

“Customer Focus – A Prescription for Driving Innovation”

Fred Hassan

**Chairman and Chief Executive Officer
Schering-Plough Corporation**

Remarks for Inaugural CEO Innovation Lecture Series

Presented by the

**Rothman Institute of Entrepreneurial Studies *and*
Silberman College of Business *at*
Fairleigh Dickinson University**

Madison, New Jersey

Feb. 23, 2006

Thank you! Good morning, everyone! It is great to be here. FDU is a very significant institution. Over the years, it has given a remarkable education to generation after generation of students. My company, Schering-Plough, has benefited from people who were FDU students. I also know that benefit first hand. Two members of my own family are studying here right now! And, FDU’s faculty and staff are a very special strength.

A big part of this contribution is, of course, the fine education that FDU provides -- and the graduates it sends out into the world. Take, for example, entrepreneur and FDU alum Greg Olsen. Greg made headlines last fall as only the third civilian ever to travel to space. Greg is an outstanding example of the kind of trailblazers FDU graduates every year. FDU is also a remarkable contributor through the scholarly output of its faculty. So, I am very honored to be the first speaker in this new series on innovation presented by the Rothman Institute of Entrepreneurial Studies and the Silberman College of Business.

Thank you for coming this morning. After my remarks, I look forward to our question-and-answer session together.

My subject today is, of course, innovation. Specifically, I’d like to talk about customer focus as a prescription for innovation.

When we talk about innovation, we’ve got a rich and profound subject on our hands, because innovation is so central to the strength, growth and vitality of people, of organizations and of society itself. Innovation is in our very genes, so I have a lot of humility about addressing this subject! That is why this morning I will concentrate on a few aspects of innovation where my own experiences come to bear.

I’d like to look at three questions with you. First: What IS innovation – and why is customer focus so important to innovation? Second: What makes innovation happen? What are the engines of innovation? And third, I will ask the question: What needs to be done to sustain innovation?

What is Meant By Innovation and the Importance of Customer Focus

So, what do I mean by innovation? And why is customer focus so important?

Thomas Edison put it very well when he asked, “Is there a way to do it *better?*”, and responded, “Find it.”

Edison's point is succinct but deep. He is telling us that innovation is not just great thinking or great creativity in a vacuum. It is creativity that is active, that delivers something new and better. And also, it implies new and better for a purpose that adds value.

What I would like to suggest is that we can think of innovation as creativity in action – in other words, applied creativity. Applied creativity creates something new or better, AND adds value for individuals or for society.

We don't know who invented it, but the wheel did not change civilization simply because of the creative genius that went into the discovery. The wheel was a profound innovation because it was APPLIED. The application of the wheel for transportation — and thousands of other needs—transformed human life for the better.

I think we can see this formula in every real innovation. Some of those innovations radically changed the world – innovations such as the steam engine, the telephone, the automobile, the airplane and the microchip. Other innovations add value in smaller ways. Power steering. Synthetic clothing fabrics. The zipper. The iPod.

Here is another example of applied creativity that I just read about. According to Nature magazine, researchers learned that U.S. soldiers serving in Iraq and on other missions did not always have access to toothbrushes and floss. It seems that some 15% of soldiers reported they were suffering from toothaches and gum disease. In response to this need, the researchers identified a protein fragment called KSL. KSL eats holes in the cell membranes of the bacteria that cause dental disease and kills them. Then, the researchers figured out how to embed KSL in chewing gum. The chewing gum formulation turns the creativity of the KSL discovery into a solution for soldiers and others who can't brush or floss. According to Patrik DeLuca, one of the researchers who invented the new chewing gum, the innovation is valuable “not only for the military, but also for the avid outdoorsman and anyone else on the go.” Perhaps it will even be a useful innovation for students on the go at FDU!

My own industry, the research-based pharmaceutical industry, is a special example of innovation. At its essence, what we do is transform great science into treatments that improve and save people's lives. This very complex work certainly does begin in a science laboratory with basic research by talented scientists , who discover new chemical compounds and new molecules.

However, to turn this scientific creativity into an innovation, we then engage thousands of other people in highly complex and costly actions. These actions transform a molecule into a treatment – with continuous applications of further creativity. This is applied creativity — creativity that creates something new or better to improve health.

I'll come back to some of the special dimensions of pharmaceutical innovation in a moment! But now, let me turn to the importance of customer focus, which I mentioned before.

When Edison said, “Is there a way to do it better?” he was implying a benefit and outcome to someone. There are many ways that we could talk about who that “someone” is.

I would like to suggest that one of the best ways to think about the beneficiary of innovation is to think about the customer. I am talking here about the “customer” in a broad way, as someone to

whom you deliver added value and as someone who EXPECTS added value. In other words, the customer is a person – or an organization, or a society – that has a need that will be met by the innovation. Focusing on the customer thus becomes a way of figuring out how to make innovation happen.

Consider just one recent innovation – Apple’s iPod. The iPod is a spectacular innovation. It responds to the desire of consumers for personal, portable, flexible music. It takes the creative technology of storing music electronically and it applies it with further creativity into a new consumer electronic device. Now, the iPod is transforming how people listen to music, how they share music and how they socialize.

The iPod is a great example of the power of customer focus. By being in tune with its customers and by sensing an unmet need, Apple could apply its creativity to add value. The moral here is that innovation does not happen in a vacuum or inside a closed system. Scientists and technicians could labor for decades over the same electronics that are inside an iPod and never produce this spectacular consumer breakthrough. It was customer focus that was the prescription for the innovation!

The iPod example also shows us another very important dimension of innovation. Back in the 17th century, the great Sir Isaac Newton said, “If I have seen further, it is by standing upon the shoulders of giants..” What he was saying is that his work could only happen because of the foundations created by others. Most innovation builds on many OTHER advances before them. Even what appear to be big breakthrough innovations in fact are —as Newton put it — building on the shoulders of giants. When you look at the iPod, it is standing on the shoulders of old fashioned tape players, on the shoulders of microchip advances, on the shoulders of Sony Walkman and Discman, and many others.

Also, every medical breakthrough is built on the shoulders of other giants. One example, is the treatment of cardiovascular disease, especially high cholesterol. We all know this is one of the biggest killer diseases in the world.

Now, we have created VERY effective treatments — breakthrough treatments — for high cholesterol. They are responses to a very serious need of the ultimate customer – the patient!

The incremental innovations that led up to these treatments, however, go back decades. The first so-called “statin” molecule was discovered back in the early 1970s. Then, scientists built on that knowledge and created the first synthetic statin molecules. In 1987, Merck brought out the first widely available statin, Mevacor. Other statin treatments, such as Lipitor, followed Mevacor, and the innovation continued.

My own company, Schering-Plough, discovered a completely new molecule – ezetimibe — that attacks cholesterol through a new mechanism of action. Now this new medicine is creating a new paradigm for treating cholesterol.

Another dimension of customer focus that is of enormous importance is customer service. In many ways, customer service is process innovation in action. As we all know, it is usually not enough for a customer to benefit from a great innovation. You want follow-up!! You want help in applying the innovation effectively. You want solutions if it breaks or fails.

Customer service is often the weak link of innovation. We hear that Apple is today facing a challenge with consumers who are discovering that the iPod is rather fragile! It can break when someone steps on it or drops it. After someone has just stored a lifetime of music preferences on her iPod, when it shatters underfoot, you can imagine the response! How Apple handles this customer-service challenge may well become a very significant factor in the long-term success of the iPod innovation.

These are some ways of describing innovation and of seeing why customer focus is so important to making innovation happen.

The Engines of Innovation

Now, let me turn to the second question I'd like to look at with you. What makes innovation happen – what are the engines of innovation? This is a huge question, so I'll focus today on just a few aspects that come out of my own experience.

I think the most critical engine of innovation in any organization is a passionate attitude of customer focus and people who are liberated to pursue that passion. This follows from what I talked about earlier. A truly customer-focused organization almost by definition will drive innovation, because innovation is the means by which it satisfies the unmet needs of its customers.

It is not uncommon to hear from a company, "Yes, we are customer focused. Our sales people and our marketing people are deeply engaged with our customers." This is good – but it is not enough.

I do STRONGLY believe that sales professionals have a very special role with customers. In high-innovation industries, sales people are much more than a message channel. In an industry such as ours, the goal should be to have sales professionals who act as a special sensing mechanism for the organization. Through a strong personal relationship with customers, sales professionals get in tune with customer needs. They transmit customer needs back into the company. They help identify the innovation needs and help to galvanize the organization into the innovation action.

However, if ONLY the sales – or sales and marketing people – are engaged, innovation will not happen. Innovation happens when EVERYONE has a passion and is engaged with the customer. Innovation happens when EVERYONE feels part of the team.

This passion for the customer and this engagement must begin at the top – with the CEO. For example, I meet regularly with doctors and other customers in our business. Just recently, I met with a very important expert on infectious disease. He gave me some exciting ideas on needed innovations in the treatment of hepatitis C, an area in which we specialize. I internalized those ideas, and I communicated them to our people working in this area. It is important for people in the organization to see this kind of customer engagement at the top.

I do also stay in close contact with our sales people, because they are such an important customer-sensing mechanism! And, we seek to have all the other units in the company also feel empathy, to be in tune with our customers.

For example, I tell our research bench scientists that they should be courageous in championing innovative molecules that they believe in – even if commercial data might suggest that there is not a big demand for that molecule.

Over my career, I have seen a LOT of important new medicines get to patients despite the advice of marketing consultants! This has occurred because those medicines had a courageous champion in R&D or somewhere else in the organization—a courageous champion who saw the customer and patient need!

So that is one powerful engine of innovation: the right attitude. It is a passionate customer focus everywhere in the organization — and led from the top.

Another vital engine of innovation is the right behaviors. People are by instinct clannish. We tend to be suspicious of other groups, and we like control. But innovation is not achieved by individual genius or by any one unit in a company.

The challenge – especially in large, complex organizations – is to break down the natural human and organizational barriers. It means deliberately fostering behaviors that do NOT come naturally to people or to organizations. Behaviors such as collaboration across units. Behaviors such as shared accountability and transparency. These are the kinds of behaviors that unleash innovation. They unlock the applied creativity of many talents, so that the power of many together is greater than many separately.

I also have found that it is extremely important to reward two categories of people: The passionate drivers and the people who advance innovation through failure.

The passionate drivers are those people who do not give up on their cause in the face of the corporate pressures that might otherwise grind them down. These are VERY important people who must be nurtured.

And so are the people and teams that achieve great failures! They must also be nurtured. By "great failures," I mean the projects that do not become successful innovations, but instead generate vital learnings that make the successful innovation possible. We would have to ask Steve Jobs how many great failures went into the iPod.

I can give you one of many examples from my experience. In a previous company where I was CEO, we acquired a very exciting biotech operation. The acquisition itself was something of an innovation. At first, the thinking on all sides was that we should simply in-license some of this biotech company's compounds. But then one morning, while I was shaving, I had the idea that we should not just in-license: We should buy the company!! Yes, there were a lot of risks. But buying the company would give us more than just the existing products. We would bring in a longer-term pipeline. And we would bring in the intellectual capital of the biotech's scientists and technologists. So, we bought the company!

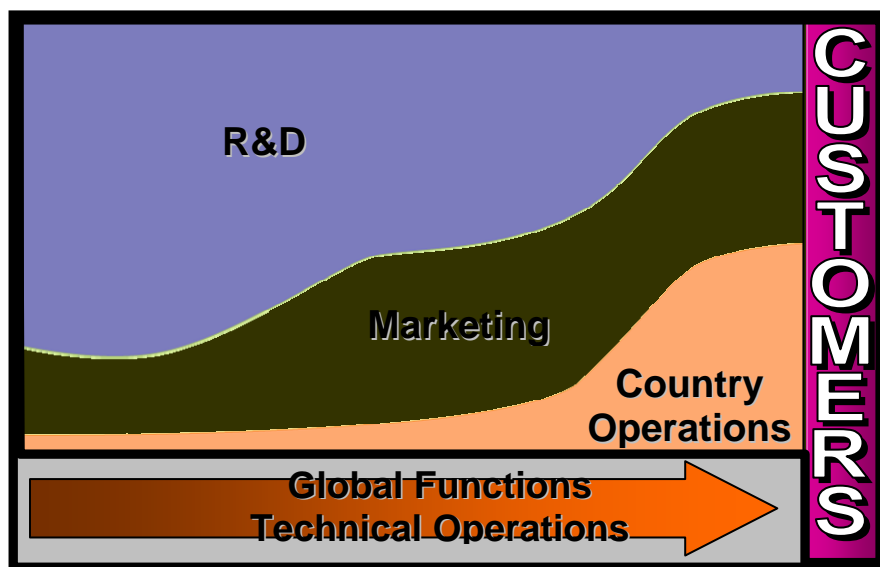
There were big hopes for the lead compound of this biotech. Well – it failed! And so did two other expensive and energy-consuming projects. Some people lost faith. A lot of investors questioned the acquisition. But each of the failures was a great one. Each failure led to progress by a team of passionate drivers who would not give up. More than six years later, the fourth compound has become a winning innovation. This fourth compound has become an important, innovative new treatment for cancer!

The final engine of innovation that I would like us to look at is the engine of a powerful product flow system. What is this engine? Basically, it is a system that channels and maximizes the attitudes and the behaviors I just described — with a relentless focus on the customer!

In virtually every organization that seeks to innovate, there is a front end of research and early creativity. There is a middle that tests, refines and develops the early creativity. Finally, there are the groups that move the final innovation to the customers: manufacturing, marketing and sales. Supporting all these areas are functions such as finance, IT and many others.

In conventional organizations, all these different units operate as silos. Research is disconnected from Development units. R&D is disconnected from marketing and sales. Manufacturing sits in its own silo, and so on. Products move through the product pipeline in handoffs over the walls of these silos. Innovation is often lost or compromised. The flow is slow. The response to customer need is distorted or diluted.

So, a vital task for any organization is to create seamless interactions between these units, while having all the units focused on the customer and in tune with the customer (see figure below). There is free and easy interaction among all the units. At the same time, there are strong, transparent operating processes, strong, transparent gating mechanisms, and mutually agreed-upon timeframes for moving products through the system.



Let me highlight one very interesting and very important feature of an innovative product flow system. Progress through this kind of system is not linear. There are loop backs – and loop forwards. But it is not random, Brownian motion. It is purposeful. The looping is creative, productive work that adds value, enhances the innovation and makes it more responsive to the customer need.

Let me give you one example of how the combined engines of customer-focused attitude, behavior and product-flow system generate special innovation. In my previous company, Pharmacia Corporation, we identified a potentially exciting molecule that could attack infections in a new way. At the time, this was a bold treatment area to be looking at.

Many people still believed that existing antibiotics were all that were needed. Our people had a different vision, one that proved to be foresighted. Yet while we had the creativity element in a new family of molecules, we were missing the application and the applied creativity that would transform this discovery into a medicine that would be valuable to doctors and patients. It was a potential innovation – but we were not sure how to get there.

What happened, then, was the ignition of innovation. The research people, the development people, the sales and marketing people, and the manufacturing people all came together in a seamless way. They came together seamlessly to achieve applied creativity.

Initially, there was a hypothesis that the right approach was to create a treatment that would be effective against a limited number of infections, for acute cases. But through dialogues with our customers, the teams discovered that, in fact, doctors had a big need for a powerful new antibiotic that would work against a wide array of infections. The teams looped back and forth, reshaping the focus and refining the compound.

There were many further refinements of delivery mechanisms, so that the treatment could be applied via intravenous drip or in a pill. Clinical trial plans were developed early to support regulatory applications for indications that would be most important to the customers. Again, this was accomplished through cross-functional, shared accountability work by research, development, the commercial units and manufacturing. The result was Zyvox – a major innovation in antibiotics. Zyvox was achieved through customer-focused attitude, behaviors and system.

Of course, we are not alone in creating engines for innovation. My friend at Procter & Gamble, A.G. Lafley, the company's CEO, is an effective innovation leader. He inherited a big challenge when he became CEO of Procter & Gamble in 2000. To lift stodgy old P&G out of a flat growth pattern, Lafley stood the old product development process on its head. The old way was to develop new products and then test them on consumers or to survey consumers and try to fulfill their stated needs.

Unfortunately, consumers don't always buy what they say they want on surveys! So, Lafley had his staff go out and observe people using household tools and products around the world. He also created an innovation gym where P&G managers could team up with innovative designers from outside the company and sometimes from outside the industry.

One new product has been the Mr. Clean MagicReach. It uses a four-foot detachable pole to clean bathrooms. Feedback from customers – and the commercial success of this new device – suggests that it is a real breakthrough!

Sustaining Innovation

So far this morning, we have talked about what we mean by innovation and the importance of customer focus. We have also looked at the engines of innovation. In these last few minutes before our Q&A, I would like to look at the third and final topic I said I would address today: sustaining innovation.

You might ask, "Won't a strong innovation organization keep innovation in its DNA?" The answer is – no. As the environment keeps changing, organizations must constantly adapt, re-engineer and change how they innovate.

There are lots of examples of what happens when organizations fail to do this. Look at the U.S. auto industry. Forty years ago, the U.S. auto industry led the world in innovation. Detroit was in touch with its customers. It was in tune. It kept evolving, kept changing. Its mantra was customer focus at every level in the organizations. Words like "Mustang" and "Thunderbird" conjured up excitement and style.

But at a certain point, as the pace of change in the world grew faster, Detroit fell behind and fell out of tune. Now we see the U.S. car makers struggling with this very difficult inheritance. They face a downward spiral of performance. They face a failure in customer focus and a resulting collapse of innovation. It is all summed up in the verdict in a J.D. Power and Associates survey of buyers on a new sedan that was a big hope for the future of one of the U.S. makers. The car, J.D. Power concluded, falls into the category of "universally disliked."

I think it is clear that one dimension of sustaining innovation must come from within organizations. The key is a certain kind of leadership. To sustain the power to innovate, organizations must keep innovating in how they themselves operate.

It all comes back to customer focus. Customers and their needs keep evolving. Organizations that seek to innovate must keep evolving with the customers.

In my view therefore, constantly renewing and re-inventing the organization is perhaps THE most important duty of the CEO in large, global, innovation enterprises today... from electronics, to clothing and fashion, to health care, to banking and beyond.

In our own company, we have a model of engaging in constant, transformational change. Our mantra is New Thinking. New Capabilities. New Urgency. Our mindset is that this must be led and modeled from the top. And because ours is such a long-term innovation process industry – I will be judged on how well I am doing this today for the next 10 to 15 years!

One critical dimension of sustainable innovation is innovation strength of enterprises through constant renewal on the inside. But I would suggest to you that there is ALSO a need for fostering innovation, in the BROADER environment in which we all operate.: in government; among shareholders; among citizens; and among all the stakeholders in our society.

Today we are hearing concerns that the United States is losing its innovation edge. I think this is a genuine concern. We do see some signs of innovation erosion., and we do see some signs of innovation migration. For example: signs that countries such as China and India may be building special headroom and attractiveness for innovation – at our expense.

Last Friday, the New York Times reported that 38% of multinational corporations surveyed plan to shift substantial portions of their research and development work to centers in China and India over the next three years.

In response to this trend, some people advocate investing massive amounts of government funding in science and other building blocks of innovation. I say: Money is not the only solution! From my perspective, the best answer lies in our mindset and culture.

Historically, the United States has been almost synonymous with innovation – from the creation of a new kind of democracy right through to Google. But just as companies must keep reinventing

themselves, so must our society reinvent itself. Our society must reinvent itself in order to respond to new and changing needs for innovation. Who is the customer when it comes to society? It is ourselves and our future generations of citizens.

My sense is that we need to revitalize and re-energize the innovation climate in our country. Just one symptom of this need may be the increasingly short-term perspective of the financial markets. Complex innovation is a long-haul investment. In my industry, we place multi-billion dollar bets over the 10- to 15-year cycles required to transform a molecule into a medicine. It becomes very hard to keep placing those bets when many in the investment community seem to be focused more on quarterly numbers than on long-term high performance.

Another symptom of this need to revitalize our innovation climate is the failure of Americans to save. Individually and as a society, we are spending more than we earn. As of September 2005, the U.S. government owed China \$252.2 billion! And the Chinese buy about \$4 billion more in Treasury bills every month!

Another symptom of the need for innovation is the declining numbers of science students. Time magazine just ran a cover article asking if that decline doesn't represent another Sputnik. Shouldn't we be alarmed?

Today, most Americans have a remarkably high level of financial literacy. This has been the result of many converging factors, including the increasing responsibility more and more people feel for their own long-term financial decisions.

The time may be ripe for working on the challenge of a new frontier: achieving much greater "innovation literacy" throughout our society. This innovation literacy would include such dimensions as a fuller understanding of what innovation is; what innovation does for society; and how innovation can be sustained.

For example, on the subject of health care, we must find and apply major new health care innovations in this country in order to have health security for the future. This will be an innovation challenge that is as big as any that we have seen in recent decades!

Overall, I am certain that if we can revitalize the understanding that our fellow citizens have about innovation and what sustains innovation, we would see a renewed and strengthened excitement about FOSTERING innovation. New thinking. New capabilities. New urgency.

The passion to innovate for customers keeps business enterprises alive, energized and growing. We must rekindle this same passion in our society – so that this country continues to be an innovation light for the rest of the world. Alive. Energized. Growing.

We all have a stake in this, because as citizens, we ARE the customers!

Thank you.