Diary, Can I quit yet? People are confused about what we're trying to accomplish."

Well, we made the pitfall of thinking that everybody fully understood the vision and is familiar with reengineering. We thought we were communicating, but people were focused on how they individually were impacted without seeing the big picture. They couldn't see how our various subprojects supported each other and how they were eventually going to help us meet our reengineering goals. So during the past two weeks the core team has been reorganizing how we present and manage the subprojects.

We've now attached the subprojects to our reengineering goals, and we've mapped them out so people can see which subprojects and how subprojects are working together to support the goals. We're also increasing our efforts to talk with people more about reengineering.

So that brings us to May 1995. "Dear Diary, We're making some progress. The road has been bumpy but we're navigating it. We're regrouping the subprojects to help everyone get a better feel for how all this comes together."

So that brings me to where our implementation efforts are today. As you can see we've had our share of problems. Implementation, though, has taught us some lessons. And I think you'll see that many of these same points are being covered by all the panelists. Here are some of the key lessons we learned.

You can't underestimate the importance of communication. You must have the right people sending out the right messages constantly. Communication must be without letup, and it must be simple enough so that people can hold onto it. It must help people see the big picture and where they individually fit in. Remember, too, the grapevine is a powerful source of information. Regardless of what you may say, people make their own observations and their own opinions after making assumptions, and that's what they start to hold on to. Also, be honest in your communication.

Next is the resource problem. Of course, getting enough of the right resources has been a continuing problem for us. People are getting pulled in all different directions, and reengineering just turns into another project that they have to fit into their work schedule. If you reengineer, you really need dedicated resources. It will be hard, almost impossible, to make progress if reengineering is not a priority-one project. I'm part-time on the core team, and it makes it very difficult to focus on reengineering. It's a constant juggling act, and eventually one of the balls may be dropped.

Next, be prepared to adjust. As we got into our implementation, we found out that it is not easy to translate our vision ideas into reality. We discovered that some of our ideas had to be modified or they were still sticking with our guiding principles.

We've been open to making changes because as we roll it out to more people, we get a fresh look at things. The core team has changed how we've been working among ourselves. Get people involved. People are a big component of reengineering. They're concerned about the changes being made, and naturally people will resist change. Getting people involved, I think, helps them to be more open to these changes. We've heard concerns from associates who were not on a particular subproject, that felt they were going to be left behind because they were not involved up front. We've been looking to see how we can get more people involved by using things such as brainstorming sessions to gather ideas and include opinions.

Lastly is support. But really a better term for it is leadership. Having strong, visible leadership is critical. Neil referred to Mike Hammer's work. He recently came out with a new book called *The Reengineering Revolution: A Handbook* [Hammer, Michael and Steven Stanton. New York: Harper Business, 1993]. I highly recommend it. In it he says that if you proceed to reengineer without the proper leadership, you are making a fatal mistake. If your leadership is nominal rather than serious and isn't prepared to make the required commitment, your efforts are doomed to failure. So leaders must take a personal interest in the effort so that others have a reason to offer their support, too. Reengineering really needs to be driven from the top down.

So implementation certainly has been an adventure for me. It's going to be a very long trip, and it probably will never end because changes are always being made.

MR. TOOLE: Jeff Smith is from Metropolitan Life. Jeff has been with the Met for more than 18 years and is a bright star in its future. Before transferring to the newly formed financial management reengineering group, Jeff was part of the strategic work group team, Met's answer to a think tank. Some of the issues that it studied included the emergence of earnings, risk-based capital, return on equity, and the company's financial goals and strategies. Before that Jeff was in the corporate controller's department where he participated in the efforts to develop Met Life's first auditable GAAP statements. Before the strategic work group, Jeff was involved in the negotiation and implementation of the rescue effort led by Met Life on behalf of the former Baldwin United annuity contract holders.

I called Jeff over a year ago, when I first got wind of the Met Life reengineering process. He said he didn't want to talk until he had some successes to report. I think he has some exciting news to report. They are big shoes to fill but, fortunately, they're his.

## REENGINEERING ACTUARIAL FUNCTIONS

MR. JEFFREY K. SMITH: As you've alluded to, financial management reengineering at Met Life includes more than just the actuarial functions. We've included accounting, auditing, banking, bill-paying, treasury and tax operations, as well as the actuarial function.

Met Life started its reengineering of financial management operations during the second half of 1993. It first assessed the state of the company's financial management operations. It followed that up with some vision work to set out where it wanted to be in the future. It's a very all-encompassing effort to the extent that we've brought in people from many different lines of business and departments throughout the company.

In 1994 we devoted ourselves to implementing a number of short-term reengineering change efforts. In 1995 we're continuing full speed into our long-term reengineering efforts, with a goal of finishing by the end of 1997.

Why do we choose to reengineer the financial management area? Let me summarize with a kind of good-news/bad-news-type explanation. The good news is we were spending about 8–10% of our total company budget on financial management work. That was about at the average for financial-services-type companies.

The bad news, though, was that it was about at the average. For the size of Metropolitan, we were not getting any of the economies of scale that one might have expected to have gotten for a company that's the second largest life insurer in America. So we felt the need to implement some dramatic changes and improvements.

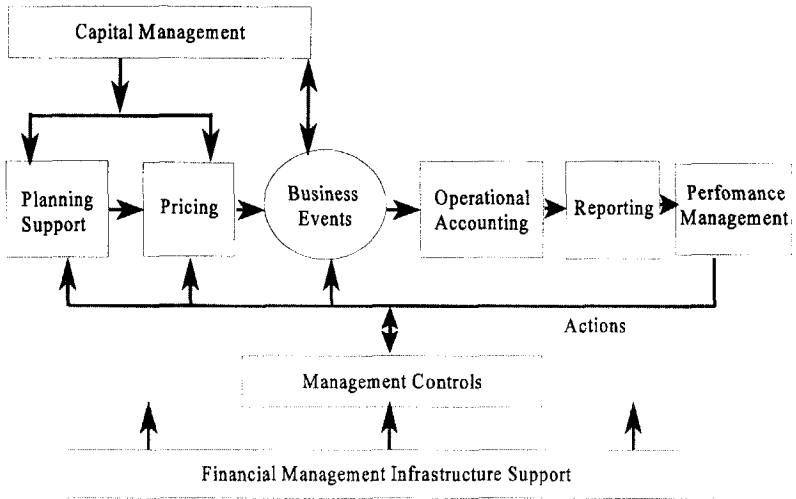
Chart 3 summarizes how we pull together all the different elements of financial management and how we want to look at them in the future. You don't see many of the traditional departments or functions listed, but it is rather the way we look at the work now. It's the result of the division work that we had done. Starting on the top left is capital management. Look at the goals for the company, look at the constraints that we have. Figure out how to deal with them. This includes some very specific actuarial activities, such as asset/liability management and reserve valuations. Sources and uses of capital and return on equity are other elements of capital management.

That leads directly to the next element on the left: planning support. Planning support, of course, is not unique to just the financial management areas. In fact, the planning that we do supports the overall company plans, incorporating business areas such as marketing. There's a lot of tie-in. There are ties among many parts of the company and then again that plays in here, though I try not to overload the graphic.

Knowing our goals, knowing our constraints, having our plans, leads then to the pricing, where we actually do the product development and the pricing to support those goals. Of course, reality sets in at that point. You can't just set the prices wherever you might like; there's the marketplace to consider.

So that leads to that point in the picture of the business events. The policyholders are buying policies (or choosing not to buy them, in some cases). The policyholder is living or dying and leaving some benefit payments. Or things are going on in the investment world through the whole realm of business events. The real world comes into play at that point.

CHART 3  
SCOPE OF FINANCIAL MANAGEMENT



After that we move to operational accounting where we try to capture the events that have occurred and try to reduce them generally to some numerical way of getting them onto the company's books and into our knowledge. That leads directly to reporting and is very closely linked to operational accounting. Seeing the results leads to very important elements that helps finish out the loop, which is performance management. You try to look at what happens, compare it with what we want to have happened, see how much progress we did or didn't make, and then see what actions need to be taken.

Performance measurements and management are very much related to trying to influence behaviors through a series of incentives to try to reach the goals that we have set for ourselves. So you see then that the arrow leads back with a series of actions, looping back again to the area of capital management, money support, and pricing.

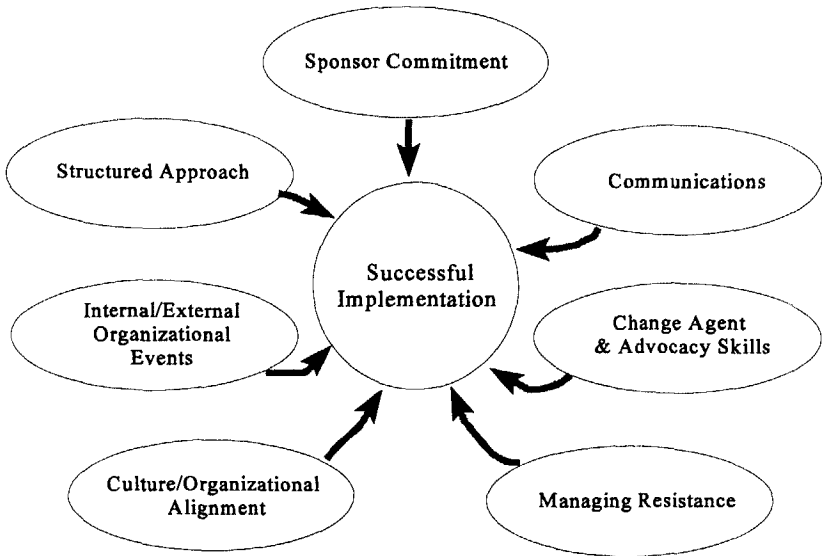
Of course, you must reset your plans, too. Maybe that's what's wrong as opposed to your implementation. We have two other items on the bottom. First is management controls. Management controls really are not a separate item but a support item that needs to be built into all the processes that the company has. It is not an extra thing that's applied at the end, but is really integrated into it. Getting efficiency and getting it right the first time are the reasons.

The infrastructure support would include both the people side of things as well as the technology side. Later I'll take a look at where we're moving from and where we're moving to with respect to these items. But first let me give you some examples of the changes that are underway.

Before that let me just briefly touch on the critical success factors. I think you've heard a number of things said about this already by Anne and Neil. So use Chart 4 mainly as a summary.

## REENGINEERING ACTUARIAL FUNCTIONS

CHART 4  
CRITICAL SUCCESS FACTORS



Successful implementation is where we're headed. How do we get there? Well, you've heard about communications, needing to have the skills to make change occur, managing resistance, organizational and cultural issues, internal and external events, which keep changing right while you're trying to do the reengineering, the need for a structured approach, and sponsor commitment.

The two circles I will comment on are structured approach and sponsor commitment. Many of you have probably heard statistics saying that 50–75% of the companies that try reengineering fail; they give up at it, and they go back to life the way it was. But it's not like an actuarial probability; you don't roll the dice and think that it's only going to work out 25% of the time.

It actually can be made to work out. We're hopeful that we can make it work out. The key is to look at the things that have made it successful in other companies and introduce those elements in our company. To increase our odds of success, we've brought in a consulting firm, Ernst & Young, which has the benefit of some experience in the outside world and knows what works and what fails. We try to bring that to us so that we can increase our abilities to, in fact, succeed and not have it just be a dice throw.

The other element, also emphasized by the prior speakers, is sponsor commitment. I agree with them that it is the most important item. The paradox that I have to point out about it, though, is that so much about reengineering talks about empowerment of employees, team work, and people getting together to share knowledge and information. While all that's

true, to actually get the ball rolling and get through the inertia and the road blocks, you do need a dictator from time to time to make sure you get through those barriers.

On one project we had a three-month log jam, and we couldn't get through until there was a change of leadership. A new leader stepped in, broke the log jam for us, and on we went. In all honesty, had we not broken through that particular log jam, we would have actually closed up the whole financial management reengineering effort.

So I can't underscore that enough. I would add, though, that the sponsors do need to be committed going in, but they'll learn a lot as time goes on, and they need to be with you learning as time goes on so that they can be there and continue a high level of support rather than try to bail out.

Looking at the specific examples of change (these can be related to the people, process, or technology), we see we have a mantra: one transaction, one record. Right now the situation is characterized at Met Life by many multiple systems. Information must be reentered repeatedly into different systems at different times, and then there are reconciliations galore. I'm sure this is not a unique characteristic of Metropolitan. I see a number of heads nodding in the audience; other people are doing the same things.

We've come to realize that we're never going to know more about the transaction than at the moment it occurs. As time goes on, you know less about it, and it becomes more difficult to find out what's going on. So our thought is to capture this information once upfront, capture as much detail as we think we need, and get it out to all the people who need it.

A particular example where we are using this would be in our cash balances by portfolio. If I could draw a little picture of what's happened over the years at Metropolitan, historically cash would come in from the policyholder, it would get booked to the company's books, and it would be tied with enough information to support the statutory lines of business that were reported in the annual statement.

As time went on and the investment world got more involved and more complicated, people said that this was not enough, we couldn't just know the cash balance for ordinary insurance. We do different things with universal life than what we do with traditional products. There are many other examples of differences. So we set up many subsegments or portfolios within the lines of business, sometimes even crossing the statutory lines of business. We needed to know the cash balances in each of them.

Did anybody know them? Not by looking at our books. You look at the books and the information is not there. So people went out and built a separate system to try to capture that information. Transactions came in, they got rekeyed, they went through a whole process, and there was a whole lot of activity. At the end you had some answers, but you had to look at the company's books and try to reconcile them. It was a big, wasteful effort. Two largely parallel activities were going on in tandem. Yes, we got the answers that we needed but it was very slow and very costly.

Now we're in the process of going back and doing it right. If we captured that information at the outset and just carried it with us instead of dropping it, we would know how much



## REENGINEERING ACTUARIAL FUNCTIONS

money was deposited with us because of universal life, traditional life, or whatever level of detail we want to capture. So that's the point: one transaction, one record.

Now some of you may think that this is going to lead to the great database in the sky. But it's not really where we're headed. We're looking at something that we call the virtual information exchange highway. Now how does this work if it's not the great database in the sky? The easiest way I can explain it to you would be to use an analogy to Prodigy. You can do many things on Prodigy. You can look at news in the newspaper. You can buy airline tickets. You can go shopping. But Prodigy hasn't gone out there and built everything for itself or for you. It really has built a highway. You get on, you say you want airline tickets, and it drives you on this highway over to the American Airlines Semiautomated Business Research Environment (SABRE) system. If you want to buy some clothes, it takes you to the catalog you're interested in. If you're looking for news, it drives you to News Day and you can find it there.

We are really looking to build a series of highways that will take people to the information. You can get there fast, you can get there correctly, and you get what you want, all but without having to build everything as a great database in the sky.

We have this great idea, but is it really practical? We have actually brought in some outside experts to look over what we've done. They believe that with a company as large as ours, a reasonable cost for the technology is actually there so we went ahead building this. In fact, we are starting and we have actually shown some prototypes to the lines of business. We surely don't want to build it, deliver it, and then learn that they don't like it. So we have a very inclusive approach. But we are proceeding on this front.

The third and final area that we're working in is that of shared services. It is an attempt to bring together to one place work or processes or functions that we've done in many different places, often with many diverse policies and philosophies and practices and certainly cost levels. We've done this in a nonactuarial area. We've brought together the company's bill-paying operations. Met Life had 20 sites spread across the country where it paid bills. Some of the sites paid \$3 per bill to process it, some of the sites paid \$14 per bill. After speaking with people at all 20 sites, I found that all thought they were doing the best job possible for the company. So we consolidated that into a single site. We're actually getting about 50% savings. We're down to a cost of about \$2.25 per bill instead of \$3 (the old best) or \$14 (the old worst).

We are looking to do the shared-services approach in some actuarial areas. The first one would be the valuation of what I'll call bank or CD-like products. You're all familiar with GICs and certain settlement options. We've already identified at least six areas in which people are doing CD-like valuations. So we have people, different systems, technologies, backups, everything that comes with one, and we have it six times. We need to try to put those together to get some cost efficiencies out of them.

Another area is investment analysis. People in the investment department are analyzing the assets to figure out what's going to happen to the lines of business because of the

investments. People in the lines of business are trying to figure out what's going on by analyzing the assets, too. If we had one cooperative group doing the work on behalf of both, we could save money from the duplicate effort that we have in place now.

Lastly, actuarial cash-flow testing is somewhat related. An extensive model was designed to support the company's Regulation 126 testing, and nobody gets to use that model to look at portfolios, take a look at investment possibilities, or look at the risks that we're facing. Yet, if we get the actuarial people to open that up to the rest of world, the rest of the world doesn't need a second set of models.

A number of different lines of business are doing the same or similar things. Now to try to funnel it together, at Met Life it is not the job of the financial management reengineering department to do all the work. We don't know everything about all these areas by any means. We don't have all the light bulbs of good ideas, but we serve as the catalyst. We are the people who wake up every morning thinking about doing things better across lines of business and bringing things together in a positive way.

One of the things that illustrated it for me was the need for a separate group that thinks about the responsibilities of what happened in the bill-paying process. We could have given any one of the many customers out there the opportunity to be the owner of that process. And, in fact, we did offer it to them. But the reality was, there's a lot of divergence in terms of customer needs. The people in purchasing worried about the fact that we bought 100,000 pencils last year. They wanted to get a good discount.

The people in businesses didn't really care how many pencils we bought; they wanted to know how much that marketing program cost. The vendors wanted to get paid. The employees sitting at their desks only wanted pencils. So we had to look at these items and the many customers who were out there. We were bringing them together in one organization, thinking about the needs of the diverse customers, often at odds with each other in terms of their needs. We had somebody who didn't really have any biases toward any one of those functions or responsibilities. We just wanted to get them all done.

When we get them all done, we are going to move this operation. We call it purchase order accounts payable. That'll be the first leg of our shared services organization. We were actually going to turn it over to someone else, because we're just the catalyst. But we're looking to perhaps having a board of directors of our internal customers set up to ensure that the organization, in fact, meets the needs of all the customers on an ongoing basis.

This effort on the bill-paying side, was the first time Met Life actually did any downsizing across the company for the same single reason. The role perhaps is relatively small because of the 30,000 employees we have. It certainly resulted in many interesting experiences and lessons learned that we'll be able to apply to other activities as we go on down the road.

Many of the lessons learned from this and other projects have a kind of balance. There are two sides to them. One is clearly that your own people and your own companies have the answers. Sit down with people (as we did during our many site visits) and talk to people. They have many good ideas about what's wrong and how it can be fixed. You must listen to them.

## REENGINEERING ACTUARIAL FUNCTIONS

We used a number of methods, such as site visits, survey forms, and workshops to bring diverse groups of people together. Sit around a room with walls covered with brown paper with little yellow sticky papers stuck on them. Say this is what we do. Well, people were amazed to discover they were in this part of the process. I'd check the address of the vendor. Others would say they checked the address of the vendor. The next thing we knew was four people were doing the same thing. You can start to cut off or pull down major sections of the wall. Certainly, that internal view can be very helpful to bring people together, as long as you give them the broad process view of start to finish.

On the other hand, you need to look at other people for good ideas as well. I think there was an example cited before about going to outside companies. We visited some external companies and found some really good ideas. An example is bill paying. People were telling us we couldn't process half a million bills per year at one site. We were too far away from the customers. "It will never work. What about the person who is in San Diego, nowhere near your new site in Rensselaer, NY, which is near Albany?" Well, we went to Sears and learned that instead of one-half million per year, it processes 21 million bills per year all at the one site in Dallas. And it has managed through these issues. We received many good ideas from Sears as to how to actually get it done.

We went to our own company group claims operations. Paying a claim is not the same as paying a bill for pencils. It includes handling large volumes of paper, and people are looking to get paid. The group had some good ideas on how to get that done. And, of course, also moving into the area of technology, many great ideas came from our MIS people. Finally, as Neil referenced and Anne mentioned, consultants can help, too. They have the experiences of many companies.

Moving to the second lesson, though, there are all these great sources of input, but you must balance that against taking effective action. You're not looking for consensus and especially not for unanimity, or you'll never be able to act.

Change is difficult. Many people have things vested in the way things are today. You need to have a cutoff on the input at some point. Try to meet the customer needs, but not seek out consensus. The analogy that I've tended to use from one of my experiences is that in a dictatorship, one vote out of 100 is enough. In a democracy, 51 votes out of 100 is enough. In the particular project I was working on, somehow 99 votes out of 100 was not enough. That had to change. I think you'll find some of that in your own companies. You must have a strong sponsor who will put his or her foot down and not wait for the unanimity. It just won't come.

The next issue is 100% implementation of something that's 90% correct is much better than 0% implementation of something that's 100% perfect. Of course, I'd caveat this by saying you must be careful with the 10% that's missing.

You really need to get going and make changes and not wait until you have 100% perfection. You can implement something and have it greatly improved and go back later and fix up some of the problems and keep changing and keep improving. But if you wait until it's perfect, you'll find no end to the excuses as to why you cannot act.

## RECORD, VOLUME 21

Another one that's popular on the actuarial side is that analysis is a tool and not a goal. For many actuaries, myself included, analysis has always been fun. You can always think of something else to analyze. However, if you wait until you do all the analysis and you declare that doing the analysis is the great thing to achieve, you won't make any changes. These issues really address speed. We found that we have to keep these issues in mind constantly to actually have progress and keep the ball moving.

Efficient pieces don't equal efficient processes. We visited a site on the bill-paying side that was doing something that looked very different than what everybody else was doing. A stack of photocopies of checks was on the corner of one person's desk. It immediately jumped out as we had never seen that before. I wondered what this was about. Is it adding to efficiency or subtracting? I asked the person what it was about, and I really couldn't get a good answer. I couldn't really see the value of it so we spoke to the manager. The manager was basically open-minded and said he would call them. Within two hours the manager got the copies of the canceled checks. There was no more making photocopies of checks.

Two days later we checked in and asked how things were going. "Oh, they're worse than ever. We don't have those photocopies of the checks anymore. We send out confirmations to people when they pay their bills." Now confirmations by themselves is another issue for another day. But they're doing confirmations, so what's the problem? "They ask for the check number. So we have to write down check number 82112612."

Now as a person who gets checks sometimes from Met Life I never really cared about the check number. I suspect everybody else who gets paid by Met Life doesn't care about the check number. Yet these people thought they needed the check number. What did they do? They went back into the computer system, looked up the check number, copied it down, and had somebody else check them. So they had an elaborate process now put into place in just two days to cover this problem.

Did they already have an efficient process for getting the check number? Yes. But was that necessary at all? No. We went back to the manager and said, they're not really getting it. Could you take the check number off the confirmation form? This was done in another two hours. That was the end of it. So many efficient pieces don't necessarily add up to an efficient process. Sometimes if you get rid of the piece altogether, you're better off.

The last issue is that public support doesn't always equal private support. Often, people will say one thing but their actions are different. You have to keep an eye out for that; that's not news. What was a surprise to me was that it was not only the people who stood to lose turf who have been difficult to deal with at times but also the people who have stood to gain turf. They have their own agendas that they're interested in.

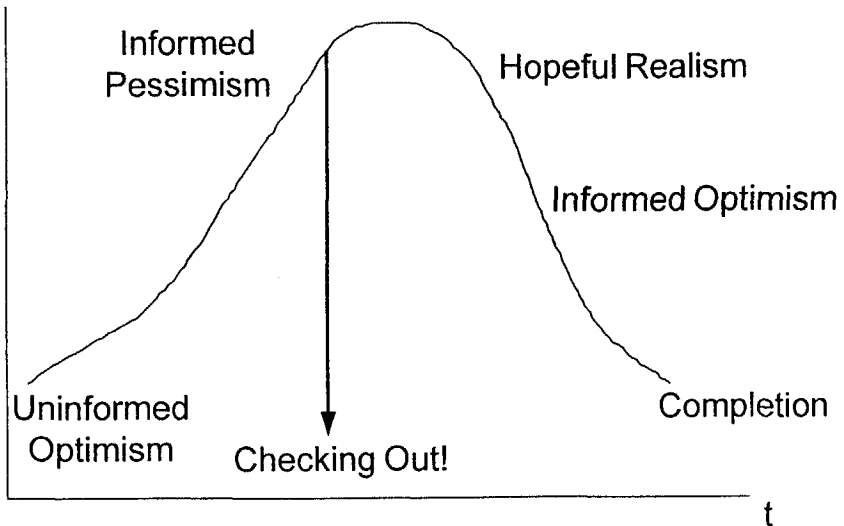
One of the rules that one of the consultants told us, which has certainly proved true, is first they will attack your data, your analysis and then you. This will come from either side: the ones who are giving up or getting turf. I can tell you of many instances to prove that happens, but we survive and we press on.

## REENGINEERING ACTUARIAL FUNCTIONS

The last lesson I'd like to share with you is that there's a response and problems even with positively perceived changes. None of the negative ones make the case to anybody who is difficult, but even the positive ones are tough.

Chart 5 shows that you usually start at the lower-left hand corner, uninformed optimism: we're going to make changes, we'll save money, we'll do it faster, we'll reconcile. Everybody's on board. Then you get to the point in which people, including people on my staff and myself, actually get informed about what really must be done. You see what the odds are of achieving it, and you move into informed pessimism. Well, that's the danger point. That's where many of these reengineering efforts fail. People check out whether it's public and they see it, or even more dangerous is if it's private and they don't see it unless they scout awfully hard. That check-out point is where you really can lose.

CHART 5  
RESPONSE TO POSITIVE CHANGE



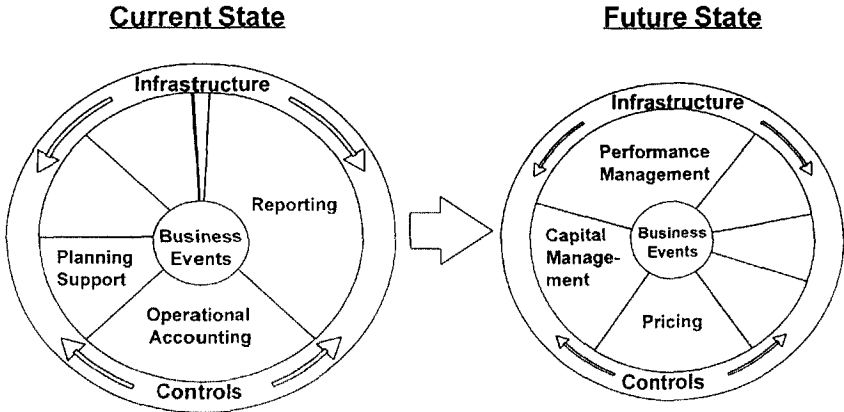
That's where you need a strong sponsor to push on and where you also need change agents. People can deal with this, maintain their sanity and push over to hopeful realism, informed optimism and ultimately to the completion stage. I've seen this an incredible number of times on different projects. We will find ourselves going through the informed pessimism stage, and we'll start to get excited about it.

The goals presented here are very similar to the ones Anne presented so I won't really spend any time on them now:

- Processes that drive earnings improvement
- Timely, accurate, and accessible information
- Fully integrated management controls
- Significant productivity improvements

What do you expect of the results though? (See Chart 6.) Recall that Chart 3 showed the 8 megaprocesses, starting with capital management and ending with performance management, which then moved back.

CHART 6  
EXPECTED RESULTS



The current state at Met Life includes: reporting, operational accounting, planning support, probably like the lower value-added activities; necessary but lower value. We're spending almost three quarters of our financial management money on that. In the future, we need to move to the flip side where performance management, capital management, and pricing are where we're spending all our time and talents, and, in fact, doing it with an overall smaller circle. If we're successful, that's where we're going to wind up. We're trying to proceed by using some of the examples I gave you here of people, process changes, and technology.

MR. TOOLE: I want to wrap up by elaborating on some very important points. What is the difference between function and process? A function is a step in an assembly line, a brick in the wall. The workers are removed from and probably are unaware of the other functions or even what their piece might be used for. No one is ultimately responsible for the end product. (In Marxian terminology, workers are alienated from their product).

A process is even bigger than the assembly line. It contains all the necessary and sufficient conditions for building the wall (including why it is being built). By reengineering, you end up with process owners and stakeholders instead of buck-passers and irresponsible finger-pointers.

Another very important point is that you want radical and not incremental change. Throw it out and start over. In business, we're dealing with an accretion of 75 years of incremental change since the last radical shift (the assembly line). The irony of it all is that grafting

## REENGINEERING ACTUARIAL FUNCTIONS

new, enabling technology onto old business paradigms explains, in part, why expenditures in new technology have done so little to increase productivity. New technology allows you to throw away the box you are supposed to think outside of; there should be no sacred assumptions.

Technology is not a panacea. You can't just get a new system; you must get a new culture. If you put in a new system without addressing the underlying processes, it's like suturing a wound without cleaning it. At best there will be a scar; at worst, there will be a bad infection, maybe resulting in amputation.

Leadership is so critical here; I cannot stress enough the importance of having committed sponsors. You will also need a more highly skilled work force. Training will be important, as you old job categories will no longer fit after reengineering. You might go from having 20 job categories to only five as people are doing many more functions than they used to. You will have to rethink your compensation issues.

Finally, if you want more information on the definition of reengineering and on the design phase, Timothy Ruark and Nancy Boyce went into great detail on these and other reengineering issues in the *Record* from the Orlando meeting (Volume 20, Number 1, 1994: 35-50).

MR. GREGORY L. FITZMAURICE: I'm with North Carolina Mutual Life Company in Durham, NC. Our company went through some reengineering, mostly in our operations area. About a month or so after that was finished, the president went around to the other areas of the company and said, "Now that we've reduced operations staff, we want all departments to reduce their staffs. But we're not going to reengineer, we're just going to cut staff." In effect, I lost 25% of my staff on the spot.

I tried to combat this by calling around to a number of companies. I asked about the size of the company, the size of the staff, and what responsibilities they had. I would like to suggest that maybe Tillinghast or the Society produce some sort of report that shows company sizes and responsibilities of actuarial staffs in those companies.

We each have many things to do: cash-flow testing, product development, pricing, persistency studies, and mortality studies. But with small companies, say with an actuarial staff of five or six employees, it becomes very hard to reengineer functions and do the work. Can anyone on the panel address how to reengineer in a small area with very little money or time to do so?

MR. ANDERSON: Before I try to respond to the last question, let me just mention that you talked about staffing studies. A couple different times we have gone through the actuarial employment directory (who works for which companies) and picked out some companies that we thought would make a reasonable homogenous group. But there were clearly some differences in the asset levels or in the mix or premium. We tried to fit curves to develop a staffing formula and found one we thought worked fairly well. With a couple of others, we found there wasn't much correlation anywhere except, I think, in that particular group. Matching up the number of Fellows and Associates in the company with assets

RECORD, VOLUME 21

was about the best relationship but it wasn't very satisfying. So it is rather difficult to do. I'm not aware of any widespread study such as that. I think certain people might have contacted some of their peer companies and looked at staffing, not only in total but also by function type and so forth to get some benchmarks there.

With respect to the last question on how to reengineer when you have a staff of five, I don't have a good answer for you there.

MR. SMITH: What we found that works, which may or may not be applicable to you, is it sometimes forces you to stop and think, what can we really stop doing that we're doing now? Also, sometimes you could look to outsiders to do the work for you. Sometimes you wind up getting it done more effectively; not because your employees weren't good, but because it wasn't your area of expertise.

The one example I'll cite on that is in a bill-paying area. We had some internally designed programs to search out duplicate payments to external vendors. Well, we decided we really didn't have the manpower as we were moving out of one site that was responsible for that and reestablishing it in Rensselaer, and they weren't up and running yet. We didn't have the chance to keep doing that function. So we found an outside company that did this for a living. There are actually about six of them that do this for a living. They share with you the savings: 50% for you, 50% for them. In fact, because it's their business, they know much more about it. We were very impressed by them and they're actually now looking at our books, trying to find the duplicate savings. We will probably wind up finding more money through them than we would find by ourselves. We won't have any people doing it, and the only cost we pay them is if they find the money. So, it's a zero cost going in. We stopped having people work on it, and we're actually seeing a better job done.

Not everything will fit that mold, but try to stop and look at some outside consultants to patch over for the day-to-day work when somebody works redesign. So there are a few thoughts.

MR. CHARLES S. LINN: Jeff, you mentioned that one of the critical success factors was the ability to deal with internal and external organizational events. Do you have any suggestions on how that can be done best, both during the initial reengineering process and also going forward as things change? It seems as if things are always changing. How do you adapt to that?

MR. SMITH: Again, I have no magic formula. It's the issue of being aware and being adaptable, as Anne said, and not trying to stick to it. Well, this is what we said we were going to do and we're going to do it. At Met Life, a couple of major events have occurred while we've been doing the reengineering. We got into the merger with The Travelers, for example, in the group health business. Suddenly, the whole group department, except for the life business, was gone. That certainly changed our plans. Now there's talk in the newspapers about the New England Mutual and some sort of deal with Met Life. I don't know what's going to happen with that deal, but I know it will cause a major change in what we're doing. You must be alert to the issues and adapt when those things occur.



## REENGINEERING ACTUARIAL FUNCTIONS

MR. ROGER W. SMITH: The reengineering efforts deal with processes and functions that need some work. Has anyone seen or observed what I'll call an ongoing or continuing engineering process whose purpose might be to prevent or avoid processes reaching cataclysmic inefficiencies?

MR. TOOLE: Reengineering is a constant process. Once you do it, you don't quit doing it; it becomes part of the culture. So in that regard, once you've started reengineering, there should be some feedback mechanisms in effect that would dampen any sort of cataclysmic inefficiency before it occurs. I don't know that there were effective feedback mechanisms in the old business process.

MR. ANDERSON: Let me mention that I'm aware of a couple companies that have established reengineering departments. I think they rotate some stuff through there. So something is undergoing scrutiny virtually all the time. I think that they'll probably cycle back around periodically to check up on things.

MS. BRNIC: We really haven't reached the point of finishing our implementation. But how do we know that we're being successful? So we have some kind of goal that we're shooting for. I'm assuming that as we continue into the future, certain tangible measurements will be there for us to always keep on top. But that's an interesting question.

MR. WILLIAM D. BONNEVILLE: I haven't heard the word *quality* during the entire presentation. The word *quality* had been substituted for the word *reengineering*. Many of the same processes and discussion would ensue. Would anybody care to comment on quality issues?

MR. ANDERSON: I think I mentioned the word *quality* maybe once, or at least I meant to. I brought up in the context of quality one of the performance measures by which you evaluate how well these processes are working (cost, quality, and those kinds of things). It's a very key thing that you're searching for here, how to get quality along with efficiency.

MS. BRNIC: Many companies had quality initiatives. Actually, when we were bringing out reengineering, people were saying that this was just another one of those things, we're making little changes here and there. Quality initiatives are looking at smaller things and trying to change things as you're moving along. But with reengineering, you're really taking a total look at everything. One of the key words in the definition of reengineering is a radical change. You usually don't achieve that through quality initiatives. But I agree that some of the outcomes that we are looking forward to through reengineering are having higher-quality material coming out and having higher-quality employees through their training. It's kind of interspersed with all the reengineering efforts.

MR. RONNIE Y. TAN: We have all heard that reengineering is about radical changes, and we have heard that there are many failures with reengineering efforts. Comparing that with total quality management, continuous improvement, just in time, and all that is being applied to other industries. I guess continuous improvement would be the opposite of reengineering because it is from the bottom up versus the top down; employees give ideas

RECORD, VOLUME 21

small steps at a time. Reading a list, it seems to me that has a lot of success. Then I've been hearing that reengineering has many failures. Do you have any comments on that?

MR. SMITH: Well, Dr. Hammer uses a graph to describe the situation you described. From time to time you need a big reengineering effort to move you a quantum leap forward. But then for a very short period of time you can continually improve the quality, and then it's time for another big leap. So I think he sees the two as being linked. You wouldn't necessarily always be going around the racetrack or driving a car home 100 miles an hour. Sometimes you sort of slow down. Adjust to what you're doing and then pick up speed again. Maybe that's not a good analogy on the fly, but there is a place for both of them. It's not really one versus the other.

MR. TOOLE: The assembly line process is the basic business paradigm that has permeated business thinking throughout the U.S. manufacturing and financial services industries. Now the Japanese, with the team approach, have completely readdressed that paradigm, moving from Newtonian physics (assembly line) to relativity (work teams). It's already happened there, and we're trying the get to that point now in the U.S. After the radical change or quantum leap, there is continuous improvement, but we aren't to that point.