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Session 128PD The Actuary of 2010

Track: Actuary of the Future/Futurism

Moderator: DORN H. SWERDLIN

Panelists: KEN HAMIK†
DORN H. SWERDLIN

Summary: A noted expert with a degree from the graduate program in Studies of the Future at the University of Houston–Clear Lake discusses long-term forecasting and planning, the future of information technology and technology transfer, strategic planning and the development of future scenarios.

MR. DORN H. SWERDLIN: I am the CEO of Swerdlin & Co., a pension actuarial firm in Atlanta, and I am the former chairperson of the Actuary of the Future section. We're set up as a panel discussion, but we really want to make this more of an interactive forum, so we want everybody to participate and ask questions anytime.

How many people in here are already in the Actuary of the Future section or the Futurism section? Okay, a fourth of you. For those who may not be familiar with the sections or those who may—I know a lot of times people confuse the two sections and aren't sure what the difference is—I want to read briefly the vision statements of the two sections.

The Actuary of the Future section says, "The mission of this section is to help actuaries to have productive, value-added employment, leveraging their unique training and skills by identifying new applications for actuarial science and actuaries and new skills and new ways of thinking required to succeed with new applications." Now, that's part of it; I won't read the whole thing. Basically, that section looks to find new applications for actuaries for the

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future.

The Futurism section says, "The purpose of this section is to encourage and to facilitate the professional development of its members in the field of futurism through activities such as meetings, seminars, research studies and generation and dissemination of literature." The section newsletter is *Actuarial Futures*, so Futurism is a discipline of knowledge, whereas the Actuary of the Future section is looking to find new applications for actuaries in the future.

Before I introduce our distinguished futurist, Ken Hamik, I wanted to try to define our expectations of what we're trying to do today and what your expectations are. I'd like to hear what some of you would like to see from this session this morning.

FROM THE FLOOR: What I would like to find out is, since it's "The Actuary of 2010," what the role of an actuary would be in the future. Is it going to change? That is what I'm hoping to hear today.

MR. SWERDLIN: Very good. Thank you. I can tell you this: It probably will be different. Who else has an idea or an expectation to tell us?

FROM THE FLOOR: As I look at it, I feel I'm at the midpoint of my career. I know what's made me successful to date, and I want to be able to look out into the future and keep an open mind in terms of what trends and patterns are out there, so I can better understand and keep an open mind on how to be successful over the next decade or two.

MR. SWERDLIN: Very good. Thank you. That's something we all need to be thinking about. Who else?

MR. JOHN HADLEY: I'm mostly interested in getting some thoughts on where things are headed, particularly in the technology area, since that's the main focus of my consulting right now.

MR. SWERDLIN: Okay. We certainly have the man here to help you out with that in Mr. Hamik. Who else?

FROM THE FLOOR: I'm really intrigued in terms of the future and how we're going to be. In particular, it's not so much the high-probability, low-impact events, but the low-probability, high-impact events that I see shaping our future. I'm interested in people's ideas about that.

MR. SWERDLIN: Like 9/11.

FROM THE FLOOR: Yes.

MR. SWERDLIN: By the way, on your programs, Peter Bishop was scheduled to be the futurist to speak, but we're lucky to have Ken Hamik to take his place at the

last minute. He's done a lot of preparation, and we really appreciate his doing that. Ken has over 20 years of management and consulting experience across a range of markets: health care, media, entertainment, consumer products, Internet, education, financial services and a lot of others. He was featured in the January 2000 cover article of *Consumer Reports* on future product trends. As reported in an MSN article on future career paths, he recently headed a team to manage Charles Schwab's electronic relationship management strategies.

He's currently vice president of marketing and strategy at Triple Aught, Inc., a Berkeley, California-based energy technology and engineering startup company. His clients have included Disney, Sony, Nike, Microsoft, Coca-Cola and BMW. As a futurist, Ken has assisted clients in positioning themselves for emerging market conditions and developing creative strategies. Ken has been asked to present papers and lead workshops on future trends, marketing and strategic planning in North America, Europe and Asia.

He did his master's of science work at the University of Houston's Studies of the Future program. He also has a B.S. from the University of Nebraska and is on the board of directors of The Crucible, a Berkeley, California, educational foundry. I will not read all of them, but I've got two pages of presentations and publications that he's done all over the world.

MR. HAMIK: What we hope to do today is to address some of the expectations that you have already mentioned, but also to try to quickly give you highlights of some big trend areas that are going to be important.

First, I want to step back and tell you a little bit about the field of futures, and I'm about to do that in one second. I'd augment the résumé by a couple of things that are relevant. I got interested in futures when, paradoxically, I was a geologist. I had just completed my degree in geology, so I was interested in history longer than human history, patterns of change, paleontology, that kind of thing, and I read this quote in the late 1970s from Peter Schwartz, the guy who later came to join the Global Business Network, which is one of the premier futures groups now.

He had just completed a huge study of all these different trends in the 1970s over the next 20 years, and his comment after they did this big study at SRI was to say that the problems of the past were as we had found them and the problems of the future will be as we have made them.

I guess I had my midlife crisis early. At that point I decided that I didn't see things changing any less. In fact, I saw accelerated change in my lifetime, so I wanted to get involved with something that was directly addressing some of that change. That's how I ended up on this path, and Peter Bishop, who couldn't join us today, is a colleague and former professor of mine at the University of Houston–Clear Lake, one of the few studies of the future programs.

Let me get into this as quickly as I can, but, as Dorn mentioned, we want to make

this interactive, so raise your hand if you want to interrupt me, or yell out if I'm too involved. I'm going to try to run through this quickly, but efficiently.

I like baseball, and this is a great town for baseball, from the San Francisco Giants to the Oakland A's. We're doing pretty well this year. And I think that one of the things I like to do is to take you through the way a futurist looks at the world in terms of time and space.

In terms of time, we look at this ball field that I'm about to describe here. In terms of our own sense of time, this week is the most immediate. This would include the area around home plate. What are we doing today or tomorrow? The whole infield represents what we have in our personal digital assistants (PDAs) for this month or this year. What are we doing with our lives? Are we accomplishing the goals we want to accomplish? The outfield represents our children and the next generations. What do we want to accomplish toward the future in that sense?

Space is another one. There's me, my success, the issues that I'm facing. There are the issues facing my family and friends. There are the community and the nation and how I'm involved with local politics, whom I'm going to elect, what kind of policies are going to affect me, my income tax. The world—bigger issues are obviously upon us, especially this year because of the Middle East issues and other things that have gone on since 9/11.

This, in a way, is a playing field, the way I imagine it. This blue line is the infield as I think about it. It's near-term. It affects my family and me. These are the things that occupy our thinking for the most part. When you blow that out, we get into the outfield and home run and beyond. Somebody mentioned trying to look at some of the low-probability, high-impact things. This is where we're starting to get into some of those areas.

Futurists like to think. We need to know trends. We absorb a lot of information, but we also are focused on discontinuities. What could cause the something to shift right or left, up or down, and what might reorganize a market or a system, how might a company be structurally different 10 years from now in the markets that it serves?

If you watch baseball, if you know it at all, the infield is where the game's really played. We all have to play in the infield by keeping our bank account in balance and doing the things we need to do at work, but the real game in terms of the breaks in the game and how they can be a double, a triple or a home run, the ones that really contain the deciding factor of the outcome, oftentimes are played in the outfield and beyond. That's what I am going to encourage you to think about with me today.

MR. SWERDLIN: I have a question about the discontinuities. In your studies of geology and such, are there patterns of discontinuities in the evolution of animals and plants?

MR. HAMIK: Yes. One of the fathers of the field with a remarkable insight in geology and paleontology was Steven Jay Gould. He unfortunately just passed away a few months ago. He and a colleague developed a theory of punctuated equilibrium, and this is still applied to markets and technology evolution as well. Has anybody ever heard of this?

Essentially, we saw a Cretaceous–Tertiary Period asteroid extinction in some movies such as *Deep Impact* and others before it. It's essentially the theory that, 65 million years ago, and in fact there were other epochs before that, an asteroid or some major event occurred and species dwindled quickly, allowing new species to be born and evolve more quickly. In a lot of ways, that harkens back to some of the things that we see in the economy and the market.

MR. SWERDLIN: Sometimes we'll see a discontinuity, and we might not even know what the cause is.

MR. HAMIK: Not until later. We might need 10 or 20 years to finally figure it out. I'm going to go through future methods fairly quickly. We think of it as a discipline. There are a lot of people who call themselves futurists out there who are just thinking out loud about a prediction.

MR. SWERDLIN: We have the same problem with actuaries, too.

MR. HAMIK: So we're in the same boat. Hopefully, it's not a lifeboat. We're interested in as much information as possible. In fact, one of my friends calls me an information suck machine, an ISM, because I read across a lot of other disciplines to try to get some of the information I have. We call it scanning, and I can tell you quickly the way we order that information for clients. We call it STEEP, if anybody's ever heard of that. Sometimes it's called STEP—Social trends, Technology trends, Economic trends, Environmental trends and Political trends.

Unlike people in other disciplines who focus and become experts in a particular field—political, social or whatever—we need to be generalists across all of these different areas to be able to understand where the next big trend is going to come from. Like geologists, we're interested in patterns that connect. We're interested in looking at things horizontally as well as vertically through time, how things are changing relative to each other and how they impact each other, so scanning is important.

We also use scenarios. I'm going to talk about that a little bit more specifically here, but other disciplines have a question and provide an answer in the form of a dissertation, an article or a publication.

Futurists think of a number of answers because there are a number of questions. If we were sitting in 1990 and asked what the year 2000 or 2002 was going to look like, how many of us would have been able to deconstruct this decade? I'm not

raising my hand. But, on the other hand, as a futurist, I did anticipate a lot of those things in previous presentations and work that I've done with clients, but they were done in terms of certain scenarios—this possible business environment, this possible direction—and it gave some of those clients the capability of setting strategy against the backdrop of one potential future that was different from the conventional wisdom at the time.

Semiotics is an anthropological approach, but it's just basic sense, looking around and seeing things and how they change. Oftentimes—I know actuaries aren't like this at all—we get our noses too deeply into data, and we forget to look up and notice that there are some things that are observable in the media, in the general environment and with people that we talk with.

Futurists, especially the new type of futurists, me included, are interested in getting inside people's minds. We want to understand the mental model of why people believe the future's going to happen a certain way and then try to triangulate back through all those different conversations to understand that this technology says this or this technologist completely agrees with that one. Why is that, and what are the differences here? We're interested in those patterns.

Strategy is obviously the bottom line in trying to figure out ways of defining success. Some futurists are interested in presenting on trends and then walk away saying, "Good luck." A lot of strategists in my generation are interested in sticking around, rolling up their sleeves and saying, "Therefore, this means the following to the organization. It means the following for product development. It means the following for marketing."

I'm going to try to get into some of that a little bit, and you're going to help me. In the third part at the end of the session, we'll have a special invited guest to talk about the actuaries in the middle of this 2010 scenario.

I'm going to go through this quickly to give you a brief sketch. This is more detailed, but if you've heard of scenarios before, decision-focused scenarios are the ones that I find are the most powerful for a client. They're not just generalized versions. They're focused in the beginning, and they end on what kind of decision the clients are facing, such as pension plans, what's going to happen with Social Security, what's going to happen with health care or specific issues that they know are going to be pivotal events for their particular job.

We start with those and build around them. We see the various areas of what everyone agrees on, some major discontinuities in the conversation, discontinuities between this person and that expert and what the surprises are. Somebody says what nobody has thought of yet, nobody's thought of what happens if ... That's an important ingredient to build a scenario from. With these uncertainties and driving forces, we put together logics, just like a producer and a screenplay writer for Hollywood put together the story for a great movie.

What are the components? You don't want to have it too complicated. You want a simple plot so that anybody can understand it. You don't want too many scenarios—three or four at the most to look at the particular issue you're addressing. With those, you end up focusing your attention on time frames.

If we're doing scenarios of 2010, for example, we not only know what's happening in 2010 or 2012, 10 years from now, but we know what's happening, what led up to it and what the signposts are along the way that we need to look for. Is this government policy possible? Could Congress get this through by 2006? If so, we'll put it in our scenario. You start to learn how to react quickly to information as it becomes available through the newspapers or through the government.

There are a preparation process and deliverables involved with this. The scanning that I talked about helps to put together the spices and ingredients for the scenario soup. You develop the scenarios and then try to look at them by saying, "What do we do with this? How do we put it into action? How does it affect our strategy? How do we communicate it to the rest of the organization?"

That's a quick overview of what futurists do for organizations and what you could do for your organization.

MR. SWERDLIN: Are there any questions on this so far? Does anybody have a comment or a question?

FROM THE FLOOR: Do you have any kind of retrospective analysis of predictions or forecasts that were made before to see what the assumptions were, whether they did or didn't come true and why.

MR. HAMIK: Great question. Yes, as a matter of fact, I use that as a deliberate technique when we start scenario planning with a company that hasn't done it before because our worlds change so quickly in a six-month or one-year period, let alone 10-year period, that most people get it.

They understand that there are uncertainties and surprises. For example, I did a scenario project for a large electric and gas utility in the United States in 1990, and we started out by looking at its corporate plan and its corporate model and did all the forecasts of key assumptions, economic indicators, sales, growth, etc. We looked at some of the basic economic, demographic and other market assumptions that it was making at that time, modeled those trends out and overlaid reality on those same trend lines. The utility sees what we predicted it was going to be, interest rates or whatever, and here's what interest rates did over that decade. We try to do it to help to facilitate and loosen up the thinking regarding what possibly could happen.

Retrospective analysis is easy in a lot of ways because, if somebody's making a prediction, you can probably bet it's not going to be true. At best, it would be approximately true. On your handout for this session, I left you some of my

favorite quotes, but one of them is "The most dangerous thing is a forecaster who is right."

What we mean by that, and we all know examples of this, is if one person got it right, perhaps in an article in the *Wall Street Journal* or something, and nobody else got it right, that person suddenly becomes a hero. He's on the front page of *Fortune*, and everyone wants to know who he is and how he did it, but the assumptions and often what went into that prediction were available and appropriate only for that time. As the economy and society change, that same ingredient for that immediate success may not continue to hold true.

Eyeballs often go to that person, and people bet increasingly more because they think that that person was right before, so he'll be right again. Often they lose that bet really big because they're thinking that they finally have the guru in the hand. There's a sense of wariness that we have as futurists about prediction. We don't like to predict the future.

I will repeat that one more time, and a lot of people don't know this about futurists: We do not try to predict the future. We emphasize scenarios because we think it's more important to try to understand them. T. S. Eliot said, "We shall never cease from exploration, and the end of all our exploring will be to arrive where we started and know the place for the first time" (from *Four Quartets*). We all know this. We might have been born someplace else and have our careers. Sometimes we go back to the place we were born, and it all looks completely different. It's still basically the same, but we've changed in so many ways.

Scenarios are a walkthrough of various futures, and they allow us to come back and then know where we're sitting in some unique and actionable ways that we wouldn't have gotten if we didn't press ourselves across 10 years of different assumptions, across different business environment scenarios.

I'm going to come back to the future competencies in the last section, but acknowledging and certainly embracing is something that I think not just actuaries but everyone who's a modeler or analytical decision maker in today's world needs to be doing a little bit better. If there are no other questions, I'm going to jump right into the trend section.

Last year at this time, Dorn and Peter Bishop addressed trend clusters. I think the session was right after 9/11. I picked up on a great conversation later that year when I went to New York. Some people were walking down the street, and I overheard them. I can't remember the context of the conversation, but one person was saying to the other one, "Oh, that was so 9/10." This is a perfect way of describing this event in our lives because, in a lot of ways, like Pearl Harbor, J.F.K.'s assassination or other things we could think of, there was a before and after. People remember where they were when they learned of this event, and I want to think about that as a reminder that there are discontinuities.

Futurists have been talking for 30 years, but especially for the past 10 years because of the breakup of the U.S.S.R., about the rise of these terrorist-type actions. One of the groups that I work with has done some work with the CIA, and it's a new world now in terms of how you try to evaluate security concerns on a national level, and we were reminded of that in spades on September 11 of last year.

Let's deconstruct a little bit about the before and after of that event. Some of you may have started to hear about this. I know even some demographers aren't aware of this, but there are going to be a lot of "birds" here in the next couple of months. A lot of birds is a little demographic boomlet. "Why?" I've asked a lot of these people. I have an eight-year-old daughter, myself, so I've been watching this anecdotally, but it is going to start showing up now in the data.

Value. People are starting to relook at their lives, not just because of the economy and what's happened during the time of September 11, but also that future's ball field. It's all about reevaluating me and my next generation and what I want to leave behind. The situation in the Bay area has not been good. Those of you who haven't lived here know about it because you've read about the dot-com bust and all of that.

Times have been hard here south of Market Street, where we are right now, but real estate has been fairly robust. The median price of a house in the Bay area is \$400,000 for a two-bedroom house. Why is this? It just flies in the face of what you'd think would be happening at this point in time. A lot of it is because people are nesting. People are saying, "I'm in this for the long-term, I want to get a house and I want to settle down." There's an irony here that's going on after September 11 of last year.

There are also some privacy issues, and I'm going to talk about this a little bit more in terms of technology, but if there ever was a debate about loss of privacy ... I keep thinking as a futurist there will be, but I'm amazed. The sleeping dog is still sleeping. We complain about it a little bit, but we give away data in volumes and electronically now. They are going into a lot of different databases, increasingly now because of security concerns and terrorist threats, and this is going to happen even more so.

Company ethics will increase in importance as demonstrated by the Enron and the Andersen impact that we've all read about and wondered about, and you've been reading the most recent examples of Martha Stewart in the paper and now WorldCom. There's a real sense now of opening up the books and trying to do business a little bit more ethically on the financial side as much as on the environmental side—the socially responsible corporation and such. In spite of the economy, I think that these issues are going to be more important instead of less important as we approach 2012.

You could make the case that, if the economy is not doing well, we'll start to shirk

our responsibilities and overlook some of the environmental issues. I think that the opposite is going to happen. People are going to want to do business with companies that they have a relationship with on a brand level that's not just about an icon on a page or a product. Rather it's about what the company is doing and how it's organizing itself around its products and its services. It would be an interesting one to debate, but that's one of the things I continue to see as I talk with companies.

Another trend cluster is an old one. When you look at futures, you can't just look at discontinuities. You have to look at what is in the pipeline, and this is one that we don't see going away as globalizations continue to become more mature. That's good news and bad news in some ways. I'm going to go back a step.

The Internet, the wireless infrastructures that are being paved, are sunk investments or assets that are available. Broadband, although it slowed a bit, is going to continue to pick up more market share. Looking at these is almost like an economist doing an infrastructure analysis on how well a local economy or national economy can do by seeing how well a nation invests in its roads, telephones and basic infrastructure services.

This is one of those new infrastructures that's now so embedded that it's not going to go away. This particular globalization issue is the Internet primarily. It's driven by companies internally that need to exchange huge chunks of data as well as economies. They're so adequately tied to subsidiaries and other things that we can't go backward. Pandora's box is open.

There are new economic borders. Increasingly there is a wash of money that goes back and forth. It's hard to tell exactly when one economy ends and another one begins. We have big blocs like NAFTA, and we have the European Community now, but a trade between them makes them in some ways just political constructs and nothing more. Let me remind you how fast this happened.

In 1991 I was in Barcelona, Spain, giving a presentation to an international audience of professionals, educators and academics, and to a group of about 150 to 200 people, I talked about the trend toward the Internet becoming more micro. First of all, I said, "How many people have heard of the Internet? Raise your hands, please." Only about half of them raised their hands in 1992.

The other half was saying, "I've heard and read about it, but I'm not sure what it is yet." This is 1992, a fairly high-level audience. We're talking about personal home pages; the World Wide Web really didn't exist in 1991. That's what we were talking about happening, and we were talking about the convergence of phones, telephoning the Internet and increasingly other media like television.

Who would have guessed that we'd have this huge boom that occurred in the economy the way it did? I certainly didn't think it was going to happen on as big a scale as it did, and I guess I wasn't too surprised at how far we've fallen when the

capital finally got invested in those Internet plays. It fell pretty long and fell pretty hard. Just to remind us, though, it's simply readjusting. I think all of us know this in this room, but it's a reminder to us that some of these trends and some of these situations are going to continue.

MR. SWERDLIN: Excuse me. I want to mention something about the economic borders. It's not exactly what you were talking about, but I think in our profession the borders that we used to have, such as the insurance industry and the financial institution industry, were broken out clearly—insurance, brokerage firms, stock brokers, what else?

FROM THE FLOOR: Banks.

MR. SWERDLIN: Banks, thank you. Of course, now those boundaries are leaving us and are almost gone with companies that own insurance companies—banks owning insurance companies and brokerage operations. For us actuaries, that presents a problem in that we came out of the insurance industry and were kings of the insurance industry, and a lot of actuaries were presidents of companies, and it's just not going to be that way any longer. We all know about that, but I think it's analogous to what you're talking about on a smaller scale.

MR. HAMIK: Yes, that's a very good point. I think that's something we'll also talk about again in the third part before we leave here today, which are some of the implications, the restructuring of financial services across all different markets from General Motors to the bank. It's going to have a lot of impact on marketing—how you market yourself, how you segment the market and even how you pitch certain services that you're providing. We wanted to talk a little bit about that in the third session.

What I started to say about states and markets, states and a normal way of doing business, is the United States has led this in a lot of ways with the deregulation policies that have caught fire in a lot of other parts of the world as well. We've been on this trend in the past 10 to 15 years, even 20 years in some markets, where we're saying markets need to rule. Let the consumers determine this or that. Increasingly, because of deregulation, which is the restructuring of markets to make this happen, governments have played less of a major role than they did perhaps in other eras of our history and the world's history. Even China, which we thought was the ultimate state economy, has given into some of these forces—slowly in microwaves, but it has done it faster than many of us have anticipated.

I'd like to pose that in the next 10 to 12 years, because of some of the geopolitical situations that are going on now, it's worth taking the time to examine how this might contract a bit. There have been certain failures in certain deregulated markets, energy being one that we could read about in the past couple of years, but there's also been a sense of reengineering government, and government has the same access, slower than business, to the same technologies that it's connecting in various pieces and how it runs government. It can be reengineered

much more efficiently. I would argue that there's a case to be made that government and states may reinsert more influence and control over markets, regulations and policies than they have in the past 10 to 20 years.

Essentially the bottom line for all of us is that whichever way this ends up, Pandora's box is open. The world is increasingly interconnected. China cannot close its borders. Whether by faxes, e-mails, wireless or satellite, it's going to get in there some way. A colleague of mine once said, "Information is free. We might as well get used to it. It's going to be getting around."

We have a new market structure, and businesses have had to structure their own organizations around this. It's largely consumer-driven, and the data are something that I wanted to talk about in this next section, something that I call the glass bead game—analytical advances in modeling. The data are the same. The trend is the thing; the pattern is the thing.

Hermann Hesse wrote a book called *The Glass Bead Game*. I don't know if anybody has ever read this. *Magister Ludi* was another title of the book. Basically, this is the way I originally thought of actuaries before I really understood actuarial sciences about 15 years ago, and it was explained to me by a group of actuaries who had just ended their conference, and they were having a great time. I think it was the fourth or the fifth beer, and about 18 of them and I sat around and talked about the future of actuaries back in 1985. It was great.

One of the things I imagined in my mind was this glass bead game. Hesse writes about this future where, increasingly, these—I guess you could call them economists—play on a data organ all of the different trends: the political trends and policies, the economic trends and interest rates. They influence the ebb and the flow of how markets and people behave and how they can play the future. In a way, we're getting closer than ever before to the fantasy that was described in the book, and in the next 10 years, we're going to see even more of that. Why?

I've done a lot of work as Dorn mentioned with Nintendo, Sony and other companies on electronic gaming, video gaming and gaming over the Internet, and I'm fascinated by this market for more reasons than just watching kids play tech games. It was interesting to watch the parents watch the kids, and it was also interesting to watch a few companies take some of those principles and basic skill sets that were used to create games to create simulated models for industries and companies.

One company, for example, made a systems model for Chevron to test a refinery and its varied inputs, outputs, how to create certain polyethylenes or whatever, certain emergency measures to be taken, and you could play this thing like Sim City or Sim Earth, if you remember those games. The user interface was sophisticated and allowed people who didn't even know how to model, didn't know the data behind it, to play with this thing, and I think that that's what we're going to be seeing more of: Companies, analysts such as ourselves, that are offering up tools

that allow people who aren't in the predictive or the analytical business to go in and ask us questions, and we can quickly change the game so that we can incorporate some of those assumptions and create quantitative scenarios.

MR. SWERDLIN: Excuse me, Ken. I wonder how we actuaries would see ourselves getting involved in that modeling process. We know a little bit about modeling, and I wonder if there's a place for us in there. Anybody have any ideas?

MR. ROBERT WADE: I was reflecting on what you said because I was speaking to a presenter, and he was trying to educate the group on systems thinking, or what he was calling systems thinking, and he was presenting a tool called "I Think," which tries to give you a way of modeling business practices and creating simulations on the fly.

One of his main points was that, for 20 years, he's been trying to help organizations grapple with particular issues. And what he thought was one of the successful techniques in bridging the gap between the analytical and the nonanalytical executives was to provide a model developed by the analytical group that was not attempting to model everything, but was supposed to be close enough and have software packages make it adjustable. You choose the parameters that can be adjusted, like sales growth, productivity, whatever, and then give that tool to the executives and let them do their own modeling so they can get a comfort level with the thinking that has gone on behind the model. And that did two things. One, it helped drive consensus, because once everyone was speaking the same language, which was expressed in terms of this model, it short-circuited a lot of cross-functional disputes between sales and marketing. They're coming from different areas. Well, if they're working with the same model, they have to argue about the same things. They can't go off in different directions.

I think the other point was that it did help focus on where the organization was now, because the most critical part of the modeling is to discover where you are now rather than what the solution to the problem is. His point was that most of the problem is embedded in not knowing where you are now, or at least not every part of the organization agreeing on where you are now. It was basically creating a game. It was a game.

MR. HAMIK: Thank you. That was a perfect Ed McMahon lead-in to the Johnny Carson comment. It was coming up. Perfect. The first one I started using was called "Stella," and then the second version became "I Think," and it's very powerful.

In the 1980s I worked in corporate planning with some large companies. One of the things that I did because I was in strategy and was working with CEOs was try to get them hooked up. A lot of them didn't like computers, didn't trust them, didn't want them, so we created things called executive information systems. Some of you with a few gray hairs like me will remember. It's essentially a box that you could put on the CEO's or vice president's desk, and he could watch key business

indicators, whether they be interest rates, sales or whatever was most relevant to the company.

I think it's a systems model that's been tried now for the past 20 years, but the computers had to catch up in the areas of hardware, speed and user interface. I think it's got a wonderful user interface, and I believe it is going to become even more of a game than it is right now. To give you a conceptual model of what this gentleman was describing, you could draw a creative variable, draw an arrow between another variable, create the quantitative relationship between this variable and that variable, and create a little algorithm based on what happens with this variable.

You can have sophisticated functions within this user interface to test out the current reality and the current way things work in an organization. We've also used them with scenarios. We've created a generalized version of how a company makes money and the various key assumptions that go into that, and then we stagger that relative to the assumptions that were made under scenario one, scenario two, scenario three and scenario four, so that everyone can see quantitatively how this might play out at a high level, and then we backed up and ran the corporate model and even modified the corporate model so that it could change some basic functioning between variables to take into account some of these learnings that occurred.

The other thing that I would also mention is that databases are increasingly being interconnected now. This is an important aspect of the glass bead game. In order to be able to play the data organ, you have to have things connected. Everything now increasingly is being made electronic, even voice services. Most experts are saying that, in the next 10 years, we're going to have some kind of voice recognition, so even conversations like this that I'm having with you today can become data after the recording.

Increasingly, if you interconnect all of these things, and they become all electronic, you start to have a sense of how you can play the data in a game like "I Think" or other technical tools. All of a sudden, and this is what Dorn was challenging you to think about, what is an actuary in 2010 or 2012? It's a person who is like a doctor. You provide a certain amount of expertise and can do the sophisticated health-care pension modeling that auditors will look at and things like that back here. But on the front end, you're a kind of consultant and can work with clients increasingly by saying, "Let's examine the market." The various assumptions that you make go into some of these pension and benefit and health-care issues that you're addressing. You can play with those models with the executives and help to strategize for the company some various product and service strategies that it might pursue.

MR. SWERDLIN: Ken, I'd like to also see actuaries applying their expertise to areas beyond pension, health and life insurance to use our modeling or our technical skills to do the kind of things that might be outside of those areas in the general

business world. I see a lot of different applications that we haven't needed to apply before because we had a good market within the insurance, pension and health industries. I think we could work with futurists and economists and broaden our scope of what we do for the client. Does anybody agree or disagree with that?

FROM THE FLOOR: I really agree. Ken, the specific example you used was interesting to me. Actuaries already have an important point of entry with their clients, especially if they're pension or benefit actuaries like I am, because we're often put in a position of having to deal with management's best-estimate assumptions in doing models for them.

Maybe the actuary of the future will be in a stronger position with better models to help management to probe its own best-estimate assumptions, and it might not be strictly focused on pension benefit programs, but be of a much broader nature. All of the assumptions that underlie their business model that shapes their thinking around their business could become our domain through that point of entry.

MR. SWERDLIN: That's great.

MR. HAMIK: In fact, I think maybe one of the take-aways from this meeting is What is the new portal? It's the way of thinking about it as a portal. Dorn, you covered the history of the actuarial profession for 150 years or so and different epics that you've gone through. This is a new one that you're embarking upon. What's the portal, and what does it look like afterwards?

As I mentioned before, just to augment your comment, the marketing, the words you use and how you describe the services that you're offering, are as important as the conversations that you have. You have to be able to position the conversations. If you go into the first conversation and surprise them by saying, "We can do this, this and this," they are likely to say, "We can't think about that. This meeting was about this. We want you to do this. This is what you're good at, so stick to it."

But if you position it beforehand and say, "You know, we are actuaries, and we have these skills, but we also have these other competencies, and they're a package," you can disassemble or reassemble the package in custom ways for whatever the client is. But to let the client know that ahead of time, advertise it and brand yourself with it is going to be an important aspect of your future success.

Let me continue with the role of actuaries. We'll be talking about that in more depth in the third part. Something that I'm not going to talk a lot about but that is one of those big pipelines into the future that we all know is there is that the baby boomers are getting older. Other generations are the echo boomers: X's, Y's and Z's.

I don't need to get into this because you've read about it. You're interested in a lot of these trends because you're actuaries, but I guess I challenge us to think in

terms of scenarios of how those might play out, how pensions might play out, the age of retirement and how people are going to manage—baby boomers, in particular, with a misbalanced amount of the wealth of this country when they really do get into retirement. How are they going to manage that? What are the policy and political implications?

MR. SWERDLIN: We're not going to give it to the young people, I know that much.

MR. HAMIK: What about the future of investment? What does it mean in terms of the corporation and how it invests pension plans and manages them? Health-care costs are the most obvious issue. I think all of us see it as a train that's just going to have to be derailed. It can't keep going the way it's going, but what happens? What's the scenario? Are we all going to bet that it's going to happen this way or that way?

My perspective is, and in particular because of these last series of comments that we just had, maybe your role is to quantitatively play the game through those various political and social scenarios for these clients so they understand what they might have to deal with. What if this type of health-care system happens, or this plan or this economic set of conditions occurs?

There are also advances. Again, you know this more than I do. Genome typing and biotech, a small industry in the 1970s, has grown to big proportions. It's disappointed some people in terms of the stock market, but everyone knows the human genome project is being completed. This is just going to be huge.

I don't need to talk about some of the impacts and what kinds of biotech opportunities are helping people with various diseases and health conditions. There's a plethora of them. You're reading about them as much as I am, but we've got this series of discontinuities, I guess I could call it. It is not just one big one any more. It's which pharmaceutical company or biotech company accomplishes this promised something, whether it has to do with AIDS, aging or all the other health-care problems that we've experienced and have been trying to obliterate.

What happens if somebody solves the issue of obesity? That's a big one. That's one that changes a lot of the quantitative measures that we use right now. It's really important to be able to pay attention to those and to monitor them closely. Try to understand, whether through Delphi techniques or interviewing a number of experts in the field, the timing of when these events might occur so that you can help your clients to better grasp what future they might have based on some of these changes.

The politics of gene mapping is something. You're basically scientists, you're mathematicians, you're modelers, you're analytical experts, but in a way you're dealing with something that could be an emotional issue. We've heard about this already for a long time, but it's going to become more acute as some of these

gene-monitoring technologies become available. What do you do? How much do you know? How much does the individual have to give away? How much does an insurance company have to know? These are big issues that aren't going to go away, and in fact are going to get worse.

Has anybody heard of "cognitronics," another one of those buzzwords that's been going around that talks basically about information mapping? It has to do with security issues and I-see-you transactions, meaning "I see you doing these things." There are more agents out there, more keystroke technologies, encrypted technologies that can get in and monitor the usage of various consumers online. There are scanning equipment, infrared, facial recognition technologies and handprint technologies.

It really gets wild. There are even little micro-robots on flies that can go around and observe an area. You can send certain little specks out into the atmosphere to observe a situation. Sometimes you want to do it remotely because it may be an environmentally bad site or a battle.

The next 10 years are going to see the beginning of some of the research and development (R&D) in some of these areas. The next 20 years are going to see more of these technologies happen. Monitoring is going to be everywhere, privacy is going to be nowhere, and you're going to be able to connect a lot of this information in almost real time.

Real time is an important term I'd like to talk about quickly in association with this trend cluster. We talked about analytics and modeling and gaining and creating tools for the future. Increasingly a lot of our data are going to be almost real time, so the executive information system I mentioned before for the CEO or for an executive of the company could be something that is processing and connecting information and giving you a good idea of what the market is doing with your company and your product, not just in the stock market, which we can follow by the tick, but also the real market and how people are consuming things. Benneton and other companies have invested in information technology to do a download at the end of every day to understand who bought what and how the inventories changed.

I think more companies are going to have these capabilities because they're sending their field representatives out there with little PDAs and other handheld wireless devices that are connected to their corporate systems that are able to gather specific information on almost anything that is important to them.

How do you manage that information for their employees and for the market? I'm not sure what the actuarial role is there, but it's definitely going to be happening more in the next 10 to 12 years than it is right now.

Intelligent policing and security are increasing, again because of 9/11, but they were happening even before that because of the baby boom market. As the boomers get older and into retirement years, they want to have higher-security systems.

There are going to be a lot of technologies and markets wanting to invest more in these technologies for high-tech security systems, so property loss might be affected more. Some of you work on things like that. That might be something to be cognizant of in the future.

This one used to be wild. I used to present on nanotechnology in the 1980s. Most people looked at me like I was a science fiction author. Now I'm pleased to say that it's come quite a way, and that's why I title this part of the talk "Molecular Products and Solutions." It's not just about theory and concepts anymore. A certain number of nanotechnologies already exist. There are some that are about to exist and that are going to change the world in some fundamental ways.

In brief, for those of you who have never heard of nanotechnology or molecular engineering, it's basically manufacturing at the molecular level, at the atomic level. We already have tunneling and microscopes. We've had them now for the past 25 to 30 years, and these things can pick up a molecule or an atom and move it from one place to another.

We're going to have little machines. We're developing assemblers at the micro-level to be able to do this on a manufacturing level, so we'll be able to see huge impacts on various areas, although it's going to be expensive as all technologies are in the near term, but in the 2010–2012 time frame, the horizon we're talking about here today, we're going to start to see some of these out there that are going to impact health, energy and materials like carbon: nanocarbon fibers and nanocarbon tubes. Has anybody heard of these? You can now store hydrogen, which could be volatile, in light tubes that are easily transportable or put into cars, trucks or airplanes. One of the fuels of choice for most people in the energy business is hydrogen, and they want to see where that's going.

That's going to be increasingly available through things like nanotechnology that is able to break down certain organic composites and reinterpret them into efficient engines. In fact, the company where I'm a vice president is a startup that's going to take advantage of some of these technologies, and we are in the process of generating a new series of energy technologies that never existed before.

Health is a wild one. I don't know whether you've heard of nanobots. Some people have talked about and are quite seriously pursuing some R&D to create small robots that you can inject by syringe into the bloodstream, and by computer you can guide these little missiles through the bloodstream into a person's arteries. They can clean the arteries out, and then you flush them out of the person's system. It can be done on an outpatient basis. You go to the doctor, you get cleaned out and you leave. Again, in the beginning, they're expensive, but increasingly as these things become more prevalent and perhaps even could be reused, this small technology could be big.

The third topic I'm going to talk about is implications for actuarial sciences. At this time I'd like to bring out a special guest to join us in the future, the year 2010.

MR. SWERDLIN: Hello, everybody from the past. I'm the actuary of 2010. I'm here to answer your questions about what your future and my present will bring, and I have a few comments. The actuary of 2010 is sweating. This is not light cotton that I'm wearing here, and I don't need glasses. Nobody in 2010 wears glasses. I just thought I'd bring these so you wouldn't feel too bad.

Okay, the Social Security retirement age is 70 now. We have biocards we can buy over the counter to test our blood for all kinds of diseases and genetic predispositions. There's a large market for privacy agents to perform audits of your online information. Three U.S. corporations have established research universities for general admission. Barter represents one out of 10 transactions in the United States today. Warm skin allows us to apply a nanolayer of thermal lotion for cold climates, and the U.S. census of 2010 includes a lot more information about ethnic groups. Who has questions for the future actuary? Mr. Hamik is my mission control associate here. He'll help me out with questions I can't answer.

FROM THE FLOOR: Will an elixir be invented by then so mortality can be avoided, or will life insurance need to exist, because people will live forever?

MR. SWERDLIN: I'm afraid we haven't gotten to the elimination of mortality as of yet, but we have made some great advances in health care, and the life expectancy is much longer in 2010. By the way it's twenty ten, not two thousand and ten. That's what we say in my time.

FROM THE FLOOR: Okay, in 2010, are there more woman than men? Is the mortality of women still better than men?

MR. SWERDLIN: Yes, and there are about equal numbers of women and men on the globe today.

MR. HAMIK: I assume by now that self-testing for many diseases in genetic markers is common. What has that done to underwriting practices?

MR. SWERDLIN: The underwriters obviously have more information and are better able to assess the risks, and I'm not sure exactly what you're asking—you mean because the individuals will know more about their own health?

MR. HAMIK: Right. People may know more than the insurance company does now because they're able to self-test.

MR. SWERDLIN: I think the difference is not as much as you might think. In your time, people do sometimes know more than they end up telling the underwriters, although you've got the doctor examinations, but I don't think it will be as significant. I think the underwriters will have as much information as the individuals.

MR. HAMIK: This is mission control to 2010. Didn't you have some congressional

hearings on the insurance industry, and the insurance industry was clamoring for more guarantees and access to that bio card readout?

MR. SWERDLIN: Yes, that did happen in about 2008. In 2008 there was a law passed that did what he said.

FROM THE FLOOR: I'm curious about a couple of things in 2010. One is where does human cloning stand, suspension of life waiting for future medical discoveries, and how does the health-care system work and how is the government involved in it?

MR. SWERDLIN: Human cloning has taken a different direction. There are scientific advancements that started with these nanoprojects that you've talked about, Ken. We're not there yet, but rather than creating machines, we're going to be able to start to create living things. Human cloning is one way to do it, but it's not the direction that we're taking now. But we are beginning to be able to create life because we're learning more about how life works. What was the other part of your question?

MR. HAMIK: The extension of life and waiting for future medical discoveries.

MR. SWERDLIN: There's still some of that going on. It hasn't increased significantly in 10 years. Other questions?

FROM THE FLOOR: Yes, actuary of the future. I'm a Canadian actuary. I'm wondering if by 2010 the United States has finally woken up to this alternative North American model for health care that we have in Canada and if what we have in the United States is something similar where there's a very broad—I guess you'd call it intrusive in the U.S. context—involvement by government in health care.

MR. SWERDLIN: Well, Canada and the United States have merged into one country.

MR. HAMIK: The United States is the new province of Canada, right?

MR. SWERDLIN: The southern province. Other questions please?

FROM THE FLOOR: With all the cloning activities you're talking about, I believe corresponding progress is being made in food, plants and things like that. Yet it seems to me, at least in the past, which is now, we still seem to be having a crisis in terms of feeding our people. And here we are talking about increasing the number of people that populate this world, and are we thinking along the same lines in perhaps trying to also increase the production of food? Or are we going to be so self-sufficient that we don't eat food?

MR. SWERDLIN: We still need food, but we've made strides in creating more nutritious foods, although, back in your day, the genetically engineered foods

jumped the gun. People were doing things they didn't know the results of, and a little bit of knowledge can hurt you sometimes.

In terms of starving people in increased numbers, it's not that we have too many people, and the population has grown from your time to my time significantly, but it's how we treat other people and how we hoard our wealth and don't distribute. Our governments in your time were still looking at their own boundaries and not giving much to those that needed more, even in our own country, U.S.–Canada we call it now.

But I think the point is that there will be enough food for everybody, and we will have a lot more people because we've learned a little bit more about how to treat other people fairly and how to process and distribute food more efficiently. Did you have another question?

MR. HAMIK: I believe it's called Us Can, isn't it?

MR. SWERDLIN: Yes, you could call it that.

FROM THE FLOOR: I see in papers that nontraditional medicine is booming and that western medicine is being complemented by traditional Oriental medicine. What is the status of that in your time?

MR. SWERDLIN: The western doctors have finally come around to expanding their minds to include what you call in your day alternative medicines from the East— from India and other parts of the world. It was hard to break down the American Medical Association and those in power in western medicine, but they have started to accredit people who use more holistic types of medicine rather than the specialization as it is in treating us like machines instead of like whole people.

FROM THE FLOOR: So the insurance companies are supporting those?

MR. SWERDLIN: Yes.

MR. HAMIK: 2010, this is mission control. Can I add a comment on that one?

MR. SWERDLIN: Help yourself.

MR. HAMIK: I think that, in your time, my time, about a \$26 or \$27 billion a year industry was estimated for some of this alternative health care. It is becoming a more significant component of the total health-care market, and increasingly that is self-served, which I think is an interesting implication for the question that you were asking. More people are providing health-care services for themselves outside of the institutionalized health-care system than was otherwise available to them through some of these over-the-counter options and through some of these not-so-alternative health-care options that were previously available, and many of which were fine-tuned because of some of the technologies. Even alternative

technologies can learn from technology advances, so they saw growth in self-service markets that was much bigger than the one we see today.

FROM THE FLOOR: In our era the health-care system that we have has been supporting the employment of many thousands of actuaries, and my question is, Now that you are under a single pair system, what are all these actuaries doing?

MR. SWERDLIN: Actuaries are doing a lot more. They're applying their skills in a lot more areas than health, pension and life insurance areas and casualty. There are plenty of uses for our expertise. As the markets change, we have to adapt to the changes. You may have to learn some new skills because there aren't as many health actuaries today as there were back in your day. I mean my day.

MR. HAMIK: In fact, on your handouts, this last point that we raised was more sophisticated interactions with actuarial clients. Dorn also talked a little bit about moving from a small tent to a big tent in terms of marketing new services that actuaries will be doing in the year 2010.

MR. SWERDLIN: Yes. One of the smartest things that we actuaries did back in your time was to start looking at ourselves as not the little tent. Does anybody in here know what the big tent–little tent is? They started back in your time heading toward the big tent and went through some difficult times, and people had to give up some old beliefs and old territorial turfs. The profession is unified now. It's called the Global Actuarial Society, and we all are just one organization for the whole world. That's probably the biggest, most difficult thing we did, and it's the most advantageous thing we did. And so we definitely are closer to the big tent now than we were back in your day. Who has other questions?

FROM THE FLOOR: Companies seem to be heading away from legacy systems, large mainframe systems, and toward PC network and Internet-based applications. How has that panned out?

MR. SWERDLIN: There are no more mainframes, as you know. As I said, some of the advantages in technology have been more in the life sciences than in the mechanical sciences, but we all have little computers. I have a computer inside of my sleeve here that probably can do more than the biggest mainframe in your time. I can push the button and can fly around and can also beam myself to places like Scottie used to do in the old Star Trek series. Who else has a question?

MR. HAMIK: I'd just add to that. One of the things that was experimented with during the past years of our era is a form of distributing computing where SETI and other organizations have asked certain users to volunteer their personal computer time when they have access to the Internet such as via DSL or even the company's computers that are sitting idle on people's desks when people are not at work, and they process, like a supercomputer would process, some of the data during those downtimes. That increasingly is happening because everyone now is connected to the Internet. Otherwise, a computer is a plant holder.

MR. SWERDLIN: Very well said. Other questions please? I have to get back to my time. They'll miss me in 2010.

MR. HAMIK: Thank you, 2010. This has been a quick run, not a walk, through three topics. This is an introduction into futures. Hopefully I've given you a sense of some of the tools and techniques that we use. Some of the trends over the next 10 years are going to be challenging a lot of us in a lot of different areas in a lot of different ways. Being a trend watcher for many years now, I've found that the reality of a piece of information is that it doesn't have value when the thing becomes so. It often has value when the thing becomes an idea or is heard of.

People started investing heavily in biotech, as one of the trend examples that we were talking about, in anticipation of a lot of things that we still haven't seen yet, but there's an anticipation that this particular technology is so fundamental that they want to be involved when the trends start. Increasingly, as more futurists are out there, people are more aware of some of these technology trends. There's a certain amount of value and therefore action and investments that organizations take in anticipation of a technology entering the market.

The other thing I've learned from some of your questions and observations is that the time might be right for the Society of Actuaries or some other group to put together some type of Future of Actuaries. It could be a couple of scenario sessions that result in a report that says, "Here are some of the things we might expect. Here are some of the ways that we might prepare that road that we're about to travel." It sounds like the opportunity is right, so I make that suggestion to you as well.