DEPARTMENT OF COMMERCE

Forum on Innovation

Kauffman Foundation
March 17, 2008

Carl Schramm ~ *President and CEO, Kauffman Foundation*

I'm Carl Schramm, president of the Kauffman Foundation. Today, we have a very special guest, the Secretary of Commerce, who will be with us in just a minute. But first, I want to welcome all of you to the house that Ewing Kauffman built for us. As you know, in the long sweep of American philanthropists, Mr. Kauffman stands alone as the entrepreneur who understood entrepreneurship as critical to his transit from poverty to wealth. He saw that his life was, in fact, a narrative of doing well for others by exercising the freedom to create a company, to become an entrepreneur. And Mr. Kauffman, who always described himself as a common man who had done uncommon things, conceived of the promise of America as a place where all people, common people, could do uncommon things and, in fact, operate as entrepreneurs and increase human welfare for all through the growth of our economy.

In that context, I'm particularly delighted to host the first of the post-report meetings that the Secretary's asked us to do. He will be doing several of these meetings around the country – we're the first as I mentioned – for this report on measuring innovation in the twenty-first century. The idea of examining this question was the Secretary's and all through last year a group of citizens worked – I was happy and lucky to be among them – to develop this report to the Secretary on how we measure the progress of our economy in terms of innovation. So today, we're going to have a panel after the luncheon and take up this question.

A little later, we'll talk about our distinguished panelists, who include several folks from Kansas City, but before we start, I wanted to point out that we have one extra-special thing that goes on here at the Kauffman Foundation at this time of year. The United Kingdom and Denmark have sent twelve of their very brightest people to us. We call them our Global Scholars. They work here at Kauffman, then we share them with Harvard and Stanford for a few days, and then they get to go to work in American entrepreneurial firms. I'd like the Global Scholars we have working in five Kansas City companies to please stand up. *[Applause]* We're very, very happy to have them here. In many ways, this is a little contribution of America and the Kauffman Foundation to the world. These young men and women will change the economy and future of the United Kingdom and the vision that Gordon Brown, the Prime Minister, has. We were fortunate to be chosen as the only place in America these folks would come and work. We're particularly delighted and proud to have a hand in sharing the insights of the American

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economy with our friends across the sea. So enjoy your luncheon and I'll be back shortly.

Good afternoon. We're going to get our program underway.

It's my pleasure to introduce the Secretary of Commerce to discuss the question of innovation in the twenty-first century and its role in America's future. Carlos Gutierrez is the 35th Secretary in the history of the Department of Commerce, one of our older executive departments. It is responsible for almost everything that you don't know happens in another executive department. They guard the lighthouses, they watch over the weather, and you can blame the Secretary for this morning's flood warnings. But he braved it through and got here.

The Secretary comes to this job totally fluent with all the issues—technology and the economy, manufacturing, every aspect of the American economy and the commerce of our government, which is so critical to the success of this country. Prior to coming to the post, he was the chief executive and chairman of the Kellogg Corporation and, as a result, he understands and has a feel for American commerce that few people who serve in government truly do. A reflection of that was his ability to see into the future and understand the weakness of our ability to get our hands around the question of just how fast we are growing innovation in the economy. Last year, the Secretary asked a number of people to come together and advise him on how the American economy can better grasp the importance of innovation, and to measure whether or not we're doing better or worse than in historic times, and, on a comparative basis, whether or not the United States is, in fact, leading or following the rest of the world economy.

Through the course of the last year, it was my pleasure to work with the Secretary as he guided us. I've come to know the Secretary as a man of particular sensitivity to issues of concern to economists. Many people who come from the world of business couldn't care less about economic questions, the questions about measurement, the questions about statistics. These are central to understanding what goes on in our lives. This Foundation has had a long record of supporting the federal government and urging the federal government to improve statistics. So when the Secretary asked me to join this panel, I was delighted that someone at his level in the government really appreciates the importance of these questions of measurement. A long time ago, William Butler Yates said, "Measurement began our might." That's a measure of civilization and an appreciation for how, as we strive forward to become more empirically inclined, it's important that empirics are the foundation for how we think about policy. If we've done our job right, the government statistics in the future will be an important lever for business people as they plan through their own strategies for growth, development, and innovation.

So, without further ado, I want to introduce my friend, Secretary Gutierrez, and welcome him to Kansas City and to the Kauffman Foundation. *[Applause]*

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Carlos Gutierrez ~ *Secretary of Commerce*

Thank you and good afternoon. Carl, thank you for your kind introduction. I really appreciate Carl's leadership on the Advisory Committee. We couldn't have asked for a better person to help us think through how to measure innovation and how to think about innovation. Carl has done a lot of work throughout his career on the subject of innovation. I appreciate that. And, as you well know, the Kauffman Foundation does cutting-edge research on entrepreneurship, on innovation, on how innovation takes place and on how we think about it. Today, we're kicking off the first of four Innovation Forums and I can't think of a better place to do it than here. Carl, thank you for leading this effort and for hosting us.

I think today is probably a great time to be doing this Forum. Carl was talking about how some people don't think about economics. I think that today we all woke up being economists. We're in a country of 300 million economists. We're dealing with some tough issues and we're going through challenging times. We're dealing with excesses in the marketplace. We're dealing with imbalances that have to be corrected. But, it's always a good time to think about the fundamentals because ultimately,, over time, it will be the fundamentals that enable us to continue to grow and continue to have the largest, most vibrant economy in the world.

We believe we have the fundamentals and we believe that we are going to get through this current short-term challenge. Ultimately, it's going to be things like, how do we as a nation, as businesses, continue to lead the world in innovation. How can we ensure that we are the innovation leaders way down the road as far as the eye can see? That is what has made this the greatest economy in the world and we believe that is what is going to continue making this the greatest economy in the world.

We continue to believe that having predictability on taxes, is important for innovation and for things like investments. This is probably a good time to put in a plug for the President's tax cuts. Businesses should know what the tax scenario will look like three or five years down the road. There is nothing like giving businesses a view toward the future, a certain amount of predictability, and a view into the government's tax plans. We shouldn't be playing a game of second guessing. Are they going to increase taxes? Are they not going to increase taxes? We should just once and for all let people know, we're going to let you keep the money. You invest it instead of the federal government investing it.

We also believe it's a time to solve the right problem. As you know in business sometimes, where you have to do something quickly, very often people tend to solve the wrong problem. There's been a lot of talk these days about the role of globalization in our economy and the role of free trade. The housing market is not correcting because of globalization and we're not having imbalances in the financial market because of free trade. Isolationism is not going to solve the problem. We believe it's important to be as aggressive as ever in being engaged in the world market. ,We also believe it's important

to put up a big welcoming sign for foreign investment. We shouldn't be having debates like, should we stay in NAFTA or should we not? Should we welcome sovereign wealth funds or should we not? We should be putting out the message that this is still the most open economy in the world and we plan to keep it that way. So this is a great environment and a great time to be talking about the future and to be focused on the future when perhaps everyone's inclination is to be focused on today.

Thank you for coming. Thank you for being here. As Carl mentioned, we've asked, experts from business and academia to help us measure innovation, to help us measure how innovation impacts GDP, and how we can somehow get at a measurement that enables us to gauge whether, as a nation, we are investing and pushing forward and leading in the area of innovation into the future. Because we know if there's one thing that's going to make a difference, it is our ability to create and our ability to generate ideas. It is our ability to innovate.

I'm pleased that Cynthia Glassman, Under Secretary for Economic Affairs, is here. Cynthia has worked very closely with Carl and the Committee and we're going to continue to work on how we can actually get these measures into the GDP statement. We've got this idea of the future where, when we're announcing GDP,, in addition to talking about residential construction and business investment, we'll also be talking about some sort of innovation metrics. We believe that is in the foreseeable future.

Today, what we'd like to talk about is not so much measurement, but what drives innovation. What are the policies that enable us to create an environment where businesses can innovate and where businesses can create? The focus of today's forum is the workplace and how to foster an environment where people are creating. It's not an easy thing to do. We went through a lot of starts and stops in my old company until finally finding the right balance of how to create an environment where people actually do create—not just take risks, but take risks that actually pay off and generate revenue and cash and make an impact on the business.

We're looking forward to this discussion. We've got a great panel. Emily DeRocco is President of the National Center for the American Workforce and Senior Vice President for the National Association of Manufacturers. Prior to joining NAM, Emily served for six-and-a-half years as an Assistant Secretary of Labor in charge of workforce development issues. I suspect that the next two panelists are well known here in Kansas City. Len Rodman is Chairman, President, and CEO of Black & Veatch, a leading employee-owned global engineering consulting and construction company. The firm has over 100 offices and has completed projects in more than 100 countries. Bill Zollars is Chairman, President, and CEO of YRC Worldwide, a *Fortune* 500 company and one of the largest transportation service providers in the world. YRC employs, about 66,000 people worldwide. That's huge.

I'm looking forward to hearing the panelists' opening statements and looking forward to an active discussion. I understand that the audience will also participate with questions. No questions about JP Morgan and Bear Stearns. We're not allowed to answer those.

Thank you. Thank you very much for your interest and thank you for being here. I'll turn over the microphone now to Emily.

Ms Emily DeRocco ~ *President, The Manufacturing Institute*

I'm delighted to be here and to join this panel. I want to thank Secretary Gutierrez, from my past position in the Administration and now on behalf of manufacturers, for your commitment to promoting innovation and being a leader in America's competitiveness. Carl, allow me to acknowledge as well your thinking that has enlightened us all about innovation and its relationship to entrepreneurialism. The Kauffman Foundation is leading this country in investigating, understanding, and supporting entrepreneurialism and its connection to innovation.

I just recently moved my professional home from the U.S. Department of Labor to the National Association of Manufacturers. And, while this is a shift from the public to the private sector and a change of offices, it actually just allows me to continue the work I was doing at the Department of Labor, focusing on a "worker preparation renaissance," because an educated and prepared workforce is perhaps the most important innovation driver and the lack thereof is the greatest impediment. I continue to believe that, for too long now, our world of education has spun in a different orbit than our world of work and it's time to put the two together.

Therefore, with Governor John Engler at NAM, we are establishing the National Center for the American Workforce. While manufacturing will be our centerpiece, the workforce problems that manufacturers face today mirror the workforce problems faced by virtually every sector.

The public's perception of manufacturing is either poor or nonexistent. These perceptions are very definitely a fallout of job loss over the last few years and a constant negative portrayal in the media. But let's remind ourselves of the importance and the value of manufacturing to the U.S. economy. It's the bedrock of American business and upon its shoulders we became the world's leading economic power. Today, we remain the world's number one manufacturer, accounting for about a quarter of total manufacturing output. Within our borders, manufacturing still anchors 20 million jobs, and those jobs are family-supporting jobs with the highest average salary among all business sectors.

While these facts about manufacturing belie the negativism we hear so often, we know that manufacturing and other business sectors do face daunting challenges. Taxes, regulation, healthcare costs, sometimes unfair global competition, and the costs of

infusing technology continue to be among those challenges. If those issues aren't tough enough, we have to deal with the most dramatic workforce crisis of our history.

The loss of the boomer workers is costing us the experience and knowledge that resulted in manufacturing being the most innovative and productive sector in the U.S. and in the world over the last 30 years. And sadly, there is no youthful line waiting to step into this breach. Today, more than 80 percent of our manufacturers report shortages of qualified workers; 70 percent of midsize companies simply cannot find engineers or scientists. Is it not ironic that at the very moment that we can't find these skilled workers, employers finally understand that having a high-performance workforce will be the key to their business success? They know that it is the high-performance workforce that drives product innovation and the ability to produce high quality products at low costs. I am told by our manufacturers that they estimate that, in a two- to three-year cycle, over one-third of their revenue is generated from innovation through new products. So just when we need to rely on the innovative thinking of manufacturing leaders—scientists and engineers—we find ourselves desperately short of them. Only 11 percent of all U.S. bachelor's degrees were in natural science or engineering last year, far below the world's average of 23 percent. It is clear that countries whose students perform well in science, technology, engineering, and math, those STEM skills, see the fruits of that success in stronger economic growth. And without this foundation, our students cannot advance into the very fields that define our innovation economy and our ability to compete.

So in summary, here's what concerns me for today's discussion about drivers and impediments to innovation. First, as the boomers are lining up at the exit doors at our manufacturing plants, we find almost no young talent available or interested in replacing them. Second, the new jobs being created in our economy require more education and higher levels of skills. They especially require the STEM skills and the U.S. is dismally low in science and math as compared to the rest of the world. Third, our capacity to teach and train the new workforce is inadequate, misaligned with the jobs of the future, and largely fractured. By fractured, I mean: first, we lack clear education pathways for students and transition workers; second, we lack a system to verify and credential learned skills; and third, our primary education and training institutions and agencies are not related, integrated, or coordinated. These challenges, it seems to me, will prohibit the natural growth and development of innovation. I hope our discussions today not only signal our discontent with this situation, but also help to build some solutions. Thank you, Mr. Secretary. *[Applause]*

Len Rodman ~ *Chairman, Black & Veatch*

Mr. Secretary. Emily, thank you for those words. I probably could share many of those, not necessarily from a manufacturing perspective, but from my company's perspective as an engineering and construction company. Black & Veatch has had record performance over the last several years. We'll be announcing today a 50 percent increase year-over-year in revenues for our organization, and that, indeed, is based on

our ability to innovate through a global workforce. We have driven innovation into our organization for many, many years. Indeed, much of that innovation has been at the project level. So when we do a project for Water District No. 1 of Johnson County, Kansas City, Missouri, Westar or Singapore PUB, our clients look to us to bring innovative, global expertise to a local, very real problem that they have. And through many investments in our organization, what we've tried to do is develop an information network between our hundred offices, if you will, and 10,000 people around the world. We very much believe that innovation is the lifeblood of our organization from a project standpoint, but it's also very, very critical to us from a business model standpoint. We're active in the energy business and in the water business, and I would trust that most of you now have some frame of reference about climate change as you think about your businesses, your occupation and, indeed, your personal life.

There are solutions to those issues about the world, but it takes a facility, it takes a vehicle to bring that best information, that best knowledge, and apply it very locally. What we have seen is that in the 1990s and early in this decade, we've made significant investments in what we believe to be an integrated global workforce. While we have 10,000 professionals, nearly half of them reside outside of the U.S. and it's not so much that we do projects in places like Singapore or China or India or the UK or the U.S., but it's indeed our ability to bring those diverse cultures, those very intelligent professionals that reside in those marketplaces or in those geographical areas, and provide a cultural link so that they can participate on a problem, on a project, in a third location, if you will.

Last year, we completed a major water reuse project in Australia. It was quoted by the government as a world-leading project to convert waste water into reuse and into the potable water supply because there is a tremendous need for new water in that culture and in that area. And because we were able to bring professionals to bear on that issue from the UK, India, Singapore, China, and the U.S., we were able to be highly successful, make a very satisfied client, and get some positive input for a U.S. company in that global marketplace.

So what was successful about that? It was the ability to collaborate and we have a common network that we use to interface all those. But bringing diverse people together, having a free and open exchange of ideas regardless of where people come from or what their technical expertise is, has been a very meaningful thing for Black & Veatch.

On a project basis such as the project in Australia, we set up some criteria or expectations for that project and then allow the professionals that work on it to contribute their portion. But the reason it's successful is that our business is based on a mission of building a world of difference, helping the world do a better thing. So, when we have a project like Australia or wherever it might be in the world, our professionals see this greater good and that helps them get by some of the inherent barriers that exist through time and technology and cultural differences. That's very important to us.

As I thought about your question of what works well and maybe some things that our government in the U.S. could help us with, there are three items I'd like to share. First of all, Emily's comment about the worker and the technology and engineers. We have thousands of engineers and this is a secret. We really don't have trouble in the U.S. getting good engineers. Our brand and our mission help us do that. Yes, we could get more and that would be helpful, but because there is an overall limitation, we're driven to go outside the U.S. to support that. Indeed, there are some economic benefits to look to Black & Veatch professionals in other parts of the world because they're equally well trained. But what I'm fearful of here is the trend of reducing the number of engineers and scientists in the U.S..

I know the Kauffman Foundation has participated in improving science and technology and supporting Project Lead the Way. This is an example of something that's gone very well, and we try to support that through the Foundation, as well. But getting better degreed engineers and scientists in the marketplace would help all business in the U.S. and certainly we would benefit from it. I think there's movement there. The government sponsored a program, a research study, about two years ago, highlighted by the acronym of RAGS, and it talks about the problems in K-to-12 education, as well as other issues. I think the fundamentals in that study are appropriate for this issue. I'm anxious about the amount of government involvement in that solution. I think there is a private solution that will move us forward, but the study indeed quantified the problem. So that's number one. Yes, I agree with Emily. Let's have more engineers here. Let's have more scientists and let's give them a mission that's important.

Secondly, as we look at resources, and the U.S. has always been seen, or at least through the last few centuries, as the melting pot where people from various cultures can come to have a fair career and a fair chance at life. The visa issues we have in the U.S. today are a limitation. We truly benefit when we can bring Black & Veatch professionals from other parts of the world here to our Kansas City and Overland Park offices to interface with other experts from around the world. That's a very strong play for us. Professionals truly value that and then become part of a global team. With the visa situation that we have today, we feel very constrained in our ability to do that. And our only solution, or the best solution, then, is to move that training to another one of the work centers we have, be it London, be it Singapore or wherever. And we're fully qualified and competent to do that, but is that the solution for the U.S. government and the industry as a whole?

The last item that I would like to share with you has to do with our ability to interface professionals from around the world from our various offices. The U.S. in the past has passed some legislation that limits the ability to have this common network of information. I believe that the legislation was driven indeed by concern of terror and dual use of certain kinds of equipment. It's a bit ironic in today's environment that those dual devices are a concern today, and the intellectual property associated with them is really available anyplace in the global framework, the global marketplace. And if customers or clients of Black & Veatch don't buy them from the United States, they'll buy them from

China or some other place. But that's not particularly my issue. My issue is this subsequent interpretation or possibly lack of clarity of the legislation about the intellectual property. If you think of a network like the Internet, only it's private in Black & Veatch's case, we have these professionals from around the world working on a project, but, because of that legislation, we can't allow all professionals from around the world access to that technology. They can't go on our system. They can't go into any system, if you will, and play off of this common base. That starts to set up a feel that we don't want to collaborate, that everyone is not equal in the game that we're playing and the competition of building a world of difference. And so, to the extent that professionals come in and want to be innovative, they all want equal access to information and technology. And if they have to pay too high a price or don't feel that they have access to that common information, then they take their career someplace else. And I think that's a weakness that we have today.

I truly think the U.S. is a leader in innovation. I truly think we have a very viable, robust product to deliver. And the more open that we can be with education, bringing talent into the network, engineers and scientists, have an open forum for dialogue and innovation, and be able to collaborate under a common mission, we can continue to be successful and other industries can too. Thank you very much.

William Zollars ~ *Chairman, YRC Worldwide*

It's great to be here today. I'd like to thank the Secretary and Carl for the invitation. It's also an honor to be on the same panel with Emily and with my good friend, Len. I thought I would put this in kind of a personal context and talk a little bit about innovation at our company. Our company is interesting in that it's been around for almost 100 years now. It's gone through a lot of innovation. In fact, the term "innovate or die" comes to mind when you talk about our particular company. It's gone through a bunch of name changes. Some of you here may remember Yellow Transit although this crowd isn't really old enough to probably remember that name. But then it was Yellow Freight, it was Yellow Corp, it was Yellow Roadway, and now, of course, it's YRC Worldwide. And, as we went through our own innovative process, the rest of our marketplace also went through a fairly serious focus on innovation.

If you look back at our industry before deregulation, there were 100 people or so, 100 different companies in our space. Today, there are five left. So the innovate-or-die approach really became a real-life kind of challenge for the people that went through that process. And it really isn't that different than other industries like the airlines, or utilities, or banking, which is particularly appropriate today. Any industry that goes through a deregulated period of time and becomes more competitive goes through these kinds of wrenching changes of innovation. The other thing that's a little bit unique about our business is that it is a service business. So all we can do is create a good service environment and a good service experience for our customer. If we do, they

probably will come back. If we don't, they certainly won't. We don't have a product we can really put on the table and talk about in that sense. So, innovation is really kind of the lifeblood of what we do and has been responsible, I think, for us surviving when a lot of other companies did not, and moving, really, from a company that was a little bit under $2 billion in revenue when I first showed up in Kansas City to one that's now about $10 billion in revenue.

So, innovation is a big deal for us, probably not as well appreciated as maybe innovation in a technology company, although we have plenty of technology in our company. And I think what I'd like to do is give you a couple of examples of how we've encouraged innovation in our company. Many of you in this room have probably heard the old adage that any organizational structure works with the right people. And that, unfortunately, doesn't happen to be the case. I think in many companies, there are organizational obstacles that are put in the way of innovation. It certainly was the case in our company early on.

We had a bunch of silos in our organization and that separated people from each other and really inhibited innovation. We had the people in the sales organization not talking to the people in operations. The people in operations certainly wouldn't talk to the people in finance, and nobody would talk to HR. So we had a built-in inhibitor to innovation. In fact, it was a very, very tight silo. If you were on the finance team, or on the operations team, or on the sales team, you really didn't step outside of that silo to talk to anybody else unless you were absolutely forced to do it. The other thing we had going on at the company was a very centralized command-and-control kind of environment where all of the decisions were made in Kansas City at the corporate office, which was referred to in the field as the "Palace of Miracles," because that's where all the wisdom was. *[Laughter]* So what would happen in real-life situations is a customer out in the field would want to get something done, so the salesperson would go to the operations person in that location and say, "How about this?" And the operations person would say, "Well, that sounds good, let me check with my boss." So it would go up the silo on the operations side to the "Palace of Miracles" here in Kansas City, where the operations leader would go over to the office of the sales leader and they would have a conversation, go back down through the sales silo and the sales rep would go back to the customer who by this time had left and gone somewhere else. That's the way we ran the business. It was very stifling in terms of innovation.

So the first thing we did from an organizational structure standpoint, which I think is translatable into almost any industry and in any company, is to blow up those silos and create cross-functional teams. The second thing we did was we moved the decision-making closest to the customer. And so, in the old days where 95 percent of the decisions would get made at the "Palace of Miracles" in Kansas City and maybe 5 percent would be made in the field, we flipped that on its head and forced about 95 percent of the decisions to be made in the field and only 5 percent to be made in the corporate headquarters environment. That really freed the people that are running the business to be closest to the customer and make decisions much more quickly, create a

lot more innovative thinking, and create a lot more initiative in the field as opposed to the previous approach, which was kind of command-and-control bunker mentality. “I’m going to stay in my bunker until my boss tells me what to do. Until he tells me what to do, I’m not risking anything.” So, by blowing up those silos and by pushing the decision-making closer to the customer, we began to create at least the potential for initiative and innovation.

But that really wasn’t enough. The other thing we had to do was celebrate innovation and reward it even when it didn’t work. And this is the thing that’s most painful for companies to do is to sit there and know that there’s a train wreck coming but to actually watch it happen, and not try and stop it. With our history of command-and-control, every time we did that, what we would do is put another nail in the coffin of innovation. So we not only had to tell the people in the field, “You’re responsible for all of the decisions. You decide what to do for your customers, and we’ll support you here with strategy and tools,” but we had to encourage them to do that to the point where we actually watched train wrecks occur on a fairly regular basis early on. We would have somebody try something and fail, and we would actually celebrate that. We would have a way to get people some notoriety for actually trying things that didn’t work. And the only rule I put in place when we started down this path was a rule called “Fail Fast.” Because the other thing we did in our company, and I think again translatable into most industries and at most companies, is we tried to fix stuff even if it didn’t look like it was working. People hate to give up on ideas they think are good ideas, so they will go to superhuman lengths to try and make sure that they can make this thing work even though it’s obvious that it’s not going to work. And the analogy I use, which is probably not a real good one, was that resurrection is really hard. It’s only been done once. So we know it’s really hard. Birth is a lot easier. It’s done all the time, all around the world. So quit trying to reenact resurrection and let’s just concentrate on failing quickly and then giving birth to new ideas.

The combination of that kind of philosophy, the structure we put in place, and the ability to celebrate failures, really helped us a lot in terms of our ability to create some initiative and some innovative spirit in the company. And I can remember when we first started down this road, we made all the changes and we said to the people that were running the business in the field, “You’ve got the ball; call us if you need us.” I would constantly get tested. People would call me and say, “Bill, we’re thinking about doing this.” I’d say, “Okay.” And they’d say, “Well, should we do it?” I said, “Hell if I know. You decide.” “Really?” “Yeah, really.” “Oh, okay.” And you had to do that on a regular basis and in a very consistent way over time before people really started to say, “Well, maybe it is okay if we try this,” and we had some incredible train wrecks. We had a customer that we had basically agreed to do all of the stuff they didn’t want to do in our operation, and it was pretty clear once we started doing it that there was a really good reason why they didn’t want to do it, but we did it anyway, even though I knew it was going to be a mess, because it was more important for us to say, “Look, we’re trying stuff even though we’re not sure this is going to be successful,” than it was to say, “No, that’s a stupid idea,

we're not going to do it." That went on for months and months. We had lots and lots of train wrecks. We celebrated every single one of them, but we kept going back to one fundamental, which was, at what point did you realize it wasn't going to work, and did you take action at that point to stop it and go look for another new idea? Once we got that sort of institutionalized in the organization, we really started to pick up speed and pace, and things started to take off, and our customers recognized that. They really appreciated our ability to think about doing things differently than we had in the past and they began to reinforce our people as well. So I think there's some fundamental blocking and tackling that companies can do to make it easier for their people to innovate.

I'll just give you one other example and then I'll join the panel. The other thing that was going on in our company was a tremendous focus on keeping all the legacy technology system running that we had. It was an old company, had a lot of legacy systems and. as a result, every time we looked at a technology budget, we ended up in what I called legacy life support, which basically says, "Okay, we've got $100 to spend on technology, we're spending $98 just keeping the old stuff running." So the other rule we put in place early on was 60 percent of everything we spent on technology has to be on new stuff. You can only spend 40 percent keeping the lights on and keeping everything running. We've got to take that 60 percent and we've got to put it into new stuff or we'll never get off this legacy life support. So that was a simple rule. It seemed to work pretty well, because it refocused us on innovation, trying to figure out what new stuff would move the needle, and, at the end of the day, I think moved us more quickly down the road than we would have been had we just kind of stuck to our original approach and spent everything on the old system.

So I think there's stuff we can do. There's stuff we can do to make it easier for our people to be innovative that does not require huge investment. It just requires some common sense and the ability to clarify things for the organization and make sure you support the right behavior. Thanks very much. *[Applause]*

Panel Discussion

Secretary Gutierrez: I'll go ahead and ask the first question, if I may. Emily, it's interesting to hear you say that there's a shortage of workers because of our demographics. You don't usually hear that. It's a different slant on the problem. As you think about the future, then, what is the solution if we're going to maintain our edge and our advantage in manufacturing high-value goods?

Ms DeRocco: Very, very complex issue. Clearly, the demographics of our workforce indicate that we have a quantity-of-workers problem, not just a quality issue. But, be advised, we have both. As the

boomers retire, it is clearly going to be, I think, an opportunity for us as a nation to look to a philosophy of "no worker left behind." Now, what does that mean? First of all, it means that we can't afford to continue to accept the fact that 30 percent of ninth graders today won't graduate with their high school class in four years. Remember the *Time* magazine cover, "Dropout Nation?" In some urban areas, the percentage of dropouts is significantly higher. This is what I was referencing when I said that we have to begin to find alternative pathways to graduation in the career and technical skills areas for many young people who we are going to need in the workforce and who, quite frankly, deserve a better opportunity at a job in our productive economy. So we have to have policies in education that assure that every student can make it to high school graduation. We need alternative pathways in post-secondary education. We've developed this culture in which schools are only incented to make sure every child goes to a four-year college or university, but we need to open the policy and funding perspective to assure that a community college education to begin their post-secondary education is the right thing to do for some students, and an apprenticeship program is the right thing to do for some students, and then have higher-ed policies that allow open entry and access throughout a lifetime of learning. So many changes are necessary to address the complexity of a world in which we simply don't have enough people and those we have, in large measure, have a skills gap against what's required in the workplace.

Dr. Schramm: I have an interesting take on this in the sense that we at the Kauffman Foundation pay a lot of attention to STEM issues. At one level, when I visit campuses, I come away thinking the world's future is through the United States. When we retreat back to the building and come upon these dismal statistics, and you shared one, Emily, today in terms of how few engineers and scientists we produce, the statistics are dismal. And one of my favorite observations is, one of the reasons we don't produce engineers is we're very, very busy graduating tens of thousands of people ready for careers in leisure time management. By the way, I think China and India graduate zero people in leisure time management. So, in a sense, it's sort of an infrastructure question. I hear the stories of Len and Bill, and a different drama takes place. The folks who are on our panel, the leaders of many other businesses – IBM, and UPS, and so forth –are all chock full of stories about astounding innovation. But there seems to be a huge disconnect between how we prepare people, and I keep

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wondering if maybe, in fact, we're having wonderful product happen almost despite the infrastructure of our schooling system and our universities. I'd end by saying if we had a panel of university presidents here, this audience would be shocked if we asked them about innovation because it would all come off in, "Oh, we're working on a new curriculum and we have new accreditation standards for our business school," and none of this would appeal to anyone in this audience, or to you, or certainly to business leaders, or certainly to the Secretary, as anything that looked genuinely innovative at all.

Mr. Zollars: I think there's a fundamental in here that I run into all the time, and I knew this was a really smart group when I realized there was a member of the University of Minnesota faculty here because that's my alma mater. I happen to be on the Carlson Business School Board at Minnesota, and one of the things I continue to focus on with them is that the faculty at the business school does not spend enough time teaching people how to work in teams. Business is basically a team sport, and there isn't a business out there that doesn't have a team approach to problem-solving, and we don't spend any time in most of the business schools focused on how to effectively lead teams or work in teams. And I think that's a back-to-the-infrastructure question in terms of how we prepare people for the real world. That's an area where I think we've got a lot of work to do, even apart from the technical stuff.

Secretary Gutierrez: Yes, but I also think we have to be careful with the pendulum. We've all seen great technologies in search of a buyer and what I sense is that when you have great innovation that works, you have great technologists, but you also have very creative people who understand consumers who may not be great engineers, but they have a feel for customers and consumers, and I think it's important to express that innovation is that balance. It's not about a country of engineers, it's about engineers and people who can really see insights that others can't, about customers, about consumers, and when you get those two things together, it's just unstoppable.

Ms DeRocco: Mr. Secretary, I couldn't agree with you more, and that's why I don't think all of our innovators or inventors have been or will be engineers and scientists. I just came from San Diego visiting Bill Taylor who is the President and CEO of Taylor Guitars, probably the best-known brand in the U.S. and perhaps globally. Bill made his first two guitars in "shop class," as he called it, and it was that that wrenched my heart, because if you've been to high school

recently, shop class in large measure isn't there anymore. We decided as a nation at the turn of the millennium that we were going to put vocational education to rest because it was a product of the twentieth century and we replaced it with absolutely nothing. And we have young people who have different cognitive learning approaches who will create regardless of the degree they have from their higher-ed institution, and we need to recognize them and provide an infrastructure for them, as well.

Mr. Rodman: I would support that, as well. One of the things we deal with is sustainability, climate change, and there may be a technical answer or answers for that, but there's a grander issue about behavioral change for people and how you deal with those issues, and what's happening in the world, and how people will deal with those technologies or the change in lifestyle that they might need to make. We could put up a perfect technology, but if people reject it because the behavior they would have to exhibit is not something they're willing to do, then it's a bad solution. And so we try to bring different walks of life, different diversity to solve an issue, and then we get good challenge, good tug-and-pull for the ultimate solutions that we move forward with.

Secretary Gutierrez: You're talking about export controls and dual use which is something that's near and dear to the Commerce Department. When we get pushed and challenged, we usually come back with a number, like, well, only a certain percentage, I think it's less than 0.25%, actually, have to go through a license. Of those, a very small amount are actually rejected. But you see obviously a bigger impact.

Mr. Rodman: The rule for application for us, if you think about this Black & Veatch intranet, if you will, that we interact with, it is our interpretation of the Department of Justice that if you're not a U.S. citizen or in the particular classification of professional, then you can't have access to this intranet. That's where the challenge is, because people today around the world think information is free. It's simply from the broadband system, the Internet, and they can go get information anyplace, anywhere, and it's delivered very locally to them. So when we have to think about how we would execute with our intranet and say, "Oh, by the way, you can't work on this project because there's potentially something there that you couldn't see or shouldn't see," that sends a very negative message. And indeed, to get the level of sophistication and technology our clients demand, the highest level of technology needs to go into water treatment, or reclamation, or energy

generation, you simply have to have the best and brightest technologies, as well as people to deliver it. But if we start putting blinders on people, then it's a limitation and it really hurts our impression, our brand as a U.S. company and as the U.S. in the global marketplace. People will go other places than here.

Dr. Schramm: Bill, you spoke about teamwork, and I think that's a very good observation. I'm interested, Len and Bill in particular, as you watch innovation happen in your companies, do you see patterns? Is it a team? Are there teams that are consistently more innovative? Is it one or two people who yeast the innovation? And what do you do to yeast more innovation coming up out of the organization?

Mr. Zollars: You have what I call innovation carriers, and it isn't everybody, but you've got a group of people that no matter where you put them, they will innovate. And it has a lot to do with what the Secretary said. You know, they may not be technologically that sophisticated, but they understand customers, they understand the capabilities we have, and they can look at problems from different perspectives. What we try and do is we try and move those people around because it's contagious. So you may have a group of people that haven't shown any innovative inclination at all, someone like this comes into the team, and all of a sudden everybody is an innovator because they're now being taught by example how to examine a problem from the proper perspective. And so we try and keep those people moving. They also tend to be our highest-potential people, by the way. In our case, we lay out a plan to make sure we move those people throughout the company so they can touch a lot of others and create more learning.

Mr. Rodman: I think that's good in our organization, as well. I tend to think about it maybe in a little different direction, where I think we get innovation at all levels and in all locales in the organization. What we find is that if we can motivate people to think differently about the problem they're seeing and/or, as you indicated, empower them to say, "You've got the problem, you see the problem, you're very close to it, go solve that problem," then we get some very good results. There are groups of people that I think are individuals that will say, "I'm just going to do what I want to do and work in this box." What we're trying to do with the help of one of the ladies that's in the audience today is set out a program and a process to release some of those constraints and say, "Here's generally the target we're looking at. Here's the issue. Work on that particular thing, but make sure you stretch yourself, think

more broadly about it than you've ever done in the past, and work on a diverse team, get different thoughts on it." We get some very, very good answers. But importantly then, we get buy-in to the solution. Those people are committed to the answer and they'll make it enable in the organization and that works very, very well for us.

Secretary Gutierrez: I thought what was really interesting about what you're saying, Bill, is that you went from a company where the only rule was, "Don't decide, kick it upstairs", and in order to become more innovative, you actually had to put more rules in place, which I find to be very true. It's not as easy as saying, you know, "Go innovate, no rules, and see how creative you can be." It seems like the companies that are the most innovative are the ones that have some really clear and firm rules and people innovate within those guidelines. Can you talk a little bit about that and what kind of leadership you need in that new kind of organization?

Mr. Zollars: Sure. In our particular case, you can kind of go back to some of the things that have been written, like Jim Collins' book, *Good to Great*, and making sure you get the right people on the bus at the top because the command-and-control environment did not just happen. It was generated by the leadership of the company, so people were very clear about what they could do and what they couldn't do, and the best way to be penalized from a career standpoint was to do something your boss told you not to do, or even do something that was kind of left open-ended. So I think what we tried to do is set up some fairly clear parameters for people and try and lead by example in the sense that we're not going to make these decisions, because if we have to make them, we're going to make the wrong decision and it's going to take us too long to do it. So the rules are very clear. "You own this," as Len was saying. "It's up to you to solve this and, by the way, if you happen to try something that doesn't work, not only are we not going to penalize you for that, we're going to celebrate that and figure out what we learned from that so we don't make the same mistake again." So to me, it was a matter of getting the right people on the bus, getting them in the right seats, make sure they were modeling the right behavior, and then the first thing we did was we went on what I called the Bataan death march, which was an 18-month visit to each one of our operating locations where we talked about exactly this. That we were changing the structure of the company, we were changing the decision-making, changing the responsibilities of the people in the field, and that we were

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going to hold people accountable for these new rules. And then we'd come back every six months or so. We did about 100 locations in the first year to see if we were making progress. We inevitably ran into places where they were still operating under the command-and-control kind of rules, so we had to make some changes in those locations to get the right leadership in there. Changing a culture, I've always said, is like changing a company's DNA. A lot of what we were trying to do was a multi-year process that really revolved around changing the whole culture of the company from this kind of military organization into one that was a lot more responsive to customers. But when you're in a regulated environment, you don't have to be very good, you don't have to be very competitive, you don't have to be very innovative. So for us, it was taking this freedom we got from deregulation and creating a different kind of culture and a different kind of company.

Dr. Schramm: In a sense, it almost sounds like you created anti-rules. Or no rules. You know, we have a saying around here that, "Bureaucracy eats strategy for lunch." The command-and-control system is so anti-innovation that it creates a whole new tension for managers in the sense of, you know, large organizations have to have the appearance of rules, otherwise people cheat on their expense reports. Right? But where do those types of functional rules and the freedom to operate inside the new rules get you? Your first new rule was, "We don't make decisions here." Your rule is, you make decisions close to the customer and, in a sense, this has to be teased apart, this question of the tension between rules and innovative freedom.

Mr. Rodman: Carl, I think about it a little bit differently. Every company entity has a culture, whatever it is. In our case, that was a culture of living within a rule-based structure. What the rule was, was somewhat immaterial, but there was a rule to follow. And so to move people to a more innovative path, we put some rules in to say, "When you're working on this kind of thing, here are the kinds of things you need to do. Failure is okay. Go ahead and do that." And what we found is that once we put in some rules on how to do those things, or some guidelines or suggestions, then people felt more comfortable with changing from where they were. Then, once you get the mass moving in a direction, it's a little bit easier to expand or be less onerous, if onerous is the right word, with the rules going forward. You're getting better results in the long run on that.

Mr. Zollars: Yes, we really only had two questions. We said, “Everybody needs to answer these two and then you need to move forward. One is, are we creating value for the customer? Yes or no? If you aren’t, stop right there. The second one is, are you creating value for the company? And if you think you’ve got two yeses, then you don’t need to talk to anybody.” And that seemed to be enough to get people moving with constant reinforcement that we weren’t going to shoot them if they screwed something up because, in the old environment, that’s exactly what would have happened. And it took awhile to get over that.

Secretary Gutierrez: That makes a lot of sense. What I found is that the companies that are overly centralized, where all of the decisions flowed to the top, they have a lot of tactical rules that leave people confused. Because with tactical rules, you can change your mind whenever you want and you can decide whatever you want. The challenge is that you have to have rules, but they have to be conceptual, big rules. Then let people go do their jobs, but they have to work within the rules. And I think the role of senior management is to come up with the rules, but come up with the big rules and let me worry about the little stuff. Too often, I think we get those confused.

Ms DeRocco: I was listening to Bill’s retention rates earlier at lunch, which are just phenomenal. But, as this new millennial generation comes into the workforce, they’re going to be, I believe, demanding of the kind of open, corporate culture you have described and the ability to move within less constraints than any of us were used to. And the corporate cultures that have adapted early to an innovation culture are going to adapt well to the millennial workforce, I believe. If you have studied them at all, they’re going to be a phenomenal change in America’s workforce culture.

Secretary Gutierrez: I agree with that.

Dr. Schramm: Good point, Emily. I think one of my takeaways is Len’s phrase, “They will take their career and go elsewhere.”

Ms DeRocco: Absolutely, I hear that all the time. Seven to ten jobs used to be our numbers. Theirs is seven to ten careers. They make a strong differential between job and career.

Dr. Schramm: Mr. Secretary, we are running out of time. We appreciate your being here and you have the last word.

Secretary Gutierrez: I think what we've all been saying is that, if you want to be innovative, empower those who are close to the customer, push decision-making down, provide people with a vision, but let them be the ones to paint in the colors. Let people make decisions if they're close to the customer. And I often step back and say, well, why is that different from government? And why is it that there is still a sense that in government there's a model of bringing decisions to the center as opposed to somehow rethinking the strategy for government and pushing decisions down—whether it be to the states, or to the communities, or to the cities—as opposed to bringing decisions to Washington, D.C.? I often come to the conclusion that there really is no difference, that if that works for a micro-organization, it should work for a country. I think we should be constantly on the lookout for when we're creating that same negative environment that you talked about, Bill, of pushing decisions up at a macro level and really not creating an environment in which people can make decisions on the ground. And, from my experience in the business world, there's a lot that you can learn from the business world to transfer to the world of government. So we need to continue to listen to people like you and hopefully take the advice to heart. Thank you. *[Applause]*

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