RECORD, Volume 29, No. 3*

Orlando Annual Meeting
October 26–29, 2003

Session 8PD
Do You Know How Much You're Spending? The Hidden Costs of Product Complexity

Track: Product Development, Smaller Insurance Company

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Summary: This session looks at the behind-the-scenes costs that are often missed when designing newer, more complex products. They can run the gamut from increased systems and administrative expenses to the need for more robust marketing materials and, in the extreme, market conduct costs. Participants develop a better understanding of new product design, learn methodologies for estimating the additional cost of new product features and how to measure, account for and mitigate market conduct risk.

MR. PAUL HALEY: We have three wonderful panelists here today. We're going to look at product complexity on a couple of different levels. When you think of product complexity, as we talked about it, there's actually a couple of different ways you can look at it. If all you have are round holes, a square peg is complex, and how you handle a square peg with a round hole can become a complex matter. So that's one way of looking at it. As you get deeper into it, you can start getting into 10 sides, 20 sides or 100 sides, and you can start making your products in and of themselves more complex. We're going to try to look at it from both sides of that equation today.

We're going to start with the obvious way of looking at product complexity and the cost of product complexity. What do you do from an administrative system standpoint as you develop products and you're making assumptions as to what your costs are going to be? Are you, in fact, going to be wrong on that? How can you try to keep those costs under control? We're going to delve into a second deeper level of product complexity—how does complexity play in the marketplace? Are you doing things from a marketing or a PR standpoint? Does complexity help you or hurt you? And what are the implications either way? As you look at it, we are increasingly giving a long-term promise in what is a short-term world, and how does complexity help or hurt you in trying to do that?

And, finally, just as you're despairing of ever being able to develop a product in the future that will adequately handle your costs, our final panelist is going to talk to you about how complexity can actually help you in some ways, in that you can leverage that product complexity and maintain a competitive advantage.

We're going to start with Van Beach. Van is an FSA with Milliman USA. He has an office in Stewartville, Minn., and his expertise is in designing and implementing insurance systems for pricing, valuation, experience monitoring and administration. After Van, Vince Granieri's going to come up. Vince, also an FSA, is a graduate of Ball State University with a BS in actuarial science and an MBA from Harvard Business School. He's an enrolled actuary as well as being a Fellow. He's been the chief financial officer and chief actuary of many different insurance organizations, and he's now an independent consultant who's based in Cincinnati. And then, finally, Tom Bakos is a consulting actuary who's located in beautiful Ridgeway, Colo. He's focusing, in part, on nontraditional areas of actuarial practice. Right now he is very interested in what you can do from an insurance patenting standpoint.

MR. VAN BEACH: I'm going to be talking about one aspect of the hidden costs of product complexity. There's just no pattern to follow. You're in a round-hole world and all of a sudden you're going to introduce a square peg. It could be that you're adding a new feature to an existing product line. It could be that you are entering a new product line, and that is where your complexity's being added. Maybe you're a life company going into long-term care (LTC), for example. Or it could be that you're adding a new twist, or some sort of innovative design, to an existing product.

I taught high school math in Cedar Rapids, Iowa, right after I graduated from college and had some math students that always complained to me about how they couldn't stand math because there is only one right answer. I can only assume that they want to interject their own personal interpretation of what two plus two was or something along those lines. I actually tried to take an alternative viewpoint and argue that you should be happy with the math class because you're confronted with a problem, I can teach you some techniques and in the end you'll come up with an answer. More importantly, though, is that I can tell you if it's right or wrong and there should be some comfort in that. They didn't necessarily believe me, but as an innovator you're down that path where there isn't a right answer, and you don't

necessarily know what the methods or techniques are. You're going to be confronted with trying to find a path where you don't necessarily know how to get to the right answer.

So what's to be gained by innovation? We'll have larger margins; we can develop a definitive brand recognition; and we can gain some advantage over our competitors who won't have this product. But along with anything like this, of course, there's the other side, which is taking a look at the checkbook. We're going to need some research and development. It costs to develop or research the market to see what it can handle. You also might need to be looking into compliance issues and laying the foundation for this new product. Of course, break out the checkbook now because the actuaries are looking to get paid if you want to develop the product specs and actually price this thing.

Break out the checkbook once again because now we have to train the agents and the home office folks. Any time you're going to introduce something that's different from the norm there is going to be a significant amount of learning that's going to need to take place before you can adequately handle it. And, of course, the marketing people are going to want their budget as well. You need to administer it as well. You need someone to send bills, collect premium and cut checks. You think you have all the big ticket items covered, but don't put your checkbook away quite yet.

I've spent a fair amount of my career developing systems, such as experience monitoring systems, systems for valuation or pricing or actual admin systems. One thing that keeps coming back to me that really resonates is that the foundation for everything that you do at an insurance company is based upon what goes into and comes out of your admin system. That's more than sending bills, paying premiums and cutting checks. When you roll out a new product you tend to look at all of the big-ticket items. You look at what it's going to cost for research and development. You look at what it's going to cost to address compliance and the administration, such as sending bills, collecting premiums and cutting checks. I liken it to trying to figure out what natural phenomenon is the most powerful. Some people will say lightning, some will say it's a tornado and some will say a hurricane.

All these big things happen, and they're very destructive, but if you look at what the most damaging natural phenomenon really is, you will see it is just rain. It rains all the time. After a while, you don't even notice it. It kind of trickles down and gets you a little bit wet. It's a little bit annoying, but you don't really think much of it. It happens all the time, and the longer it goes on, the more damage it creates. Look at the Grand Canyon as your example. That's not a lightning strike. That's just water. And the slow, recurring events really have the potential to erode. In this case we're talking about a financial product and the erosion of your pricing margins. It's a small annoying thing, but if it goes on long enough, it can cost a company a lot of money.

I'm going to go through a few different ways that the administration solution that you implement for that new complex product can cost you money. The first one is product design constraints. This assumes that when you're doing your product design you actually go out and do your legwork and identify what your admin system can and can't do. The marketing department has its magic bullet that's going to uniquely satisfy some market need, but you may not, in fact, be able to implement that product exactly how you had it designed because your admin system can't necessarily handle it. And, as a result, you may not be able to get all the desired features that you want. You leave some market needs unmet, and your competitors have room to weasel in, address that market need and cost you sales, reducing your market share.

The next way that your admin system can cost you money is purely through inefficient operations. If what you implement is something an admin system that's going to send bills, collect premiums and cut checks doesn't necessarily handle, put in a manual worker. But, it's an expensive way to administer your product. You're going to need additional staff and it's going to take extra training. Without a systematic solution, that's going to slow down your processing. One hidden cost, that is probably more costly, is the errors that a manual process can introduce. It's going to be expensive. When correcting these errors, modifying and fixing the problems is going to be expensive. The data reliability issues that you're going to introduce can cause a host of bad consequences.

If you don't have everything about the policy readily available to you, there could be problems. If your customers call in and find out what's going on, you may not be able to tell them in a timely fashion because your system won't be able to tell you exactly what is going on. When you manually put in some sort of trigger, you might put something in the wrong place, and, as a result, you could cut a check to someone who wasn't meant to get one. What do you do? You can't really go back and pull that check back in. So, you're going to be adding increased costs to manually administer whatever features you may have, and then also there's going to be the additional cost of whatever errors you may introduce and the cost to actually fix those.

Another way that it could potentially cost you money is if you don't capture enough information, you may be not be able to tell how your product is doing. I ran into this with a recent company that I was working with. They had entered into the LTC market and had been selling the product for a while, so they brought us on board and asked us to help them figure out if they were making any money on this block. They had been trying to figure out what they needed for this admin system. We need to do some underwriting on the front-end, which is going to be different than their product that we're currently working on. Once we get the underwriting done, it's send bills, collect premium and cut checks. That's what our admin system needs to be able to do.

As a result, they didn't capture a lot of information up front. So when it came time to value the liability that's out there and actually tell these people if they're making any money, we unfortunately had to go back and tell them we couldn't tell. They didn't have the data required to actually value the block of business that they were building. If you don't spend the time and the effort to collect all the data that you need up front, in the end that could potentially come back to bite you. You wouldn't necessarily be able to tell if that product you're selling is performing the way that you expect.

And you could have lost selling opportunities. Each time that you touch your customer, and you sell them something, you're gaining information about that customer. Your ability to leverage that information can be very profitable in your ability to cross-sell and sell additional products, but if you don't capture this, you could have missed an opportunity to know more about your customer and sell them something additional. In effect, it's costing you money.

Another way that your admin system potentially could cost you money is through misleading pricing data. In my mind this is kind of a double whammy. As actuaries, we expect there to be a certain risk that's attached to a standard rate or a preferred rate, and we have pricing and premiums that are set assuming a certain risk. Business decisions are going to be part of any company. There's always going to be an Agent Red that follows all the rules. And there always will be an Agent Orange that comes in with a big client, and he really needs this sale so he convinces the underwriters that this risk that he's bringing on really isn't standard and should be issued preferred. And so they cave in and give the preferred rate.

There is a problem there. Once you put that person on your system, in most cases that risk is going to be identified as a preferred risk from that point forward. If you're pricing for a preferred risk to look a certain way and you end up with is a standard risk for that class, you don't have premium rates that are set to handle that. Very quickly it's going to be costing you money. The double whammy that comes in with what you're building up through capturing this data is the experience that you're going to use to set your pricing assumptions when you do the next round of pricing. So now not only has it cost you money on the front-side directly because your premium isn't sufficient to handle the risk that you're taking on, but the data that you're using to develop your pricing assumptions for the next round is going to be skewed. The result is that it's going to cost you money again from both an underpriced risk and from the future pricing assumptions that aren't going to accurately reflect what that risk is.

Another potential way it could cost you money is you're locked into an old technology. Your business rules are intermeshed with your technology. They're essentially one and the same. You programmed your business rules into your old Radio Shack computer from days gone by. The Radio Shack computer went away and you want to upgrade to a Windows platform, but you can't do that without completely rewriting all of your business rules because your business rules and your

technology were essentially one and the same. That may be okay. It may be a legacy system that you can let roll along, and you don't have to do anything with it. Where it really bit people was when we had the Y2K problem. All of the sudden there was a real issue that you had to confront, and you needed to be able to move to a new technology where the Y2K problem wasn't an issue and you weren't able to. So all of the sudden these companies had to incur a significant cost because of that design flaw. Your systems are an integral part of the profitability of your product.

And the last one is if you have a complex product, its value may be high if there's something unique and different about it, but if, for some reason, you want to exit this product line or want to move this block somewhere else, it becomes a giant anchor because it's no longer possible for you to gain economies of scale when you can't lump this in with another block that exists somewhere else and gain any efficiencies. As a result, if you go to sell this, an acquiring company may look at this block and not want anything to do with it because the administration of it could be such that they don't want the headache, and it's something that's very different from what they're doing. It could require additional staff and additional training, and so the cost that you're going to incur then, when you go to sell this block, is that you're going to have to have a discounted selling price because it's something different than what everybody else is doing and isn't going to fit nicely into someone else's system.

From the administration standpoint, I guess I would encourage you to look beyond the price tag. There's going to be an initial implementation, whether or not that implementation covers everything. If it doesn't, you have to look past the initial investment and try to look for some of these things. Not gathering all the information that you need and not having systematic processes to capture everything potentially can be more costly than some of the up-front costs that you may incur. Of course if you put a good solution in place, you may be able to leverage that for other products and make yourself a long-term, profitable innovator.

MR. VINCENT GRANIERI: As I've had some experience as a chief actuary and chief financial officer, when it came to new products I was cost conscious. I tried to be market savvy and knew that I had fiscal responsibilities. So I tried to concoct rather precise methods of measuring break-even and capturing every single cost. But in the end, no matter how much we figured out the costs, the market set the price, and so we lost that fervor for discovering our costs. Now, today things have changed a little bit. It still happens somewhat, but we have more awareness now of what a definition of a successful product is, and that includes being successful financially. One of the hidden costs that perhaps is underlying this whole presentation is that some of the consolidation we see in our industry is as a result of not being fully aware of the costs or not being willing to be disciplined in that respect.

I have a slightly different perspective on complexity, as each of us do, and I'm going to talk a little bit about why we should go ahead and be innovative and come out with complex products. Alternatively, I'm going to discuss some of the disadvantages of doing so. And then, I will talk about uncovering those particular complexities and their costs from four different perspectives—people, communication, scale and product features.

I'm defining complexity as something that's cutting edge and is different than the norm. It is not necessarily more difficult, but then again it could be. Keep in mind, though, that simple concepts can sometimes be complicated to execute. If you tell someone that a universal life (UL) policy's like a bank account where there's interest that accrues and charges taken off for insurance costs, people can grasp that, but in practice it's more difficult to pull that off.

Why should we be innovators? Why should we bring complex products to the market? Well, first of all, it's rather prestigious. Competitive advantage can be argued. We can attract sales because we have something different. Also, we gain brand recognition from a series of successful new products in the marketplace. However, there are what I call first-entrant disadvantages. We'll get into a whole host of those. Right now, part of competitive advantage is bringing barriers to entry. However, if you show somebody how to develop a product or innovate by bringing it to market, you're actually presenting a gateway to entry, and sometimes it's best to wait and see and learn from others' mistakes.

People costs. People costs are roughly 55 to 65 percent of every insurance company's total expenses. So, it shouldn't be any surprise that people costs are part of product development. However, there are different aspects of people costs. For example, as Van pointed out, if you're bringing out a product you haven't dealt with before, there may an expertise gap in terms of your administrative platform and your pricing. There are also opportunity costs because if you're better at doing whole life or UL than you are at LTC, any efforts into LTC are going to be at a greater expense. This expense is somewhat difficult to predict in advance.

And then there comes the issue of deferred maintenance. When you're dealing with that sexy new product versus fixing something that's wrong on some product that we don't sell anymore, we know what often gets picked in the big meetings.

Then there's the expertise gap, which is some deficiency in the necessary skills to launch your product, whether it be pricing, acquisition or administration skills. The hidden costs then are time and the external cost if you should happen to rent or buy expertise from outside sources.

Opportunity costs. I don't know of anybody who has more than enough resources and some room on their agenda. Of course, product work is often deemed strategic. Other projects wait. A key task is then prioritizing. We often don't realize that the success of new product innovation is more uncertain than the success of products

that perhaps are a little bit more run of the mill. The hidden costs here are what you could have accomplished elsewhere and the fact that you're not as efficient in your innovation as you are in some of the more mundane.

Deferred maintenance. The premise makes perfect sense—let's not do now what we don't need right now. People don't want to hold up that new product innovation for something they don't need for years. But what happens when day two becomes day three, becomes week one, becomes year five? If we need something five years from now, you can pretty much bet that in four years, 10 months, 15 days, and six hours somebody's going to wake up and realize that it's going to take us more than a month and a half to get that program and implement it. And what are the hidden costs? Well, you have some manual work-arounds. And, as I think Van mentioned also, there are going to be some mistakes. I've actually been in a couple of situations where we had to go and try to get back money that we already paid in error.

Let's talk about communication. There are so many constituencies that you have to cover in an innovation or any new product development. Some of them are even at the home office. Virtually every function, even your valuation and cash-flow testing folks need to be in the communication loop. I've seen numerous situations where the two actuarial forces may not be on the same page. The field force is another issue. There have been rare exceptions to this rule, but in general agents can't and won't sell what they don't understand.

The regulators are a big piece of another issue. It's in your best interest to have them understand more because then you can get products approved more quickly perhaps with fewer variations. So the hidden costs of communication include the training costs and bringing everybody up to speed. It's tempting to cut corners on training, but in general the rule that you pay now or pay more later in terms of market conduct or errors applies. You also have costs of not communicating in terms of extended time frames, not only within your own shop but outside with respect to product approval process.

Scale. I'm going to take a look at critical mass from the point of: How do we cover our fixed cost? If you have innovative processes and innovative products, they will have fewer common elements with other products, and that means higher fixed costs to be covered. On the investment side, complex products that rely on hedging and other sophisticated investment programs need scale to be efficient or their costs will be higher than priced for. And we all hope and dream that our sales will be enough to cover these costs.

Product features. It's more difficult to properly price these complex benefits, even if the market is screaming for them, and you have first-entrant advantage. The product development process has a fairly steep learning curve early on. It's very likely you're going to see minor tweaks or repricing quite often in the early stages of a product's introduction. So if you're in there first, you have to keep that in mind.

Your hidden costs would be antiselection, costs of correcting flaws and redesign of the product. Sometimes that means we refile the product. Sometime we're lucky, and it just means that we changed the prices on some of the levers that we have.

In conclusion, hidden costs really exist in nearly all product development efforts, but for complex products there's a higher probability that hidden costs will be incurred and that those costs will be substantial relative to the more run-of-the-mill products where your companies have current expertise.

MR. TOM BAKOS: We fortunately agreed when we were preparing for this session on exactly what we meant by product complexity. We see it as something different that is hard to fit in, has no patterns to follow, leaves unknowns ahead, has a higher likelihood of failure and is a new solution to an old or new problem. We didn't talk too much about just exactly what we meant by hidden cost, but I think we pretty much all agree that we'll know it when we see it. Oftentimes the problem is that you don't know what a hidden cost is until you actually see it.

Now, the product complexity issues are created by products that are different, and when you're going down this road of product development and dealing with new and original products you're faced with the issue of: What if there's no fork? Then you have to make it. You have no map to follow, and your life becomes much more complex, as the previous speakers have indicated.

The particular kind of product development I'm talking about is the innovative design solution. Innovation I think most often involves finding a solution to a problem that needs to be solved when you don't really have a whole lot of time. You can be an innovator or an imitator. You can choose an active or passive role. If it's a new problem for you but not a new problem for somebody else, then you can simply copy what it is they've done. I worked for a lot of insurance companies in a product development role and tried to be innovative, but I discovered that in the insurance company environment that existed when I was working there, profit margins were high.

There was a time when, as a product development actuary early in my career, you could really do no wrong. You could not price a product that would not be profitable because mortality rates were getting better all the time. This was especially in the early 1980s, when interest rates were going up. Companies were finding imaginative and innovative ways to reduce taxes. So, you didn't have to be too innovative. Profit margins were high. You had to really go out of your way to lose money as a product development actuary. And, as a result, with those high profit margins, while there was innovation in the insurance industry, it was never really highly rewarded. It was kind of taken for granted. It was expected and prized, but it wasn't valued. So, historically, innovative efforts were shared with other competitors in the industry, and the only advantage the innovator got was getting there first. The imitator got there for less.

And so, where's the fork? You're going on this travel path of trying to develop a new product, and you create your own fork, and in doing that you generate expenses and create situations that result in expense characteristics for your product. You would like to recover this expense through pricing, but you may not be able to because if you've incurred an expense in developing your product that your competitor does not have to incur, then you either lose your investment or you have less profit. Your competitor has a definite advantage. If you're doing something new and different, you don't have the benefit of anybody else's mistakes, but, of course, everybody else will have the benefit of your mistakes, and so you have to correct mistakes that others can avoid.

So, the imitator takes the fork, and certainly for the innovator, the inventor, that's very complimentary, but it's a compliment that the inventor has paid for. The inventor has paid for that because, as I mentioned before, it's often not possible to incorporate the cost of innovation in your product pricing. Another reason why it may not even come up to incorporate the cost of innovation in your product pricing is because insurance companies traditionally develop their experience assumptions by looking at experience. If you're working for a company that has been primarily an imitator in its history, then it has reflected no cost of innovation in its expense experience. So when you do the experience studies and develop your expense assumptions, you are overlooking a cost of innovation.

Now this brings me to the toll road analogy in demography and the construction of mortality tables. A toll road can be used as an analogy to using a patent to protect intellectual property that you have developed. Essentially the inventor has the right to exclude others from making, using, or selling his or her invention for a limited period of time through a patent. The inventor also the right to charge others through royalty payments for the use of the inventor's ideas as reflected in the invention. So, in effect, you don't have to carve a new trail and make it a freeway for all your competitors to follow. You can carve a new trail, create that fork in the road, and either put up a gate and not let others come down that path or only after you or charge them a toll. So, a patent becomes a very useful tool for recovering this hidden cost of product innovation and product development.

Now let me give you some ideas of what can be patented and perhaps give you some ideas of how this tool might be used. There are different kinds of patents. We're talking about utility patents. The utility patent can be issued for a machine, an article of manufacture, a process or a composition of matter. Those four things are called patentable subject matter. Typically in the insurance industry what is being patented is a process, and a business method is one type of process. So, in the insurance industry we're looking at business methods that fall into the process patentable subject matter category.

So, a business method can be patented for any business method that is new, useful and not obvious. I think all of those terms—new, useful, and not

obvious—are based on definitions that the U.S. Patent & Trademark Office applies to them. The term "new" is fairly easy to understand. "Useful" is also pretty easy to understand. "Not obvious" is a little bit more difficult to understand, although one would think that not being obvious would be easy to understand. What not obvious means is that while an inventive idea may be obvious to the inventor, that doesn't make it obvious. An invention, a new business method, is not obvious in the eyes of the U.S. Patent & Trademark Office if it has not been taught by the other things going on, by other inventions or by other processes and methods that other people in the industry are using. So one would hope that if you come up with a great, new, inventive idea that's obvious to you, as long as it wasn't obvious to anybody else, then it's perhaps patentable.

Business method patents and the excitement about business method patents are relatively new. One other important element that a business method in the insurance industry must have is some technical effect. Technical effect is typically interpreted as meaning there's a computer application of some pricing methodology that results in a premium rate or premium number. That premium is a useful result, and the technical effect is that it's arrived at through this computational process that's been implemented on a computer. Let me give you some examples. One is the reversionary annuity. This is U.S. Patent 5,754,980 and was issued in May of 1995. The patent's assigned to Century Associates. Reversionary annuity is a method of providing for a future benefit conditioned on life expectancies of both an insured and a beneficiary. Essentially, it underwrites the beneficiary using both insured and beneficiary mortality to calculate premium.

When you're looking at this inventive effort you have to look carefully at just what the new thing is that's being patented. Any inventive effort results from an attempt to solve a problem that needs to be solved. If you look at what's happening in the insurance industry, you'll see that a lot of our product development efforts are really problem-solving efforts of one sort or another. Many times those problem-solving efforts require some innovation, but in particular, I think one thing going on in the insurance industry now with respect to product development is to produce products that provide a viable benefit at a lower premium. The inventor of this product's problem was to do that, and the way he did it was to suggest that a lot of insurance products provide benefits when benefits aren't really needed. When you're pricing a product, whether the benefit is needed or not, you still have to charge for it. So, one way to reduce the cost of a life insurance product is to only provide benefits when the benefits are actually needed. Therefore, you don't have to charge for the benefits that are not needed. You have a lower premium, and you have a designer product.

A reversionary annuity provides a benefit to a beneficiary only if the beneficiary survives the insured. In a traditional family environment with a husband and wife where the husband is working and the wife is not, if the husband predeceases the wife, then the wife needs a benefit on the husband's life. If the wife predeceases the husband, obviously the wife doesn't need a benefit when the husband dies. But

if you buy a typical life insurance policy, of course, you're buying a policy that'll pay a death benefit when the husband dies regardless of the status of the wife, living or dead. So the inventor of this product did not really invent the reversionary annuity because the concept existed already. What this inventor did was invent the idea of pricing a life insurance product based not only on the mortality characteristics of the insured life but on the mortality characteristics of the beneficiary as well. So, that was the invention.

Another example is insurance securitization. It is Patent U.S. 5,704,045 issued in December 1997, and it belongs to Investors Guarantee Fund. It's a system and method of risk transfer and risk diversification. I think you can understand the invention best if you understand the problem that the inventor was trying to solve. In the property and casualty (P&C) market there were catastrophic risks that needed to be insured, and there was not enough capacity in the P&C insurance industry to cover those risks. That was the problem they were trying to solve. There weren't enough insurers. So what they devised was a mechanism where they can get investors to, in effect, take the place of insurers. This patent describes how that'll work. It was a broadly written patent. It essentially says that an investor who has a lot of money for a premium that they charge the entity who wants the insurance benefit, can put money into a reserve fund. If the event that the insuring entity is afraid is going to happen, like a hurricane or a thunderstorm or a lightning strike or something like that, occurs, then there is enough money in this reserve fund to cover the loss. If the event doesn't occur, then the investor walks away with his money and the premium, and, of course, that's the return on the investor's investment.

Now another interesting feature of this particular invention is that through some careful selection of the investor you can do some hedging. For example, the example given in the invention was that you can have a building materials manufacturer or supplier in North Carolina, say, who notices that their business is cyclical. In between hurricanes they don't sell a whole lot of building materials, but right after a hurricane they sell a lot. Not only do they sell a lot of building materials after a hurricane, they can pretty much charge what they want. Now they don't necessarily do that to be evil, but there's a supply-and-demand situation. So they can get more for it. But what they also discovered is that right after a hurricane or during the lulls between hurricanes is when insurance is purchased.

So if the building material supplier became the investor and, in effect, participated in the securitization process, they can generate profits during those lull periods between hurricanes to offset the reduced revenue generated from selling building materials. So they got this hedging thing going on. Now when the hurricane occurred obviously that would create a loss to them as an investor, but that loss would be offset by the sale of building materials. So they levelized or tended to levelize their process. That's what this invention is. Now I think another thing that this particular invention teaches you is that what you've invented currently doesn't have to legal. This company is a Bermuda company because U.S. laws wouldn't

necessarily allow this to go on. That doesn't mean it's bad. I think, as an inventor, a hidden cost here of a particularly innovative product development is that you realize that regulation follows product design. It doesn't precede product design. In other words, regulators react to the environment that they're regulating. They don't anticipate the environment they're regulating.

The value of innovative product development is at least what it costs you to find the solution, and it's often a value that's overlooked in product pricing, product development and product design. And in many cases, the cost of innovation is unrecoverable without the use of a patent. So, I guess the question you can ask yourself is how do you recognize innovation so that you can be a little bit more aware of these hidden costs? The most important and probably the most definitive question you must ask yourself is: Do you care if your competitors know? As we get into a environment in the insurance industry where patents become more prevalent, insurance companies will obviously have to become a little bit more secretive because in order to get a patent. For it to be a valid patent, you have to be a little bit careful about when and how you disclose your ideas.

There are some technicalities here, and the U.S. Patent & Trademark Office assigns a class and subclass to patents when they come into the office. Class 705 is for business methods, and Subclass 4 is a class associated with life insurance. There are other classes. Not all patents that can be characterized as insurance patents are in Subclass 4. The last patent, for example, is in Subclass 35, relating to finance. But as of September 2, there were 193 insurance business method patents issued in Class 705, Subclass 4. They aren't issued at a very rapid rate. I've estimated approximately 500 insurance business method patent applications pending. So there's a lot of inventive activity going on in the insurance industry. If you or your company is inventing things, and even if you're not inventing things, you need to be aware of what's going on because you could find yourself faced with a patent infringement lawsuit if you're not.

Once you start thinking along the roads of patenting your inventive ideas, the very fact that you're doing that adds additional cost. There are direct filing costs. There are additional people costs. You have attorneys and patent agents. You have some additional work to do. If you're the inventor, you have to make sure that what you've invented is truly new. So you have to look at prior art and perform prior art searches. And then, of course, there's no such thing as the patent police. It's your responsibility to enforce your patent, and there are costs associated with that.

But to the extent that innovation results in new product ideas, new design features, new riders and new types of products, and that you or your company have invested a lot of time, money and developmental effort and taken risks that could result in losses, a patent is pretty much the only tool effectively used in the insurance industry. There are other ways to protect intellectual property. You can attempt to do it through a trade secret, but I can't imagine any insurance idea or product design feature that could be kept a trade secret. Once you start selling it,

everybody knows what you're doing. So, patent is probably the most effective way. It builds a true barrier to entry for your competitors, and it protects the value of your developmental costs. A patent grants you the exclusive rights to use that invention, and it also allows you or your company to recover the costs of that inventive effort through royalty payments.

FROM THE FLOOR: This is for Mr. Bakos. I have complete respect for patenting original ideas that are truly unique and innovative and developed solely within the company. But what I do have extreme objection to is essentially the grabbing of a concept that has been in the public domain for a long time, and it is taken into private hands through the patent process because no one else has really thought to do it before, and everyone thought that a concept is in the public domain. You used the example of securitization. Securitization has been around for a long time. I am absolutely sure that the Investors Guarantee Fund did not invent it at all. It's been around for years. Something that has been used in the public domain is now suddenly grabbed out of other people's reach, even though there's been prior claim to its development by other people. I think there should be knowledge on the part of the Patent Office to prevent this type of public domain grab and truly recognize and distinguish between what is uniquely developed by an individual company that's a true insight as opposed to something that's been around for a long time and then just taken by people who thought that they could get away with it. What is your response to that?

MR. BAKOS: Well, I agree with you. I think that when I described the patent that I referred to as insurance securitization, it was a lot more complicated than that. The patent was not a patent on securitization. The patent, as I recall, may have been 50 or 60 pages that described a particular implementation for a particular business method that used a process that could be generally described as securitization, but it was a lot more than that. Technically you cannot patent something that's already known. You can't patent prior art. So if what you meant was a concept that's well known in the industry, that's prior art. But I think it's awfully hard to judge a patent and whether or not the invention that's described in the patent is, indeed, patentable without really reading it in detail, and if you've ever attempted that, you realize it's not easy to do. Probably most new inventions are, in fact, enhancements or improvements on old inventions. The example that I've used a lot in other presentations, getting away from the insurance industry, is the invention of a ball bearing to reduce friction.

You can conceptualize a perfect sphere, but unless you can describe how you would build it, you can't patent it because the concept of a perfect sphere to eliminate friction is just an idea. So, if you're reading a patent that describes ball bearings, your argument may be that you can't patent it because you can't patent a sphere. You're correct, you can't, but what that patent would describe is how to build a ball bearing, and, in fact, the ball bearing that would be built by that process may not be a perfect sphere. It may be close to a perfect sphere, say, 99 percent of a perfect sphere. So what you could patent, what you've invented, is a method to

produce a ball bearing, and the description of the ball bearing is a round, globule made of some kind of metal that's within 99 percent of being a perfect sphere. That's what you've patented, the process of making that.

So if someone else comes along and finds a way to produce a better ball bearing, they could patent that, but they would probably have to rely on your earlier patent, and I think the whole idea behind the U.S. Patent & Trademark Office and the right to patent is granted to us in the U.S. Constitution. It's specifically to encourage people to invent things and to encourage them to reveal how those inventions work with a limited, 20-year period of protection, so as to encourage others to improve on those things, and to encourage the inventor to do it in the first place. I agree with what you're saying, but I don't think the securitization patent is really patenting something that was generally known in the industry before because they're not really patenting securitization. They're patenting a particular process that involves a process that can be generically described as securitization.

MR. DEAN SLYTER: I've sat both in the insurance company seat as well as the admin system vendor seat, and there were a number of comments about different ways of cutting down the cost of these complexities. I just wanted to note a few of the system ones I've observed as I worked with insurance company clients and hear your additional comments on ways to cut down on the cost. We find the major cost for a lot of complexity is not in terms of dollars and cents but in delay in getting the actual product out. The rush to market seems to be a greater concern than the actual cost. We find it's very good to have talks early, mid, and late in the product development process with both internal and external systems parties, such as sales support and the administrative system. Commissions often turn out to be important, and claims are sometimes important. And these are hopefully friendly talks, although it's a very challenging subject because you're often talking to the folks who know what their system can do, and you're telling them things that they aren't sure it can do yet, or they're working through whether it's possible or how big a modification that is. So hopefully, you can keep these friendly and noncombative.

Additionally, many system vendors put out new releases and new enhancements, and make them available to all the users of their system. I haven't seen this done very often, but my particular company publishes a list of enhancements to the system occurring each month, and I rarely see that that is passed on to the product development actuary to let them know what features are now available that weren't there before. In addition, a lot of companies have yearly-or-so new releases of their software. It should be important to the product development actuary to be relatively up-to-date with the upgrades available so that you might have those new product features. It's definitely an expense to upgrade, but there are often benefits to it for the product development actuary. If you find that your current in-house systems cannot handle it, a number of vendors offer solutions that do not involve you installing software on your company's computer but allow you to actually use their system. So, look outside the box if you find you have a product that really can't be done in your system. If it's simply impossible or it simply takes too long,

there are other alternatives. I'd like to hear your comments on how to prevent the system problem.

MR. GRANIERI: I think your first point was particularly relevant in terms of time is money. Basically what we have is our time to offer. So any delay in the marketplace or bringing a product to market means additional cost, and I think you sort of touched around a solution. We've heard about the three-legged stool with the company, the agent and the customer. Inside the company I look at the three-legged stool as the integration of marketing, financial and systems or administrative resources.

In June at the Product Development Seminar, we talked with a number of folks about time to market and developing product. It was universally acclaimed that some of these product development cycles were well over a year at some of our companies. Obviously that's a difficulty, because the longer it takes for you to get a product out the door the longer it takes for the benefit of whatever you're doing to inure. So, there are teams that like to move the football one yard on 100 different football fields, and there are teams that like to make a touchdown on one football field. Which are you?

If you go back to the Society Web site there is a tool I call the football field, which is basically a way to bring the different functions together in a prioritization kind of exercise. We can postulate or project exactly how long actuarial functions will take, but how long is it going to take the system guys to put it up? You may lay out a schedule, but if everybody doesn't agree on it, the poor people at the end of the schedule, which are typically the communicators or the guys that are putting the copy together for marketing, get stuck with a deadline in which they have half a day to get a four-color print made. It just can't be done, and they get blamed. It's not their fault.

The football field basically gives everybody a shot at saying how long it takes them to do the process. Then, the question is: How do I integrate? What information do I need from other people and other functions? And it's through that integration and that transfer of knowledge that you don't run into the situations in which the actuary didn't know that now we have this capability in the system. We also need to know when we are going to schedule the new releases. How many times have you gone to product development to talk about getting a new product out and heard, "Oh, by the way, Version 42(z) of the administration software's due for an upgrade next month and we can't do anything for three months." And, of course, you don't find out about that until we're in the middle of the deal, and you're in the blackout phase. But basically prioritization and integration of the knowledge are key, and that just takes a lot of discipline.

MR. BEACH: I have a few comments about that as well. I think there are a few things that are happening right now in the insurance industry on the technology side that have the potential to alleviate some of these time-to-market concerns.

One is the push for the standardization of data transfer through the Accord Standards using XML. That has a lot of potential for alleviating some of this. To the extent that you can standardize data transfer, you're allowed to go out and pick best-of-breed solutions for some of the different pieces that you'd mentioned. The integration between reinsurance systems, claim systems, agency commission and whatnot is what kills you time-wise.

The functionality that you need might all be there, but getting the two systems to talk is a killer. If the transfer of this data becomes standardized, and you're allowed to bolt on and bolt off, that's definitely going to help some of these time-to-market-type things. Component-based solutions will help with that as well. If you can work with specific business objects and, in a new release, can take a business object and make that available to the actuary or the IT folks, I think that's a powerful thing to be able to do. As time goes by, you can continually increase the functionality that you have at hand.

And one of the other things that I think is really going to change the way insurance technology is delivered is that there's an increasing number of what I call business-analyst-driven solutions, as opposed to purely IT solutions. There's a separation between the business rules and the technology, and if you can deliver technology in one piece and business rules in the other, then the onus no longer is on the IT folks. It's back in the hands of the business analysts, and potentially the actuaries, to go in and actually develop the business rules that they need to bring a product to market. One of the biggest hurdles to bringing that perspective to an insurance company is the IT people. The last thing that they want is for their baby to get pulled out. God forbid the actuaries can actually go in and code up business rules. It really has the potential to be a powerful business model when you can take the technology and put that in one arena, put the business rules in a different arena, and put it in the hands of the people who actually know the business.

And the other thing Vince had mentioned was the upgrades. The reason upgrades take so long and are so time-consuming is that too often the technology and the business rules all come in one package. So to upgrade to new technology means you have new business rules. So you have to take everything off-line because you have to make sure that this new system that you're bringing in isn't going to change the way that you're doing things. You have to sit back and wait for three months without touching it because this new release is potentially going to change the way that you do business. You wanted the new technology. That's all you wanted. Instead you got the whole package. So, again, if you're looking for an admin solution that separates the two, I think some of those types of delays aren't going to occur.

MR. BAKOS: If I understood your question, I think that obviously a product development actuary ought to make him or herself aware of what the capabilities are of that administrative system for the product they're designing. Certainly from a software vendor's point of view, unless they were afraid of revealing that their

system didn't do some things that it should be doing, they would want to make sure that their users were aware of the capabilities of their system as well. Any company that buys an administrative system is probably buying a system that has more capabilities than they really need. They're going to select some here and some there. So actually, it kind of gives the product development actuary an opportunity to, in effect, be an imitator because those features were probably not put in that administrative system just at random. They were features put in the administrative system because other companies wanted them or used them, and in the experience of the software vendor that's how they got there. So it's an excellent opportunity for you to fairly cheaply copy somebody else's successful idea and be able to administer it without any hidden cost. Obviously you have to know what's in the system before you can do that.

MR. JEFF ROBINSON: I would like to congratulate the panel on a very good presentation with one minor exception, which I'll address in a moment. I would say it's an excellent presentation, but it's 21 years late. The example that would fit Mr. Beach's and Mr. Granieri's presentation is UL. I can't think of a product that is more complex and meets all the things that you say you shouldn't do. You're in the wrong forum. This should be given to the Life Insurance Marketing and Research Association (LIMRA) or wherever the CEOs and marketing vice presidents gather. I think you're preaching to the converted. This stuff is really obvious, at least if you've been in the business a while, but go tell an agency vice president that you can't administer something. He goes to the president, and who always wins in those situations? I would have liked you to give this in 1982 when UL came out. Jim Anderson is revered, but I think he did a disservice to the industry by coming out with that product. A lot of younger people don't know what whole life is, but I think we have to give respect to the older actuaries for inventing a very simple, excellent product. UL is a horror. The computer was around so you could do it, but why do something monthly when you can bill annually? Who understands UL? The home office doesn't. Maybe they do now. The IT department doesn't. The owner doesn't. Everything that you indicated is really true of a UL policy.

MR. BAKOS: Well, I guess I'd just like to mention that I think actually UL was developed in 1960-something-or-other.

FROM THE FLOOR: That was adjustable life.

MR. BAKOS: I think Cannibal Life was the precursor.

That was Jim Anderson's paper. I think he actually developed the idea way earlier than 1982, well before the advent of personal computers, and if he had patented it at that time, which he probably could have, the patent would have expired long before the product became actually feasible because what made UL truly a practical and marketable product was the tremendous rise in interest rates in the early 1980s, along with the development of personal computers you can use to illustrate the products.

My view is that UL is actually a simpler product. What made it complex was it was different. If we were sitting in a room trying to define the best possible approach to creating and describing a life insurance product, UL, I think, would be it.

MR. GRANIERI: Just to tack on one more comment quickly. No one has ever sold anything they don't understand, with few exceptions. But I think there's a challenge for us in here because we've all been in an environment where the accountability had only lasted down to the sales line of the income statement. We can see countless examples now where that has changed. The fault is that it's taken us too long as an industry to understand the true costs or the hidden costs and to communicate them. Now, if we have the beacon, if we understand it better than anyone else, then I suggest our challenge is to then provide ways for others to understand as well. The environment is changing, and people are more receptive now to having successful products that make money than at any other point that I can remember, just as the consumers are more focused on financial guarantees as something that's worthwhile. Five years ago somebody for 10 basis points would go from an A+ carrier to a B carrier.

FROM THE FLOOR: But you stake money over a long period of time, such as five or six years. How many vice presidents, sales vice presidents or even CEOs, last for five years?

MR. GRANIERI: Their short tenure is as a result of failing to see the whole picture and focusing on one part, perhaps the top line... or in some cases the bottom line. Either way, the lack of a balanced perspective will lead to trouble for management.