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FOSTERING GROWTH THROUGH INNOVATION

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Welcome and Introduction:

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GLENN HUTCHINS
Co-Founder and Co-Chief Executive, Silver Lake
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ECONOMIC GROWTH AND JOB CREATION:

Moderator:

ALICE RIVLIN
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Panelists:

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KLAUS KLEINFELD
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ANDREW LIVERIS
President, Chairman, and Chief Executive Officer
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ADVANCED INDUSTRIES AND EXPORTS:

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NEW MEDIA, INFORMATION TECHNOLOGY AND INSTITUTIONAL REFORM:

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Closing Comments:

GLENN HUTCHINS
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P R O C E E D I N G S

MR. TALBOTT: I'm Strobe Talbott, and it's my honor to work here at the Brookings Institution and to be associated with a number of terrific projects, including the one that we're going to hear a little bit about in the course of today.

This is the fourth forum of what we call our Growth Through Innovation Project or Initiative. It's the second one that we are conducting in public, and I want to give you just a little bit of background before we get started with the program itself on how growth through innovation fits into the agenda of the work that we do here at Brookings.

Brookings is a fairly big outfit with well over 100 scholars who work in a variety of different disciplines, bring to their work a number of very different professional experiences and perspectives, and we have come up with four what we call all Brookings priorities under which we cluster much of the work that we do here.

One of those priorities is growth through innovation. Those three words almost explain themselves, but my friend, colleague, and trustee Glenn Hutchins in just a moment will tell you a little bit more about what lies behind the concept and what the purpose of that particular priority is, and the project that we are carrying out under its auspices.

Just to put it into context, let me mention what the other three All Brookings Priorities are. One is energy and climate policy, another is how to improve opportunity and wellbeing for not just all Americans but all citizens of the world, and the third is managing global change. The way in which we are going to proceed here is as we have done in the three previous forums. We brought together, as is apparent from those here in the room today, Brookings experts, public officials who will be joining us during the course of the proceedings, leaders of the private sector such as Andrew Liveris of Dow, opinion leaders, and we're going to have focused discussions among those and those discussions will be in many ways based on research work done by Brookings scholars and the discussions themselves will be led and guided by Brookings scholars such as Alice Rivlin and Gary Burtless, from whom you will be hearing very shortly.

We will today also be releasing four papers, all on the broad subject of the jobs crisis in this country, and the authors of those papers will be participating in today's panels.

Let me stress that growth through innovation like the other three Brookings priorities is very consciously interdisciplinary, both in the work that's done and in the leadership here within the institution that guides those projects. We are reaching out to a number of our research programs. For example, Growth Through Innovation is led by a troika of Darrell West, the vice president and director of our Governance Studies Program, Bruce Katz, vice president and director and the founding director of our Metropolitan Policy Program, and Martin Bailey of our Economic Studies Program.

The whole project is very much a partnership between Brookings scholars and management and Brookings trustees, and we're very glad to have with us today and participating in the proceedings three of those trustees who have been so important to this project. Glenn Hutchins, who you'll be hearing from next, Klaus Kleinfeld, and Dominic Barton.

So with that, I will turn it over to Glenn.

MR. HUTCHINS: Thank you, Strobe. I was reminded as I was listening that you're just a wonderful leader for this organization. Thank you for everything that you do.

Today in the United States, our GDP has gotten about back to its peak level of third quarter 2007 and we employ slightly more than 6 million less people to do that today. By all measures, today's job crisis is deep and complex and probably much more durable than we would like it to be, and it's perhaps one of the most important problems our nation has faced, and it's to that problem that we turn our attention today.

What you're going to see today reflects a resolution by the leadership of Brookings, the executive leaders, the scholars, and the board to focus the resources of Brookings, as Bill Clinton used to say, like a laser on what we can do to help. I think Brookings is uniquely equipped to make a contribution and perhaps quite an important one to the understanding of this problem, as reflected by four elements of what we're going to do today.

First you'll see today and I stands out, I think -- always uniquely impresses and pleases me when I do something at Brookings -- is the quality of the work of our scholars. We have very important papers that are going to be released today that examine key aspects of the crisis and offer paths forward. The authors will be on our panels today, and they will be joined by others of a more distinguished scholars, and you'll see Brookings' intellectual throw-weight on parade today, and that should be fun.

Second is the broad scope of what Brookings does. You'll get a glimpse today of the range of issues, geographies, and disciplines across which Brookings scholars work. Today, we're going to explore a broad range of business sectors, from manufacturing to high-tech, and look at the issues from this perspective both from the national policy questions as well as state, and particularly metropolitan initiatives.

Third is Brookings' engagement with the real world, something we call impact. Our work today is not going to be a sterile academic exercise, but one which is deeply informed by dialogue and exchange of views with important leaders in business and government, who you'll hear from today and I want to thank them in advance for their participation, making the effort to come today.

And finally, fourth is our leadership. In addition to our institutional role as a thought leader, Brookings' leadership itself has made a profound commitment to disentangling the knotty problems we're going to discuss today.

Three of our program leaders, as Strobe mentioned earlier, have made huge contributions to today's event and the underlying initiative and I want to thank them personally. Martin Bailey, Darrell West, and Bruce Katz, gentlemen, thank you very much for what you've done. Our senior-most leadership has endorsed, supported, and worked hard at this project. Our CEO, Strobe Talbott, as well as our chairman, John Thornton. Our board has been deeply engaged. Two of them are going to be on the panel -- panels today, as Strobe mentioned. Klaus Kleinfeld and Dominic Barton. Thank you, gentlemen, very much for that work -- as well as Anne Fudge and Steve Denning, who have been real dynamos behind us.

Collectively, our leadership has resolved to put the resources of Brookings at work today on behalf of the 13 million Americans who are unemployed. And so, let's get started.

The first panel is led by one of Brookings' great luminaries who certainly needs no introduction on this stage, Alice Rivlin. Thank you, Alice, for coming here today. And, one of our other scholars, Gary Burtless, who has produced one of the papers that is being issued today, which I'd recommend that you read. Our own Klaus Kleinfeld, CEO of Alcoa, and guest of ours and a very special guest, Andrew Liveris, is CEO of Dow.

Thank you all very much for coming, and I know we're all looking forward to your panel.

MS. RIVLIN: We're going to hear a lot today about ideas for strategies for making the U.S. economy more competitive and creating more jobs. But, we have to start from where we are and where we are is a difficult spot, as all of you know.

We have to start from a realistic look at why the economy is struggling. Why do we have 8.5 percent unemployment? And a lot higher number, if you include all the people who are either looking for work and have gotten discouraged or who have a job but would like a better job or to work more hours. And, why has unemployment stayed so high for so long? What is standing in the way of a more rapid recovery? So, the job of this panel is to focus on why we are where we are and where we might be going.

One thing that you may be very glad of is, you're not going to hear any political blame game today. You will hear no references to it's all the fault of the Democrats, it's all the fault of the Republicans. You will hear no politics, but sober analysis of what the situation is and what can be done. But, that's not to say it won't be controversial. It's a very uncertain situation, and you will hear different views of what is happening and what might happen.

To start us off, we have my colleague, Gary Burtless. One of my favorite colleagues. You can always count on Gary to know what the numbers show, to have dug deeply into subjects like unemployment or unemployment compensation, or what really is happening to the distribution of income, what's happening now that we've had welfare reform for 10 years. Gary applies his very considerable skills to those kinds of topics, and he will summarize for you the main points of the background paper which he and his colleague Adam Looney, have written and which I hope you will read. It is available. And then, we will turn to the CEOs of two major global companies to see how they see the markets and U.S. competitiveness.

So, Gary. You and Adam Looney did what I thought was an excellent job of laying out the current dismal state of the labor market and how we got here. The high unemployment and the slow growth since the recession ended, that the recession precipitated by the crisis of 2008. We had stagnant wages for a long time. There isn't a lot of good news in your paper. We've had inadequate consumer demand, and all of this has been especially influenced by the plunge in household net worth as a result of the catastrophe in the housing market. And you and Adam have also explored hypotheses about why the economy hasn't come roaring back.

So, I hope you will tell us about what you found. And in a few minutes, for those who have not read the paper, summarize what you think the situation is and why it isn't better.

MR. BURTLESS: Well, this is the first session of the day, so I think it would be worthwhile to talk about what got us to the current fix and then, what are the explanations for why unemployment has remained so persistently high over the last 24 months.

Most everybody in the room recognizes that the great recession was connected to a big run-up in house prices, and then a collapse in those house prices, with fallout for the financial institutions that held all kinds of financial instruments that are backed by home loans. The spectacular decline in the value of houses, which directly hurt consumers' buying power, translated into an equally spectacular fall in the value of a lot of the financial products that are backed by home loans, and that collapse in those critical values brought the financial system of the country very near to collapse.

Fed action, Treasury action, the TARP legislation played critical roles in keeping that financial catastrophe from occurring. So, the financial system of the United States continued to function but there was a huge falloff in the value of, first of all, the financial institutions and, second, all of the non-financial institutions that are selling goods and services to the American public.

Between 2007 and the beginning of 2009, the net worth of U.S. households fell by more than a quarter. That erased $19 trillion worth of wealth in the United States, measured in today's prices. The stock and bond markets have partly recovered, so there has been a rebound in some of the asset prices, but we've still seen about a $15 trillion disappearance in the wealth that households had before the recession began. There has been essentially no rebound whatsoever in home prices. They fell sharply and they're still very low.

Now, if households spend about 3 percent of the value of the assets that they own, the drop in that household net worth would translate into consumption falling by about $400 billion a year. That means without the crash in asset prices, the flow of household consumption would be about 4 or 4-1/2 percent higher than it was in the last quarter.

Now, a lot of the lost wealth was in housing, which is a very widely-owned asset in the United States and there's a lot of evidence from the last 20 years that, in fact, households spend more than 3 percent of the improvements in wealth that they have in their homes. They may spend as much as 5 percent of it, and this suggests that household consumption might be $750 billion higher without the erasure of so much household wealth.

But whatever estimate you prefer, the house price collapse and the ensuing asset price decline removed a whole lot of consumer spending power from the economy. The drop in consumer spending can be expected to reduce business demand for workers, which has another impact on consumer buying power. When people lose their jobs, they lose the wages that those jobs give to them.

In short, the direct and the indirect effects of this financial crisis, the big, spectacular decline in home values, has created a huge shortfall in aggregate demand in the United States. The Fed's action, the TARP legislation, a variety of stimulus programs have all offset part of this loss but not all of it. Interest rates have fallen at the short run for safe assets to zero percent, so there's not much more the Federal Reserve can do through traditional monetary policy tools.

The drop in the economy directly reduced the market incomes of American households. Those fell 10 percent compared with their peak levels before the recession began. All of the federal counter-cyclical measures tended to reduce that decline, that 10 percent decline on what the market gives us as household income to just 3 percent loss. We pay less taxes than we did before the recession, we receive more direct government benefits, mostly in the form of unemployment benefits. But still, there's been a decline in disposable income in the United States, which also reduces consumption. So, there's been a huge loss in household wealth, which still depresses consumer demand for a wide range of the goods and services that are produced here in the United States.

We are emerging from the slump, slowly, and way too slowly, most people would say. The gap between what the economy does produce and what it could produce is about a trillion dollars, or roughly 6 percent of what the potential output of the United States is.

Now, there's a very straightforward explanation for why we are where we are, with 8-1/2 percent unemployment, with an unemployment ratio that has dropped 5 points -- 5 percentage points -- since the beginning of the recession, and we have a 6 percent gap between potential and actual GDP, and the explanation that fits the facts is that there's just too little aggregate demand in the United States. Using conventional monetary policy tools, there is little more that the Fed can do. It has reduced interest rates in the short run to as low as they can go. It cut short-term interest rates on safe assets to zero early in the slump, and that's where they have remained.

The usual policy remedy, when you've exhausted monetary policy tools, is to rely on fiscal policy. Some of you may be saying, well we tried that and it didn't work. There is no evidence that the fiscal policy failed, none. Six months after the onset of the biggest stimulus package that we had in the slump, the economy stopped falling like a rock and started to grow again. Within a few months, private sector employment began to grow slowly, but it began to grow and its grown ever since. About a fifth of the growth in the private sector employment since the low point has been offset by declines in the number of people on public payrolls. State and local governments face harsh fiscal realities and they are reducing their payrolls, offsetting some of the gains in the private sector.

I estimate we would need about 10 and possibly 11 million more jobs today in order to reach full employment. Last year, we added 1.6 million jobs. At last year's pace, we would need about 6-1/2 years to generate 10 million more jobs, and during that 6-1/2 years the population of working age is going to grow, so we'll need millions more jobs besides that.

What is tragic is that much of the excess unemployment is unnecessary. There are a lot of useful things that, say, 2 or 3 million more employed Americans could do if they were put on public or private payrolls to improve the country that we live in. There are millions of savers eager to offer the United States government their savings by purchasing United States government debt, and in other words to lend funds to the government at historically low interest rates so that the government can put those funds to use. If households and businesses are unwilling to spend their cash reserves on consumption or on investment, the federal government can certainly identify, it can organize, and it can complete useful projects with the money that households and businesses are willing to offer to the federal government for that purpose.

So, the first thing we can do to boost aggregate demand is to build or to improve the nation's public infrastructure. We can also offer direct incentives to businesses to add to their payrolls, this year or next year. For example, we can exempt businesses that expand the number of people on their payrolls from making payroll tax payments on those additional workers. This makes it cheaper for companies to expand their businesses this year and next, in comparison to expanding them three or four years down the road.

So, what are some of the other explanations for why we're in such a persistently terrible state as far as the labor market is concerned? Well, one is that there's a skills mismatch. Today's unemployed simply lack the skills that the expanding businesses and occupations need, and consequently this mismatch means that they're unnecessary unemployment, which could be fixed if we retooled the skills of unemployed workers, which could be fixed if we paid businesses that are expanding to train workers in those skills.

A second theory is that the social protection in the United States has become much more generous in this slump compared with all of the previous slumps since World War II. Now, it's certainly true that the United States has been more generous to its unemployed this time than it was in earlier recessions. That may have added 2/10 of a point or 3/10 of a point to the current unemployment rate. Some economists say that it's added 8/10 of a point to the current unemployment rate. Still, the fact is that the unemployment rate even if we subtract 8/10 of a percentage point from it would be very high by post-war standards, so far after the end of a recession.

Personally, I'm not sure that the upper level estimate is a very good one, but something to remember is all of the improvements in our social protections since the slump began have been explicitly temporary. Many of them have already come to an end, and I'm pretty sure that the extensions in unemployment benefits up to 99 weeks are going to be scaled back over the next year or two, and they're likely to go back to where we were before the recession began within two or three years.

My reading is that the unemployment rate is high and it has remained stubbornly high because the unwinding of the house price boom had direct and indirect consequences that has removed a lot of buying power from the nation's households, and that in turn has made businesses very unwilling to expand or to make investments that are going to increase the scope of what they produce here in the United States.

The remedy, it seems to me, is to take direct action to boost aggregate demand through the most reliable tool available to us right now. Namely, direct government purchases of investment goods and indirect subsidies to employers to expand their payrolls and businesses in the near term, rather than four or five years from today.

MS. RIVLIN: Thank you very much, Gary, for a very lucid position of your paper and its findings.

Let me turn next to Klaus Kleinfeld, who runs Alcoa, an absolutely huge industrial company -- global company -- that I think employs about 60,000 workers here and in many other places.

You've been dealing with this very difficult situation around the world with volatile markets and rapid change in lots of dimensions, and you've dealt with it for a lot of your career. You came from another big global German-based company, namely Siemens.

So, could you tell us in a few minutes how you see the current situation, both the economic situation but especially the future of the labor market in the United States? And if you comment on the skills mismatch hypothesis. Has it affected Alcoa, and how do you see it generally?

MR. KLEINFELD: Sure. Why don't I go straight into the aspect. You described the environment, and let me throw a few slides out on what opportunities do we have here to create jobs. Because I'm with you, there are a lot of opportunities here, and some of those can actually be put off on a pretty short-term basis.

I see basically three what I would call levers there. The one thing that you already talked about is the workforce of the future, and that has two aspects. I'd be happy to elaborate on that. One is the re-skilling, and the second one is immigration. I think we cannot leave that part out, right?

So, the second thing I see is innovation -- I mean, growth through innovation. The first public panel here we had a lot of good ideas around that. We should not forget about it, and again that also in my view has two big sub-aspects. One is entrepreneurship. America is the country where entrepreneurs are grown. Thousands of stories -- the American dream, I believe, is still alive, you know and will be kept alive, I believe. And the second thing is large-scale innovation where you need government. On the first one I think the best the government can do is just set the frame conditions right and that's it.

And the third big aspect is the question of countries are competing around the world for a share in the globalization market, so to say, right? There's a lot of things going on. You saw at the Detroit Auto Show this week, I mean, more politicians have been going there and why did they go over there? Because a lot of the automotive companies -- foreign automotive companies see the U.S. market growing and believe they want to have a bigger share in there. And what do they do? They invest here. So, the whole competition around foreign direct investment, you know, to get more of it over here.

And one very simple -- bringing some of the things that have been outsourced in the last years, bringing those things back. As a matter of opportunity, work environments have changed in many places, not to the better. Whether these things have been outsourced to experiences there -- I mean, mixed. And also, here the environment has changed.

And the third thing on that end is dealing again with the same underlying issue that immigration is dealing with, with the question of who do we let in? I mean, when you travel around the world you see that the middle class is growing all around the world. Once they have their refrigerator and their car, they want to travel, they want to see the world that otherwise only comes to them on TV. So, tourism is booming.

The interesting thing is, last year France saw more Chinese visitors than the U.S. did, and I think that is not a question of the preference of the Chinese but more a question of how we deal with it. I've seen estimates from experts that say through tourism alone, which is already today the fifth-largest sector here in the U.S. is tourism, alone we cold create pretty short-term 2 to 3 million jobs, right? And when you talk to people around the world, they all would like to come and visit the U.S. So, there's a lot of ideas.

So, on the re-skilling front, let me go to the re-skilling because you asked are we affected by it? Absolutely are we affected by it. And we talked a lot about -- I mean, K-12 education, let me leave that aside. We know that that's an issue, there are good solutions there. But let's talk about the occupational skills.

The way that the occupational skills are changing drastically -- I mean, the workplace today requires people are knowledgeable about handling difficult equipment. So, we see that there's a shortage here in the U.S. and almost all places. I mean, we have started -- in a lot of our sites here in the U.S. we have started programs, together with the community college so that we can do in the evening hours and on the weekends, that we can do re-skilling training. And what do we offer there? We offer industrial machinist jobs training, so to say. We offer industrial maintenance training. We offer welding -- we had a discussion about welding where Andrew also said we need welders. And it's not that difficult. I mean, you don't need that -- to be the biggest genius for all of those three jobs, but -

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MS. RIVLIN: Even girls can do it.

MR. KLEINFELD: Absolutely, and I would encourage girls to do it. We're doing that with great success. Last year, 900 people have enrolled in that program. We will continue to do that for Alcoa only, right? And it's very, very successful.

But again, I mean I don't want to leave the immigration side of things out because I believe that when you look at the statistics here, I think 25 percent of all start-up firms in the high tech space and engineering space have been founded by immigrants. And I recently mentioned that statistic to Vladimir Putin and got a very interesting response. He said, America is really great at doing these things. We don't want the President of Russia, you know, basically acknowledging and us starting to forget about this, right? I think we have to come back to the roots there, right?

So, there are my thoughts on these subjects.

MS. RIVLIN: Let me pick up on one thing you said about entrepreneurship because I think a lot of us think entrepreneurship is something that starts in somebody's garage and is inherently a small business thing.

Do you want to talk about it a little bit from the point of view of a big company?

MR. KLEINFELD: Sure, but the small company pot is important because you need to instill this mindset -- I only briefly touched it. The mindset of entrepreneurship is truly a unique feature here in the U.S., right? It's one of the things that gets adored from the rest of the world and there are some structural aspects also.

When you look at -- I think it's almost 40 percent of the venture capital money worldwide is available here in the U.S. You talk to kids that are in other places around the world that want to start a firm, they have much more difficult time to find people that invest in them. So, the equal system, the fabric that we have been able to build here, in general, is extremely favorable. The mindset, the cultural aspect that we have here, is unique and we should be mindful of that and should continue to build on that, and basic -- this structure. We have a Silicon Valley that only exists here in the U.S. We have partial Silicon Valleys that exist in Boston. Just this morning on the way over here, I saw a statistic that New York has now received more venture capital funding for the first time, you know, this year, which is great. This is really not a competition, I think this is something where things come together, right? Build an ecosystem which feeds into itself.

The other thing is this large-scale innovation. When you see some of the large-scale changes -- and I see the energy sector as the biggest one. There is so much going on in the energy sector. It's almost too big even for big companies. And because the deals were so many fragments -- if you want to put this together, it deals with so many fragments that together it could act synergistic. So, you need kind of an intelligent coordinating hand in that.

And, I'll give you a for instance on that. A good friend of mine just recently told me that he had been invited by the Chinese -- he's on one of those advisory boards. During their spare time, they drove him out -- and he comes from the energy field. In the spare time, they drove him outside of Beijing to a test field and it's about a two-hour drive from Beijing. This test field is literally -- I haven't been there, I only describe it second-hand. He says it's basically every windmill operator in China has a couple of different windmills there. So imagine this is a field that has three areas. One is a wind farm, what with different types of wind turbines. In the middle you have different types of storage devices -- energy storage devices so you can test those ones, and on the right-hand side you have solar -- different types of solar.

Now, the cool thing with that is with the combination of that you actually mimic something that creates a base load because during the day, there are many areas where the wind dies down, you're in the daytime, and when the sun comes out. So when you combine this you get rid of the classical problems that you have with these type of renewable energies that you only have at peak times. So if you combine these things, and if you put in the middle some type of very effective storage device, you can literally mimic large-scale what we otherwise only got through kind of nuclear power plant, but you get it all from renewable.

To do this right, you need a lot of companies, including the grid to handle this, with elements of the smart grid. Those are the types of things that I think we need on large-scale innovation, where companies can be brought in but you need some intelligent hand around this to say, well let's take a look at that. And in this case, I think it's handled by some universities that have come together. It's almost a let's go to the Moon projects. I think it would be worthwhile, absolutely worthwhile to do it, if we don't want to lose the boat.

I saw yesterday that we are praising now that more investment has been going into renewable here in the U.S. than in China. That actually is a pretty lame statistic because if you look at the -- it's a very lame statistic because if you look in to what's happened in this industry, this industry has been highly subsidized in the past. So to get it started, it's fine to get it started like that, right? But the reason why currently a lot of the solar and the wind power firms around the world are having trouble is because governments are withdrawing their subsidies and are telling them you have to stand on your own. I just think it's the right thing to do, but they can't stand on their own because the model doesn't get worked, right? So, that shows a dilemma here, right? So, that's my thought on that.

MS. RIVLIN: Thank you very much. (Laughter)

One of the things Brookings does is try to distinguish between lame statistics and real statistics. Thank you for that. (Laughter)

Let's get Andrew Liveris into this, because you also run Dow, which is a big chemical company involved in all sorts of different kinds of products. I was on the board of a different chemical company some years ago and the one thing I learned is it's a very cyclical business and it's very intertwined with consumer products at every level.

So, Andrew. Can you tell us a bit about how you see the current jobs picture and how you react to some of the things that Gary and Klaus have said?

MR. LIVERIS: One of the difficulties of being last in the panel is, everything's been said but not everyone's said it. So, I do want to make sure I kind of highlight some of the key points that I violently agree with that's already been said by Klaus and Gary and others.

And I think if I can start at the widest end of the funnel, we are indeed global. 160 countries, 50,000 product families, not as cyclical as you think these days because we've gone to science-based agendas, but we have a lot of touchpoints with 2/3 of the company outside the United States. And like Klaus, a huge wingspan in terms of employee base.

I tell you that the United States and the forces of globalization on capital, labor, and consumption -- I think we are not having the right debate, and I think this forum, this panel, and what Brookings is doing all day today is what I consider the beginning of a very large debate that the United States needs to have. And at the widest end of the funnel, it's really that short-term fixes in the short-term political cycles are vastly inadequate now for what's going on in this globalized world of ours.

And really what we do need is very thoughtful strategies -- if you like, 5-year and 10-year plan approaches. So it's not business as usual, it shouldn't be government as usual. How do we integrate great thinking that occurs in think tanks like this one with what global enterprises like Klaus' and mine are now experiencing and seeing, and how we make decisions. And the myths -- you know, the myths that we're going overseas because of cheap labor and the myths associated with protectionism elsewhere and, you know, what is fair trade versus free trade and what does that really mean? And energy policy, and how those all factor in to our decision making.

It's no longer follow market, it's no longer putting a mill in a market just of the same of that market. Because to state the obvious, we only have 300 million consumers here -- albeit, up until 2008 very big consumers. There is 6.7 billion outside. So, this world of ours is a massive opportunity that needs to have the United States very integrated not as the center of gravity alone anymore, and certainly the break in the housing bubble that Gary so well described, has put a new pressure point on the word "consumption". So, follow market -- put in mill -- has a new dimension, and it's the globalization of skills.

And I want to get down to that one because that's where I think the panel was honing in on, in a minute, but I want to stay wide if I can for a while because we're following skills. Other countries -- and Klaus alluded to it -- are putting in place 5- and 10-year strategies -- and I'm talking about free market economies. I'm not talking about directed economies like China who clearly have a 5-year plan and a 10-year plan. I'm talking about countries like Germany and others that are free market economies but they're a little more directed, a little more thoughtful about where we're going as countries. Where countries are going in this globalized world where capital is flowing and markets are fairly open and in terms of labor and skills decisions, these are being made based on where you can find the skills.

And I would tell you that the short-term fixes, whether it be the stimuli, monetary, and/or fiscal, whether they be exports -- which is a phenomenal story here in the United States in the last year or so. I think that focus on exports has been much needed. But clearly, those are short-term and what is really required -- and I think our leaders in government and leaders in business need to come together and figure out how to do this in a very thoughtful way -- is, how do we in fact create new demand? Gary referred to it. Where is this new demand? And clearly, I would hone in on the three that have already been talked about.

I think the country is in huge need of directed-demand around infrastructure, directed-demand around energy policy, and clearly the whole focus on renewables, whether it be solar or wind. And as Klaus has already indicated, this is a holistic approach, it isn't a piecemeal approach. Natural gas and now the shale gas boom and how it can play into a revitalization of the United States economy. It's a once-in-a-lifetime opportunity, in my view, to a low-carbon answer to many of our fossil fuel booming issues.

And then of course, this whole discussion around exports and what a disgrace that we've only had three free trade agreements in the last seven years under two different administrations. That was not a political statement. And so really, at the end of the day, how do we put energy, infrastructure, and exports central to the agenda in a 5- and 10-year look?

And I would tell you that there are policy impediments that are out there, whether they be the tax kind or whether they be the regulatory kind. Whether they be, indeed, the fact that we are very uneducated on trade at the factory floor level. Our American workers don't understand that 10 million jobs in the United States are there because of exports.

We have a lot of structural impediments, but for me the big structural fixes are in front of us, and I think the debates of today are going to help us get to -- Klaus has already alluded to one, which is immigration, and I think that's a biggie for the United States that it needs to stay well in place and we need to be very open-minded about it. Keep bringing in people from all over the world to help this country become its next century of entrepreneurship, because that's why people come here.

People come here because of the freedom model, and you've got a German accent here and a vaguely Australian one. (Laughter) We are here because of your freedom model, and just to be very clear about that. So, bringing in the best schools around the world from wherever they come.

Education and, clearly, the address to STEM. That's a big structural fix and I won't dwell on it because of my limited time. Skills retraining and skills mismatch. I want to segue from that point into the advanced manufacturing partnership that I co-chair from Susan Hockfield. I think Secretary Bryson is going to refer to it in his remarks when he gets here after this panel, but we are for the first time in my many, many, many trips to Washington finally bringing together universities, big corporations, small companies, and government departments to take taxpayer dollars that are already being spent and focus it. Focus it with the input of the private sector and our institutions, our research institutions, and honing in on the pillars that matter.

And just to repeat them for you -- Secretary Bryson will go in to some detail, I'm sure -- which technologies. We've already identified the technology areas, inclusive of energy efficiency and renewables. But advanced sensing, advanced materials design, information technologies, and nano-manufacturing technologies.

We've addressed shared infrastructure. How to get the synergy of the whole versus the lack of synergy of the part. Manufacturing innovation hubs is one idea that's coming up as a proposal.

Third, education workforce development. Here, the community colleges come in. Taking from the German model and taking the high school diploma and retooling that high school diploma for modern age manufacturing. And last but not least, policy issues that I've already touched on.

This is a little more directed market economy than many in the free market model are ready to accept, and I really say -- and I want to close with that statement that I opened with. This country has to realize that countries are competing like companies, and they are bringing in manufacturers of the advanced kind like Klaus and Dow and others to their economies because they recognize the two major drivers. One, new job creation. Not just inside the plant fence, but around the plant fence. One to five, all high-skilled. So, it's not -- you don't just count the jobs in the manufacturing plant, you could them in the supply chain.

Two, innovation follows, okay? This is not low-tech manufacturing, it's high tech which means that your research universities that are attached to it grow around it and then have a proliferation of entrepreneurial action, big company and small company kind. That's directed, that's our competition as a country, and I think we have to really realize that if we don't bring the debate to that level we're going to not only have a jobless issue for a long time but we will actually lose out. Whether it's a question of new industries or whatever it may be.

So, that's my thoughts, Alice, for a start.

MS. RIVLIN: Terrific. Well, I think it's very interesting that these two immigrants have brought our attention to the contributions that immigration can and has made.

I wonder if either of you think more could be done by the business community to educate the public about the benefits of immigration. That, you know, we have this backlash which is largely directed toward people perceiving that they're losing their jobs to immigrants. Could the business community be doing more to turn the tables here?

MR. LIVERIS: Want me to start? It's a violent year, so I think -- it's an all of the above. I mean, business leaders -- I think Klaus is a great example of this and many of us who are out there today -- CEOs are becoming much more active out there in public policy than ever before. I think the era of hiding and just honing in on one aspect of running a global business, i.e. the P&L, is over. And I think we touch so many areas, not the last of them being how to get the workforce of the future designed.

MS. RIVLIN: Right.

Mr. LIVERIS: And immigration is there for our policy, that matters. So we've got to educate our workers and we've got to be doing more in concert with government and local community people.

MR. KLEINFELD: I think we're almost beyond the information point because -- here Darrell has written about it. It was last year, right? About immigration. I said publicly even without you being present that I think that this is one of the best books that I've read on it because it provides a solution to the stalemate that we're seeing.

I've come to a point where I believe business leaders should be absolutely crystal clear to both sides of the aisle that we are not willing to accept and are not willing to discuss with anybody here who is supposed to be an elected official representing the good of this country who is not willing to have an open mind on the immigration issue.

Basically, you see a stalemate. On the one side people say, well you know, we only accept the H1-B1 visa thing if you also find a solution for bringing the illegal immigrants on, and the other side says, well we will never talk about the illegal immigration but we want the H1-B1, so decouple it.

Obviously this cannot be decoupled. I believe it really cannot be decoupled and I think there are solutions to solve it in the right way because there are 12 million people that are there. How can you really work in an environment with that? I think that's ludicrous to believe that, right? And there are good answers and there are partially bipartisan answers, and we have to take it on. I think the business has to actually be much clearer that we are not willing to accept it because it brings our competitiveness in the U.S. down.

MS. RIVLIN: Let me raise another question before we throw it open to the audience. Gary touched on infrastructure, but you talked mostly about it as a way of creating additional demand rather than as a way of increasing productivity. And I wonder how the business leaders look at the U.S. infrastructure at the moment, which many of us see as crumbling, and how it affects you?

MR. LIVERIS: Well, I think we've all heard the stories where you land at airports in the U.S. and you feel like you're in the third world compared to landing in Beijing, et cetera. So, that's the consumer-oriented view to infrastructure. But road, rail, ports, pipelines.

We have gridlocked the approval processes. We have over 60 agencies involved in permit issuing. There's only a couple states in the nation that are easier than that. The ability to get anything done in this country as a private sector company is almost beyond belief. And so you know, we're trying to break through.

I joke often when I go overseas I get red carpet, when I go inside the U.S. I feel like it's red tape. (Laughter) And really, it's just gridlock in terms of, you know, even getting solutions for our enterprise.

Now if you explode that up to the national level and say, well how do we actually coordinate this between federal, state, and local, I think the answer is very evident. I think it's not only a productivity issue, it's actually determined from investment issue. And we go to states that are more friendly in the permitting process and can expedite because you know, obviously time is money. I think you all know which states they are, there's not many.

MR. KLEINFELD: It is a big issue, it is a bigger issue than I ever thought it would be, and it has increased over the last years, unfortunately. The interesting thing is that on the local level people are very understanding because they understand what needs to be done to keep the competitiveness up, but their voices are not getting through or it takes a long time.

And unfortunately, what people don't see is how heavy the competition is for investment. We are -- what Andrew says is literally true. When we go to some places, I mean you really have a welcome bus there, basically, waiting and people saying, well you want to invest? We give you this, we do this, we do that for you, right? So, that's a very fast environment. And they are competing for our investment, right?

And if you compare that to investing at a place where you say, well I need that permit, I have this thing still hanging there where I have un-clarity, you know, and how do I get that resolved? The local leader says, well yeah, I can get it resolved but then it gets pushed out. You know, it gets pushed out. I say, okay, for another four weeks. Well now it's another three months and, by the way, I was willing to present it to my board in three months and unfortunately I don't get an answer so I'm not going to present it to my board, you know. And this is stuff -- I could give you a whole list of things here in the U.S. Very unfortunate, and I think a better dialogue and a better understanding would be very, very good, and unleash some of the investment that's sitting there on the side. It might not be sitting there for a long time anymore.

MS. RIVLIN: We've got a lot to digest here, but let me take the last few minutes to invite the audience to raise questions. Identify yourself. Somebody will bring you a microphone, I believe. And since we have a CSPAN audience, it's good if you wait until you get the microphone before you start speaking. But, direct your question to any member of the panel, but keep it short, please.

MR. LEBOWITZ: My name is Jack Lebowitz, I'm a special volunteer at NIH. I retired from NIH, but still hold a special volunteer status.

Would it be possible to the fiscal policy to lower the dollar? You know, it's a high dollar now, which would increase exports enormously.

MS. RIVLIN: Gary, you want to tackle that one?

MR. BURTLESS: That wouldn't be the main objective of running more simulative fiscal policy, I don't think. It's certainly true that a lower value of the dollar would help the United States find more customers in other countries for the things that it produces. But at the moment, we have to face up to the fact that the United States is still regarded outside of this country, at any rate, as a place where money is reasonably safe and our currency is an excellent store of value against the risks in a dangerous world.

We derive benefits from that fact. It's cheaper for us to visit overseas, we get foreign products more cheaply, but there's a price for the people who produce goods and services in this country that either compete with things that are imported or produce things that could be exported.

I do think in the long-run, part of our long-term solution to our problems is having a weaker U.S. dollar.

MR. VANOKMAL: I had a question, for Klaus -- for both of you, actually. I'm Anton Vanokmal of Ashmore EMM, also an immigrant.

You mention the fact that regulation and delays are essentially strangling improvement -- both of you mentioned it -- improvement in infrastructure, which is itself needed for innovation. But at the local level you often found a welcome. And so, can you go into this in a little bit more depth to make us understand where this strangling effect really comes from and whether you have ideas on how to change that?

MR. KLEINFELD: I think it comes from -- I have an old saying that my folks know, that when intelligent people look at the same facts they come to the same conclusion, right? So let's assume that most decision makers are intelligent. Actually, which would be my experience.

So then the only answer is that they have very different information and they don't talk about it enough. So, the people that are on the ground usually understand the situation and how this going to hurt or help them much better than those ones that are in higher echelons. And very often, the ones on higher echelons don't take the time to get this type of information, and then also don't get a strong enough sense of urgency of how important it is to get this matter resolved. So, they kind of follow their usual procedure, which is you know, we have a backlog, we take it when it comes, you know, and it's going to take half a year to a year just to eat it up, right? Whereas on the local level people understand this is something that in half a year to a year will have damaged us and a window of opportunity will have gone by. That's what I've seen, in different types of facets there.

MR. LIVERIS: I would just elaborate that regulatory environments have begun to be addressed to help the disconnect that Klaus just answered with. But I would tell you that what happens is consultative processes with the private sector on, firstly, existing regs -- you know, whether they may be environmental or permit issuing in terms of citing a factor, et cetera -- are fairly well-understood at the local level. But at the federal level, the amount of paperwork required for the locals to get approvals is horrendous. And then looking forward, it's gotten worse.

There's over 287 new EPA regs coming down the pipe already that then, basically, say to you, well, look. I don’t even know what my regs are going to be. So, the locals may be dealing with the current but the ones coming stifles them completely and saying, well you know, just a second. I better not take a risk.

And when you get down to the local level at the, you know, mid-management level, they have no power, in fact. And so, we have disabled -- government is incredibly inefficient in this country, sorry to say. I alluded to it with the 60 state agencies. And that's where we've got to get ourselves much more efficient, and consultative processes at the local level with local officials in the private sector is one way to beat that.

SPEAKER: Is it mostly environmental?

MR. LIVERIS: It's a lot, but not just environmental. It's --

MR. KLEINFELD: A lot of it is environmental, you're right. Our industry is very specific, in that regard.

MR. LIVERIS: Well, and the Keystone Pipeline decision is a good example of stopping something vital to the nation.

MS. RIVLIN: We have time for just one more question. Right here.

MR. WILHELM: I'm John Wilhelm, I'm the president of UNITE HERE, which is the hospitality workers' union in the U.S., and also a trustee of Brookings.

I was very heartened to hear what both of you said about immigration. I don't see how we solve our economic problems without fixing the immigration mess. I was especially happy to hear you say, Mr. Kleinfeld, that you don't think we should artificially divide up the segments of that issue.

Having said that, I will admit to considerable frustration that the business community says the right things about -- at least from my point of view -- says the right things abut immigration and puts zero political muscle behind that. In 2007 Kennedy-McCain, while not a perfect piece of legislation, would have gone a long way in my view toward addressing these issues. And those of us who worked hard on that bill with those two bipartisan senators discovered that there was zero muscle from the business community around that issue.

And I'm curious as to whether you believe we can do better in that regard in the next few years, considering -- and this is not a political statement, this is just a factual statement -- considering that the presidential candidate who I would suspect is the most likely to get substantial business support has jumped over the right wall -- that is to say, the wrong wall -- on this particular issue. (Laughter)

So to me, we won't solve it unless the business community puts muscle behind what you all have said here today. And I'm curious as to whether you think that's realistic.

MR. KLEINFELD: Yeah, well I said what I've said because I've seen the same picture that you just described, right? And that has altered my also moderate public statement to a more non-moderate public statement because I believe -- I mean, somebody just recently said change has never come from Washington, change usually gets brought to Washington. And I think that's one thing that we have to be mindful of. I mean, we have to take it in our hands and make clear to our representatives here how important this is for the competitiveness of this country. I believe we can make the case, I believe we have to make the case.

On your point of how realistic is it in the current environment with the candidate that you are talking about, I mean my friends tell me that I should not mistake a situation where you want to become the candidate with a situation of what your policy will be if you get elected. So, that is the thing that gives me hope on that. But I could not agree more. We have to take it more aggressively into our hands and with that approach of saying, this is what we want and we are not compromising on it, and we have a solution.

I think on the immigration side -- that for me was really an intellectual breakthrough for me, Darrell, from your study which ended up in the book by saying we don't offer the illegal immigration aspect up for free. And there was this aspect of you have to learn English because it also changes your chances in a job market. You have to have some type of test on how our Constitutional system works because not everybody comes from an environment, you know, where you have learned that. And the third thing, if I recall that correctly, was you have to compensate for if you haven't paid taxes here and you have lived here for a while, we will build some type of financial model by which you have to pay up and compensate for it. I think that these three things make a lot of sense to me, and I have really not met people that, at least privately, said to me that is a very good approach, and I agree. But we don't want to touch it politically these days.

MR. BURTESS: Well, Andrew, I would --

MR. LIVERIS: Well, I mean -- I just want to mention, I would add, the business community is going through a severe wakeup call on the skills mismatch point that we've just had a discussion on. Therefore, immigration in whatever of its forms -- I mean, look. There were 30 research institutions that had foreign owners in China in 1999. Today, there are 1,200. Why are we going to China? Because we can get the skills, but equally, we can't bring the skills here anymore, okay? It's so difficult to get people into this country.

And let's face it -- and I have three children, none of them have done science so I can say it without passing my own red-faced test -- our children are not studying science and engineering anymore. As we've moved up the wealth curve we've got enamored with other professions and they've been it. That's a generalization, but our immigrants love going in to the science and engineering professions, and we need to make sure that we keep that pipeline coming because of the big skills mismatch we have in science-based professions in this country.

So, for that reason alone the business community will get reawakened to it, I believe.

MS. RIVLIN: Well, thank you very much. I think this has been a good start.

(Applause)

MR. TALBOTT: We are very grateful to Secretary Bryson for finding a little bit of time to be with us this morning. Obviously, he is the cabinet officer who is most focused on the issues that are before us today and that we’ve already had some very good discussion of.

There are two reasons why he is the ideal person for us to hear from and to interact with a little bit. One is because of his current job, that goes almost without saying, and also the experience that he brings to that job. I think he’s going to say a word or two about a report called America COMPETES that was published just last week by the Commerce Department.

But I think, as you all know, he comes with a very rich and relevant set of experiences from the private sector. So we have here somebody who embodies both what the U.S. Government can do and what the private sector can do and what can happen in partnership between the two.

He served for 18 years as the chair and the CEO of Edison International. He’s been a director of Boeing and Disney. He was the director of some start-up companies, including Coda Automotive. And if I’m not mistaken, the CEO of that company was with us a year ago for this forum, which is very much into innovation and the use of new technologies, in particular, electric vehicles, lithium ion battery systems, which is just one indication of the extent to which Secretary Bryson has been part of the solution to one of the biggest problems of our time, one that Andrew Liveris referred to in his comments earlier, which is the need to transition to a low carbon and ultimately no carbon economy. And he has been active not just in the for profit area in that regard, but in the NGO world, as well, as a co-founder of the National Resources Defense Council.

Now, his time with us today is very limited. We're going to have a little chance to hear him make some opening remarks, and then he has agreed to stick around for some questions. And the way in which we're going to handle the questions is very simple, at least I hope it'll work simply, and that is that we've got cards distributed around the room. Any of you who have a question, write down your question on a piece of paper, pass it to whoever is in the aisle, we will collect those. Bruce Katz, the director of our Metropolitan Policy Program, will then pick from those the most trenchant and work them into a conversation with the secretary.

On a personal note, I just have to say, Mr. Secretary, that I reminded you when you arrived a few minutes ago that I last saw you looking even more relaxed than you do now, on a flight from Sun Valley back to Los Angeles in August. That must seem like a galaxy far, far away and a time long, long ago. So welcome to the Brookings Institution.

SECRETARY BRYSON: Thank you. Well, many thanks to Strobe, and thanks to all of you who have invited me here. And I look around the room and I see so many friends, it feels like I'm right back at home. I could even be right back in Sun Valley, because I usually see Kathleen up there, for example, but this winter she wasn't -- oh, no, our paths crossed where it was a wild and wonderful time, and we do our family gatherings there, and we try to ski, pretend like we ski, and all those kinds of things and they're wonderful.

I'll try to go through my remarks. And I'm going to cover the responsibility the Commerce Department took on a year ago, almost exactly a year ago, and do something that was striking and I think quite important, and that is the reauthorization of so-called COMPETES legislation. And the only thing the Commerce Department was asked to do was support from the others, but the Commerce Department had the responsibility, was to assess the competitiveness of the U.S. economy.

Now, I'm told that when the legislation was passed with that modest request, there was a kind of a sense on the part of the economists and statisticians and the various people in the respective roles at the Commerce Department, how can we do that, and I think they did a spectacular job. And I'm going to go through and try to summarize that for you and do it in something like 15 minutes, and then I'd be very pleased to have questions.

So the central question, how competitive are we, what are we doing that makes us competitive around the world? We have been an extraordinary economy, the leaders in the world for a very long time. But it's not unknown, it's a relatively conventional observation to say we are losing that position and we need to address that now.

So what the COMPETES Report says, we've had the great benefit of spectacularly strong businesses and business leaders and we've had that for a long time. But the key thing is, it was not alone. The responsibility was not a lone consequence of having these strong businesses that we have done as well as we've done all these years.

And the reality further is that the federal government has made a decisive difference. Their, as all of you would recognize, their tendencies across businesses across the private sector to under invest in some areas, and those traditionally have been substantially invested through the federal government, through state governments. And three areas in particular I'll touch on, and they're set out in some detail in the COMPETES Report, are in the field of education, in infrastructure, and in basic research. So I'm going to talk about those.

And then I'm going to, and I know Andrew Liveris is -- I can almost say, well, Andrew Liveris, you heard the manufacturing perspective, I agree, but I'll say a few words about that, in advance manufacturing in particular. But what I want to do is start on what I think is at least as fundamental a point, and that is what is happening, what has happened in federal policy-making that means we're doing less in support of those key areas, education, infrastructure, research, then was the case, 10, 15, 20 years and more ago.

And the focus there can be pretty simply put. What we've seen over the years increasingly is the damage that is done by very short-term thinking on the part of policymakers here in Washington.

So one way to get at this is, if you run a business, you make a distinction between what economists call investment, and on the other hand, consumption. So there are three. There are long-term investments that have to be made to ensure the health of the company and its ability to grow into the future. There are those immediate expenditures that would have to be made to keep a business functioning day by day, electricity payments and payrolls, for example. And then there are the long-term investments that have to be made to ensure the health of the company and its ability to grow into the future.

And too often in Washington what we have are decision-makers who simply do and have lumped those columns, those two columns on the spreadsheet together. So in that model, every expenditure, whether it's a short-term line item or a long-term investment, is treated -- almost seen as if they were exactly the same, and they're not.//

In the past, senior federal policymakers made more consistently decisions that took those things into account. The simple fact is, the private sector, for practical reasons, does under invest in those areas, but when federal and state governments have stepped in to fill that gap, there's been a significant benefit to businesses and a big return on investment for taxpayers in the form of new jobs, higher living standards, and life-changing advances.

But, unfortunately, the federal commitment to longer term investments has pretty steadily declined now over some number of years. U.S. policymakers have too often rested on the laurels of our 20th century. And at the same time, as you all know, over the past decade and more, many developed and what were formerly thought of as developing countries, have grown way more sophisticated.

And they have become, at the same time, very disciplined in the execution of carefully developed plans for optimizing economic development in their respective countries where they have advantages they carefully search out and then follow through on. And so the result, even as American businesses become more efficient, more productive and increased in their global reach, our underlying economic building blocks have eroded, and with that, so has our unquestioned global economic leadership.

So today, and you know these things, today U.S. ranks 14th in the world in terms of the percentage of college graduates it produces. We used to be number one. The world economic forum now ranks our infrastructure 24th best. We used to be at or near the top.

And the current federal share of research spending is now only one-half of what it was in the Eisenhower Administration, 50 percent then, only 25 percent now. Each of those declines is impacting our ability to attract and create the jobs of tomorrow.

Encouraging news in the COMPETES Report does show that this administration, over the past three years, has been working to reverse the trend lines on each of the fronts I've mentioned. So let me get then just to that. First, basic research. While businesses and entrepreneurs are generally the most innovative source of new ideas, the federal government plays a key role in supporting and developing those innovations.

And our country has been a very proud tradition, a proud tradition of supporting the work of federal and university labs, has helped change our world, the Internet, satellite communication, semiconductors, among other job-creating advances would not have been possible without the use of wisely spent U.S. tax dollars. But that commitment has dropped off. In 1980, the federal government funded more than 70 percent of basic research. Since then, the government's share of basic research funding has fallen to 57 percent.

So then education. All of us are very, very focused on education and what we're not doing. That is the second pillar of the COMPETES Report. We know now that the highly skilled workers boost innovation and economic competitiveness. But assuring that our children have the skills employers need for the jobs of tomorrow requires dedicated attention and resources at the state, local and the federal government levels.

Of critical importance are the science, technology, engineering and mathematical fields, the STEM fields as they're called. This audience knows full well that the numbers are there and I think they're worth mentioning. In 2009, about 12.8 percent of U.S. college graduates were in STEM fields, 12.8 percent. Significant economic competitors such as Korea, with 26.3 percent, and Germany, with 24.5 percent are on the long list of countries producing a much higher percentage of graduates who are STEM graduates. That simply has to change.

And then quickly, the third area of investment is infrastructure. The infrastructure needed to support a modern economy relies on publicly provided resources. We must do more to grow out a truly modern electrical grid with broadband Internet access in both urban and in rural areas. Here in America, 68 percent of households have adopted broadband. That is an almost eight-fold increase since 2001. And yet when you think about it, 68 percent adoption rate means about a third of American homes are simply now cut off from the digital economy.

So education, innovation, infrastructure, these are the areas we cannot afford to cut the role of the federal government. Indeed, investments in these areas will lead to a more competitive economy and higher growth.

So what can be done? The administration is committed to restoring the consensus that once existed through democratic and republican administrations, that there are long-term priorities in which the public sector must invest so that our businesses have, in turn, a better chance at success.

And what are we doing? We are increasing and sustaining the levels of funding for basic research by the federal government. The Recovery Act, of course, included a one time infusion of federal R&D of $21.5 billion. And federal funding for research increased from $56 billion in 2008 to $60 billion in this past year.

The President's budget for the past year called for more. The Congress didn't concur. Still, the enhancements we've seen have made a real difference. We're seeing that at the Commerce Department and elsewhere across the federal government. At the Commerce Department's, for example, National Institute of Standards and Technology, called NIST, the administration has expanded the core research mission by about $50 million.

The President and his administration will also continue to push to make permanent the R&D tax credit to give companies appropriate incentives to innovate and improve the way basic research is transferred from the lab promptly, directly, quickly into commercial products.

And then as to education, we simply must intensify substantially our investment in the skills and knowledge necessary to compete effectively in a world wide economy where, as I've indicated, many other countries are simply surpassing us.

Ongoing, new administrative initiatives are addressing these challenges by making college more affordable, spurring classroom innovation at all levels, and expanding the size and quality of STEM teacher ranks. One such initiative is the Aspen Institute's Skills for America's Future effort which the administration helped launch. That program, maybe you know of it, that program works with businesses, community colleges, labor unions and other groups to encourage the growth of job training and job placement programs that really work.

And then infrastructure. This administration is committed to investing in 21st century networks, including fostering access to high-speed Internet for citizens and businesses no matter where they are located. The federal government must continue its strides toward a smart electricity grid and a robust network of broadband Internet access, and the Commerce Department is deeply involved in both of those initiatives.

And then let me bring this to manufacturing. So this really deserves very careful attention. A flourishing U.S. manufacturing sector is simply crucial to our competitive strength, and it will continue to be a key source both of economic growth and of jobs.

Manufacturing pays higher than average wages, provides the bulk of U.S. exports and protects also national security. The manufacturing sector is also the biggest source of innovation in our business economy. Sixty-seven percent of all the business R&D in America is done by manufacturing companies.

That's why I have adopted one phrase as a central organizing principal for my priorities as commerce secretary. Some of you have heard me say this before, I say it again and again, I want -- we want at the Commerce Department, we want to cross the administration to build it here and sell it everywhere, build it here and sell it everywhere. If we do that, we can retain and even enhance our U.S. economic preeminence. Build it here and sell it everywhere means, of course, helping U.S. companies sell more of what they make to the 95 percent of the world's consumers who live outside our borders. Through the National Export Initiative we're doing just that and we're now on track. After two years, we're on track to meet the President's goal of doubling exports by the end of 2014.

But I will underscore with you, this is a non-stop challenge. We have to continue to intensify. So we have three more years. The first 2 years we've had increases, 16 percent in exports, then 17 percent in exports, this month's announced this morning. Results were not very good for the month of November. There will be ups and downs. This is an undertaking where we have to constantly focus, constantly find new means of taking this further. And I will say, of course, the Free Trade Agreements, the Korean Free Trade Agreement, for example, very important in our ability to take that further.

So building here also means attracting and retaining more investment so that companies are building their factories here in America. And it means doing everything we can to strengthen U.S. manufacturing and particularly advanced manufacturing, because if American businesses stop building things here, it won't be long before the actual innovating happens somewhere else. So the President and I are determined to reverse the tide to revive manufacturing in

America.

Last summer the President announced the advanced manufacturing partnership and recently we created a national program office for that initiative at the Commerce Department. It brings together industry, universities, and all the federal government. So we work across the entire federal government. I lead that to drive investments in emerging industries like IT, biotech, and nanotechnology. And in December, the President named both Gene Sperling and me as co-chairs of his White House Office of Manufacturing Policy. So that's the policy focus.

Strengthening American manufacturing, especially advanced manufacturing, where we should enjoy a comparative advantage I will say is an issue that is close to my heart. With more than 25 years now in the business community, including 16 years, for example, serving on the board at Boeing, I watched a broad decline in U.S. manufacturing and the erosion of the middle-class jobs that came with that. I'm committed to working to stop that decline, building on past administrations' successes like the ones happening right now at our economic development administration within the Commerce Department, which in the last 2 years alone has invested in 68 competitive job-creating projects nationwide to support advanced manufacturing. The promising news is that we're starting to see a rebound in the sector. Manufacturing employment increased by 225,000 in 2011; 225,000 jobs. That's the fastest year-over-year growth since 1997.

So I'll conclude with this: The administration does not believe at all that government has all the answers. But it does believe that the public sector has a role to play in creating the conditions that make inspiration, innovation, and invention more likely to happen. Ultimately, job growth is the metric that is most important. And long-term job growth will occur most powerfully in a world where entrepreneurs and researchers are supported in pursuing new ideas and taking at an accelerated pace the essential step of turning them into new products and businesses. The priority set out in the COMPETES Report are building blocks for fulfilling our country's truest potential. It is critically important that we translate these ideas and strategies into action. Wherever possible this administration and I personally want to be a partner of researchers and entrepreneurs and any and all of your businesses in that effort.

So thank you very much.

MR. TALBOTT: First of all, I just again wanted to thank you for being here and for that discussion of why manufacturing matters because it's been out of our dialogue in the United States for quite some time.

So what I tried to do yesterday, we had a group of mayors in, people from metropolitan business chambers, university presidents, the typical metro mix. They would love "build it here, sell it anywhere or everywhere," because I think they believe fundamentally we do have a manufacturing moment in the United States, and we have an export moment. The advanced manufacturing partnership -- you're like a rock star right now. I mean, they are hearing the message about the fundamental policy change that we need to make around workforce, around clean energy, around infrastructure, et cetera, et cetera.

They raised some cultural issues yesterday. I just wanted to raise this and see what your response is; that we have cultural barriers to achieving our manufacturing moment and our export moment. On manufacturing it's a cultural sense that we've diminished manufacturing as a dignified work. We talk about the creative class. We talk about the consumption and the amenity economy. We talk about everyone getting a four-year degree. We don't really talk about a large portion of our workforce, moving into manufacturing, working with their hands and their minds.

The second piece they mentioned was the U.S. is somewhat export-phobic. We're the most diverse country in the world, but we're the most insular country in the world. We don't get out much. Only 28 percent of Americans have a passport. So I'm wondering as you think about really unleashing the dynamism of the manufacturing and export moment in the United States whether we need to think about and how you thought about moving beyond a policy conversation to almost a cultural discussion in the United States given where we've been for the past 25 years and how that seeped into our zeitgeist, so to speak?

MR. BRYSON: Well, I think you're right. There's been a sense and in some ways it's been more pervasive I think in the federal government than at the level of mayors and local governments. But there's been this sense for a long time that manufacturing is about highly untrained jobs, people in a world in which we put such an emphasis on getting traditional college degrees, we put little weight of any kind on working with your hands, bringing things together, making a difference that way. And I think we've lost a lot and, as a consequence, very little has been invested in and very little call it public support, public recognition, of what manufacturing brings to us -- 67 percent of the innovation in American business in the manufacturing sector. It's stunning.

I mean, Tuesday of this week in Detroit -- and there, of course, you see this in the automobile sector and what's being done is extraordinary. And it's not just the U.S. automobile companies, it's the overseas like U.S.-based automobile companies. And what they're about is manufacturing a really key product: cars, trucks. And once again so much of this is moving into advanced manufacturing. The old ways of thinking about manufacturing are mostly very, very outmoded and the kinds of skills that are required -- and if you're at Ford Motor Company and you have 30 percent of the value of all the new Fords, 30 percent of the cost of all those new Fords, and the manufacturing and production are in advanced electronics. We have to have people that have the skills to bring those to the market. I mean, I could go on and on that way, but that's the traditional way.

I live in Southern California. I'm going home for the first time since I became secretary of commerce tonight to be in Los Angeles, and I'll be with Antonio Villaraigosa and we're going to go around to schools and he is a real leader. I mean, he's a guy with -- a labor union guy who was the labor representative, fighting a lot of what was being done in the field of education. And perhaps, as you know, he has totally changed his views and has taken the position, for example, that the UAW in Detroit has taken, and that is we've got to work together because the way to have jobs in this country is bringing business and labor representatives, places where labor unions are part of the business sector, and doing it together.

MR. TALBOTT: It seems like we might -- we're going to follow this panel with a representative from DuPont. Forty percent of their workforce is going to potentially retire in 5 years; 40 percent of their workforce is eligible to retire. So in some respects what we have is almost an urgent moment to begin to reach out to the community colleges, reach out to the high schools, reach out to other intermediaries who work on skills. And as we sort of begin to change the image of manufacturing, really begin to train and upgrade the skills of people who can move directly -- these are good jobs as you say.

MR. BRYSON: Fabulous jobs, and Germany's done that spectacularly. And I was a student twice in Germany a long, long time ago, but there was just -- to get a job between sessions, you could get one of these jobs that were about learning and applying yourself to making instruments happen. Because we know the German tradition was universities were for a certain academic elite, but parents had tremendous pride and continue to have tremendous pride on the training in skills that lead into manufacturing, and they do it brilliantly.

MR. TALBOTT: So I've got a whole bunch of questions. We'll be here till around 2:00 in the morning, but I thought what I would try to do is at least enable you to give a little more detail about some of what you just described.

Question: Please share more details about the goals of the White House Office of Manufacturing Policy and the value you expect its work to add to already existing federal efforts to advance manufacturing in the U.S. I have a series of questions here actually about the President's call for agency consolidation and agency restructuring. Will that be under the remit of this Office of Manufacturing Policy because what you've described cuts across the federal government clearly? What are you thinking about timelines, the kind of both legislative proposals or administrative actions that you might see occur over the course of the next three, six, nine months?

MR. BRYSON: Well, the White House Office that Gene Sperling and I chair is focused on bringing together effectively all the elements of the federal government. So the Defense Department -- I mean, it's hard to identify any one department of the federal government that doesn't have a manufacturing arm. Some of these are extensive, but they haven't been brought together in the past. And even when we say the Commerce Department, substantially every drill in the Commerce Department has a manufacturing arm of one sort or another, but they've tended to be silent. So the core policy point here is let's work effectively to make this more productive, more efficient, where skills exist in one place. They don't have to be duplicated necessarily in another. Let's make them really productive, and let's take the dollars that are available and can be enhanced in the manufacturing sector and not spend those dollars fruitlessly on duplicating things from one department to the next. So that will be a big focus.

And then we have at the Commerce Department at NIST now set up the national program, so that it's going to be a spectacular program. And we from the outset -- under the leadership of Pat Gallagher, a Ph.D. physicist, a career person at NIST who was absolutely the right person to head NIST. So he is -- this is a case of a career person who is our undersecretary. Brilliant guy and he is reaching -- and a team of his and I'm spending a fair amount of time on this -- reaching out to all the other departments to work together on this. And this has got to go way beyond policy. Anything that is pure policy at some level becomes a waste of time unless you're putting it into the reality of production. And that's the key thing.

R. TALBOTT: Other question, same line, Office of Manufacturing Policy, your own thinking coming out of the energy sector. How much do you think this is about the large global companies, their challenges, their supply chains -- many which are small- and medium-size enterprises -- or other small manufacturing firms, some which may be exporting, some which may not be? How do you think about size and scale because that does have an enormous effect on a whole range of policies, both delivery as well as design?

MR. BRYSON: Well, it's a very good question and the reality is that the largest part of manufacturing in the country actually is in the supply chains. So Andrew would have here in the U.S. a very substantial supply chain, that's true. The automobile companies, Ford didn't go into bankruptcy, but Ford couldn't have gone forward without the other, without General Motors finding a path through and out of its bankruptcy, because they had to have the support of a common supply chain that Ford couldn't afford to do if they did it independently. So this is happening everywhere.

And Ed and I have probably gone over this ground four times, I bet, in the time I've been commerce secretary, but I've done it widely with others -- Cummins Engine Company goes on at all. And what they value so much is the supply chain and the supply chains often are -- they're invariably not more than call it medium-size businesses, and a lot of them are quite small but growing businesses. So there's a span here and the people that want to work with their hands, that are willing to have the education and develop the education are really competitive. I guess to be in your supply chain, you have to be awfully good, right? And these small businesses, they're just competing like crazy. I mean, it's the instinct that business people have of getting out there and winning.

MR. TALBOTT: Last question -- going back to your prior life, if you remember your prior life -- deals with the potential of the clean economy and clean tech to be a driver of manufacturing. We did a report at Brookings going back about six months where we said that the clean economy is disproportionately manufacturing-oriented, disproportionately innovation-oriented, and disproportionately export-oriented. So it hits all the right buttons, but it requires a stable and predictable and certain level of national policy that obviously aligns with the state and local. Do you agree with the assessment of the potential of the clean economy to be part of the manufacturing moment and are there some short-term actions that the national government can do, either to do no harm or to potentially provide more proactive support?

MR. BRYSON: Well, I've been of the view that we would be better across the country in dealing with clean energy steps were there at some level a common set of requirements and supports across the entire federal government. This is an area in which the states have really led. And the states I think have done it with innovation, with offering the advantage of our federal forum; that is with different approaches, often very creative approaches. Where I've lived and where I've worked for a long time, California has been an extraordinary leader, a special leader. Everybody's facing the reality of a tough economy right now. We've had the great advantage and the ability in the world, for example, of utilities to have the natural gas prices come down so strikingly that allowed some room in many states for the state regulators and the utilities to continue to have something like current pricing in the market; with some of their fuel costs down, leaving some additional room for clean energy technology development and application. But that's fragile. I mean, the reality is we're all dealing with both the advantages and the disadvantages of a very tough economy. The advantages in my judgment make us think more fundamentally in fresher ways about how you get more out of every dollar that you have, for example, in the federal government, every dollar you have in the business. Where there's a disadvantage clearly is that some of the innovation and a lot of the financial support that was there to turn ideas into practical programs is diminishing.

MR. TALBOTT: Well, I know you have to go, though we'd obviously like you to stay. It strikes me just listening to your talk and to these responses that your view of competitiveness really is an agenda that's co-produced across sector and co-produced across all levels of government. And it strikes me that a lot of what the advanced manufacturing partnership is putting forward and what you've described here today can play out in the states and the cities and the metros, irrespective of what happens at the national level. So you may find that your manufacturing moment and export moment really begins to bubble up as we sort through our political difficulties at the national scale.

We really thank you for coming to Brookings.

MR. BRYSON: Thank you very much. It was certainly a pleasure. (Applause)

MR. KATZ: We have wonderful panelists here. Dominic Barton is the major domo of McKinsey, the global managing director obviously based in London, but also on the Board as it's been mentioned of the Brookings Institution. And Tom Connelly is a senior executive with DuPont. And your boss was supposed to be here, but she was involved in a skiing accident. This is the problem with the winter holidays, right? But we really appreciate your taking the time.

And I, you know frankly, I think Secretary Bryson set this up very well. I think he marched us through why manufacturing matters; why it's such an innovative sector; why it has such a dramatic impact on wages and incomes critical to growing the middle class; why it's important to the trade deficit, broader fiscal balance of the United States; why it interplays with environmental sustainability, the potential for clean tech. I think he really set this up well, and I think the COMPETES Report coming out of the Department of Commerce does that in the same vein.

What I'd like to do is sort of, really from your particular areas of expertise and focus, sort of drill down further. And Dominic, I thought I'd start with you because I think one of the most interesting pieces of work coming out of McKinsey -- Daniel Pacthod is here, Michael Park, other of your colleagues -- is this focus on advanced industry and the need for the United States to, as Glenn said, with a clear, laser-like focus, to engage on or to understand that there are certain sectors of the American economy -- aerospace, automotive, defense, medical devices; I mean, we could run through the list, I think we would probably have the same kind of conclusions -- that are absolutely fundamental for us to stay at the cutting edge of innovation, at the vanguard of global competition. But that requires us to rethink what we do and this sort of co-production between business, university, and the public sector.

I thought it might be helpful just as sort of a platform setter for you to describe why McKinsey is interested in advanced industry and why we need perhaps even to reframe the conversation about manufacturing in this way.

MR. BARTON: Well thanks, Bruce, and it's an honor to be here and also work with Brookings. McKinsey and Brookings are working in sort of a close collaboration on this topic because we also think it's vital.

You already mentioned, I think, just as a bit of background, I mean, the sector and the various companies or businesses that are in it, a couple of more facts maybe just on why we think it's important, and then maybe some of the things that we've done and what we see as being some of the imperatives. It's roughly -- those industries that you talked about, the automotive assembly, national defense, medical devices, and so forth -- it is about 10 percent of the U.S. GDP, that's the size of it. But it's about 45 percent of our exports, and it accounts for about 4 million of what I would argue very, very high-skilled jobs. We talk about knowledge workers and you think about the whole chain. This is at the far end. So we think wow, it's 10 percent; it punches way above its weight.

The Secretary talked about the amount of R&D that's actually being done by these players. Most of that 67 percent is actually done by the advanced industry's players in manufacturing. That's where the bulk of this -- this is where the engine is. And actually while we would argue that all of the trends are heading south -- we heard about education, we heard about the lack of long-term thinking -- the trends are heading south, and we think south quite quickly. We actually do have quite a strong base and we shouldn't forget that. And I think we invest more than the next four countries combined, and that's changing. We heard what China's doing and so forth. But we believe we're in kind of a case now of a use-it-or-lose-it type of thing where we've got to make some big shifts to drive it.

And one of the reasons why -- actually it was about 18 months ago we decided to set up a sector called advanced industries to get the R&D, to be able to get the capabilities to serve these types of institutions. If you look at the big forces at work in the world moving ahead, we've all heard about the rebalancing of the world towards Asia and Brazil and Africa and so forth. We're talking about the technology grid, the speed of information, the amount of information that's moving, this re-pricing of the planet that's going on, the demographic challenges with an aging population. We're going move from having basically three retirees for every worker; we're going to end up moving to a situation which doubles that by 2050. So there's all sorts of productivity issues that are coming up, major shifts going on.

If you look at, for example, food which we think will be one of the biggest industries of tomorrow -- ag food. The way that we're going to get the ability to feed the 3 billion people and move it is actually through a lot of the advanced industries' technology. It is going to be vital. And if you look at what Israel is doing right now in advanced industries and food, it's phenomenal, helping cows produce from 5,000 liters of milk to 11,000 liters of milk a year. This is, by the way, a big deal for China. They're looking at this and saying, "How can we buy these professors and get them over here?" And I could go through countless examples of what's happening just in food, which you might think is low-tech. It's high tech. And the U.S. is in a wonderful position to kind of drive that all across the value chain, and I think DuPont is doing a lot of that.

You look at energy, which is going to be a big sector -- you've talked about this, Bruce -- the Secretary talked about clean tech and so forth; that's a massive shift. Health care, I mean, health care fortunately or unfortunately is going to be one of the biggest businesses of tomorrow given the demographics. A lot of the advanced industries is what's going to be there to make it productive, and we're seeing a lot happening on that side.

And then logistics and transportation, and this is the country that invented airline travel and travel, you know, the moon shots, all of this sort of thing. That whole sector itself is moving forward. So with these forces at work that we see there, the amount of business opportunity, which is going to be created and driven through this sector in particular, is mammoth. And it's a multiplier effect, a different type of multiplier effect than we think. And we all know -- I don't want to bore you with the old stories of the Tang from the moon mission type of thing. But we're going to see orders of magnitude, multiples of that. And we can't predict what those are; we just know they're big. And we think it's very important that we own that out there.

So that's why we're very passionate about this area, and we think there are a lot of things that can actually be done. And we think it's -- while we have the sort of scale to be able to do it, all the forces are going in the wrong direction. And so we think a jolt, a pretty massive jolt, is needed to be able to shift them.

MR. KATZ: Just one follow-up question, and then I'll talk to Tom. This is a conceptual narrative really about what drives what in any economy, what's absolutely critically important. And obviously when McKinsey Quarterly comes out, the Germans read it, the French read it, the Japanese read it, the British read it, the Chinese read it. Do you get a sense that our competitors in the mature and developing economies have this clear sense about advanced industries and their strength and, therefore, moving to policy, the platform they need to set? Are we alone in the world by basically not understanding that sort of core insight?

MR. BARTON: I think we're quite far behind in the understanding and actually the drive for doing it. And if I compare it -- I just look at recent travels; Andrew Liveris talked a bit about this with Germany and others. But China, and I know we always talk about China, it's interesting -- I actually was asked to go and talk -- they have a special initiate in their 12th five-year plan with the seven strategic industries. They're all advanced industries. And the amount of money that they are going to put into that and they're onto immigration. They're talking about -- one of the big discussion points was how come all of the -- we don't have any Nobel Prize winners -- zero in terms of the scientists except for those that go to the U.S. What's going on? How do we shift that? How do we move it? So you have China. You have I'd say a massive focus on that side with the resources and the planning and the timeframe that goes on. The Germans, the French -- the amount of effort the French are putting into foreign direct investment in advanced industries is incredible. There's a lot of push. The English with what's going on with Cambridge. So it's a -- I'd say that the focus on it and the timeframe and the resources and the desire to kind of cut through the blockage to move it I think is at a faster pace. And I think we're slow. And again, we have an advantage, but overtime that will disappear.

MR. KATZ: That's a great context for the conversation with Tom. And, Tom, just for the audience and for everyone watching this on the Websphere and Twittersphere and all the rest of it, just something about DuPont. I mean, sixth largest exporter in the United States. Over two-thirds of your manufacturing base is in this country. Over half of your workforce is in the United States, and 50 percent of them are in traditional manufacturing jobs. This is a large company in an advanced sector that has an enormous impact on people's lives and obviously on some of the broader economic indicators that we care about.

What's your perspective and the company's perspective about the dialogue you've heard so far about do we have a manufacturing moment? Is there a potential for industrial revival? Can we, not just double exports within a certain period of time, but really have this focus on global engagement become more a part of our DNA in the U.S.? What's the perspective from a large company?

MR. CONNELLY: Okay, that's a lot of questions, Bruce, so let me wade into it. Yes, we are the sixth largest exporter. We run a balance-of-trade surplus from a U.S. perspective, but we like the U.S. and our manufacturing base here, and we feel that we're able to compete with people anywhere in the world from a U.S. base.

I kind of push back, though, on the notion of traditional manufacturing jobs. Traditional manufacturing jobs are changing so quickly. There are no low-tech manufacturing industries left. There maybe some low-tech producers, but they're not going to be around for long. So if you're in the manufacturing business, either the product you produce has a distinct advantage or the process by which you produce it or your logistics have an advantage. But if you don't have a high-tech advantage to your operation, you're not going to be in the manufacturing business for very long.

I think we can do that from a U.S. base, but we need to change some things. We've talked about many of them already this morning. We see more and more consumers around the world. The U.S. is still the largest and most attractive consumer market in the world, but we've seen over the last few years, and really post-financial crisis, the emergence of China not just as a producing nation, but as a significant consuming nation. We're seeing the same thing in India. These are vast markets for U.S. products that really didn't exist a decade ago.

Now, what do we need to do to be ready for that? Certainly in the new world, the next economy if you will, trade, open trade, and fair trade agreements are critically important. If we're going to have an innovation-based economy, IP protection takes on enormous -- we innovate, we need to protect it, whether it's a product or a process, whether it's via a patent, and the U.S. Patent Office is the gold standard for intellectual property around the world. We need to protect and enhance that. It's about pendency. We can't let the pendency get too long. It's about the quality of the examinations. We're the gold standard, but we've got to maintain it.

I think it's also about removing some barriers. We heard earlier from Andrew and Klaus about that. There are some things about the regulatory approvals and how long it takes. I know Dominic and I were both in Asia. I come back here and I talk about Asia clock speed. Things move faster there. We will be at a disadvantage if we allow our processes to take so long. So a few things need to change, but we definitely have a strong future. And there is a bit of a moment right now given exchange rates, et cetera.

MR. KATZ: Let me stay with you about the issue of workers at various levels because what you described to me the other day was a very large portion of your workforce eligible for retirement in a very short period of time. So my sense is that you need workers with certain skills much more substantial than "traditional manufacturing." Do you have the sense that our high schools, community colleges, intermediaries, labor or others are able to produce these workers?

And then secondly at the management scale. Someone came up to me during the break and said a critical question -- and actually there are about three or four of them in here -- is for topnotch management talent coming out of the best business schools here and around the world still an attraction to the financial sector; manufacturing sector not as attractive because of compensation issues and other issues. So how do you think about the workforce challenge really at these multiple scales from your corporate perspective?

MR. CONNELLY: So let's talk at our production level. And clearly -- and again, we heard a bit about this this morning. There is a need for skilled crafts workers, people who are really good at being able to build and maintain plants. They are in short supply. We've been able to meet our needs, but as you say, our needs will be increasing in the next several years. And they need to be met locally because most of our production workers are recruited in the area.

At the plant operator level, it used to be that plants were 20 years ago manually controlled. It's now all computer-based distributed control systems. The quantitative skills and the computer skills required of a plant operator in a chemical operation far exceed where we were awhile back. And I think it's at this level that the community college can play a very significant role. And it's not about a general curriculum at the community college level; it's really about a curriculum designed for the local industry to provide skilled workers that we'll need. And I will say we have had great partnerships in areas where we manufacture. The communities, the counties, the states, really do want to work with us in terms of developing those skilled workforces.

At the professional level I would say we recruit mostly, scientists and engineers, over 70 percent of our professional staff have engineering degrees. We are concerned about the numbers of U.S. students, U.S.-born students, who are interested in careers in science and technology.

At the research level we hire research scientists that are trained by U.S. research universities, the leading research universities. You look in their chemistry department or physics or biology department, you'll find that half of their graduate students were born, again, outside the U.S. So immigration policy to allow us to attract and retain talent from around the world is important.

At the management level, I'm an engineer by training, and I'm in a management role now. I am concerned that management talent may find the financial sector more attractive perhaps, but at this point we're a leading company in our field and we're able to pull in the talent that we need.

MR. KATZ: Dominic, what do you think about this workforce challenge at all levels and whether we are able to essentially deal with it, not just with our sort of institutional arrangements, but with sort of our cultural norms in many respects?

MR. BARTON: Well, yeah, I think it's a broad area and just maybe a couple of angles on it. We've talked about the immigration issue before, and I just would completely echo what Klaus and Andrew said, too. If you look at the statistics and you look at where the source of the talent is coming from, a big chunk of that is from foreign talent. And if you see what's happening right now at the MITs and so forth, people who are graduating -- and, for example, we try and hire them, and we're probably going -- they probably should be going to -- we're probably part of that -- I should be careful what I say. But we'll bring them in and they can't get a job with us. They can't work in the U.S. So we send them to Canada. We send them to Germany. And guess where we start putting some of our Centers of Competence for Advanced -- it's ridiculous, that sort of thing and I think we have to blow that cap. I don't know how much screaming -- I don't know whether we should camp out in tents -- maybe that's a business -- we should camp out in tents until something happens. It is seriously a big issue just on that dimension.

I think a second one is what I call around the polytechnics. There's kind of an image -- this is maybe when you get into the cultural -- there's a cultural image. If you go to a polytechnic, you haven't really quite made it or why do people go. I think that's just a very wrong-headed view of how things are. And we have some very good polytechnics in the U.S., and I think we've got to put more resources behind them and the community colleges because in doing some of the work on the unemployment gap of what's going on, there are several million jobs that are not filled because there aren't the skills. It's the welders and so forth that are there. So I think we have to change the image; that this is a very good thing to do and it creates terrific jobs and opportunities for people as they move forward and so forth. And I think there is a cultural image, very different from Germany, very different from other parts, in Korea and so forth. Interestingly enough, China hasn't figured this part out. The effort is on high-end universities. They're creating not only hundreds of thousands of engineers, which is why they're creating hundreds of thousands of people that also can't get jobs. And I think they're going to finally get it, too, that it's the polytechnics that matter. So I think we have to really on the cultural side move that.

A third aspect I would just say and it's something we found from the work we did with Brookings and talking with some of our clients in this area. There are -- one other thing we worry about, I'll just give you an example, is risk culture. If you look at some of the defense companies -- this is something that we've looked at. With the way media works today, it's kind of like you're getting an x-ray exam through every stage of the development of your product, and that's not a very helpful thing to have happen because you are going to have mistakes made when you're doing product development. I go to the F35 -- these are very complex devices that are being built and there's a sense out there now that I think from young, high-powered, talent that if you want to make a career and move ahead, you probably don't want to take that risky project because chances are, there'll be a screw-up and you'll know about it. We all know about how -- you mentioned Boeing. It's kind of like we got a YouTube version of actually what's happening. And I'm not saying that we shouldn't have transparency; I'm just saying how can we make that exciting again because we've made many mistakes in the past to be able to build things? There's something about a risk culture we've just picked up with management, top talent deferring to the big, established, business units, as opposed to doing new things. So again, that's a very micro thing, but that's something on the culture side I think we have to look at.

And I think this relates to something that, again, was mentioned in the previous panel. We are way too short term in our thinking. I think we're driven by quarterly reports. I think the quarterly report focus has seeped into our R&D and so forth in companies, and so that's another cultural point of view I think we have to shift.

MR. KATZ: It sounds like both of what you're saying, though, particularly with regard to international comparisons, because I think the cartoon version of international comparisons is "they get stuff done." Regulatory approvals expedited, public sector does what it needs to do around infrastructure, et cetera, et cetera, et cetera.

I think what you're describing also, particularly with regard to the German model, is that there's a kind of ecosystem where large firms and supply chains interact with the research institutions and the skilling institutions in almost like a seamless way. Am I right? I mean, are we reading too much into what other countries are doing, or are they really perfecting this and we tend to be more compartmentalized or segmented, business separate? I mean, you described some helpful alliances with community colleges. Is that the norm? Is it the exception?

MR. CONNELLY: From my standpoint it's something that's developing here. The need is becoming more acute because of hiring needs, also because of the increased skills associated with those new manufacturing jobs if you will.

Let me say that looking at models around the world -- we mentioned Germany, I've had experience in Switzerland, you can take a look at Japan. All of these countries have vibrant manufacturing sectors and they all have very good skilling -- I like that term -- the skilling piece of it. At the research end, it's hard to argue with the U.S. research establishment. But at that skilling, the class, the community college, the polytechnics as you referred to them, that piece of the puzzle I think is done better in certain manufacturing-oriented economies like Germany, like Switzerland, like Korea, like Japan.

MR. BARTON: Yeah, the thing I would say is on execution, I'd say many other countries beat us. I was mentioning at the break an example from Beijing where -- this was not to do with advanced industries; it was about startups of new businesses. And in meeting the Mayor of Beijing, he wanted benchmarks. And we were saying well, it takes six days in Singapore if you have an idea of a business to be able to get approval to start it. Obviously, it can vary if you're doing some complex medical product verses setting up a Kentucky Fried Chicken, but basically six days is the measure. And for Beijing the equivalent was 36 days and Shanghai was 35 days. Three months later, going to visit the Mayor, up on the wall there was Chinese letters I couldn't understand, but there were five numbers that were up there -- 36, 35, 14, I can't remember the other one. And I said, "Is that some new slogan?" And he said, "No, that's how long it takes to start up a new business." Someone had told him -- I wished he'd remembered it was me -- but he said someone and it's there and I want people when they come into my -- you go into his office this way and then you turn that way, that's what you saw. And I'm sure it's a different thing there, but that's to me kind of this execution. What is not there, and I completely agree, is actually the culture dimension. The number of countries that have tried to develop a Silicon Valley. I mean, there is a long list -- Malaysia, the Super Corridor.

Russia is doing this right now, trying to build this. And that's -- I think that's very difficult to try and replicate. That's a magic if you will that we have. And that's where I go why aren't we doing more of that. We have the Broad Institute in medical, which I think is a wonderful one. But even there we could tell all sorts of stories of the complexities of getting MIT and Harvard to collaborate, which they did apparently. If you were at the MIT campus, it's MIT-Harvard-Broad or something or if you go to Harvard, it's the other way around. But the point is they're working together with business. You've got researchers, business, and it's a very vibrant place.

And I think we have many opportunities like that here. We've talked about this before, but Cyber Security in San Antonio. Cyber Security is a very important and, fortunately or unfortunately, a huge growth business or area. And I think that's something where we could -- how do we put that together? We've talked about fracking when you're thinking about shale gas. There are ways to build those centers.

And by the way, we can get other people's money. Not only can we get talent -- this may seem strange -- China, for example, has a lot of money obviously. They need to develop this for their own development. It's not a pride or a control. They have to do energy-efficient investment to be able to grow without melting the place. It's an imperative. What we've been suggesting to them is why don't you spend some of that money in the U.S.? Spend that money in the U.S. to get the technology advantage.

So I think if we could build those sorts of areas, we could actually not only attract the talent, but also the money. But we need to get moving on it.

MR. KATZ: I want to switch the policy because I think between the two panels that we've already had and in looking at what the advanced manufacturing partnership has put out, there really is sort of a common sweep of policy reforms that we need to undertake here. We've already mentioned on this panel trade, IP, immigration, skilling. I mean, we can easily add infrastructure, tax, energy. I mean, there seems to be the common seven-to-ten areas of policy. In the last year, what have we gotten done in this town? Well, we finally got the three free trade deals done and some advances on patenting modernization, the COMPETES Act. But relatively speaking, not the kind of sea change that we seem to need to really set a platform for both retaining what we have and building on it.

So the question I guess is if you had to prioritize, and presumes this is even a semi-rational system, but if there was a prioritization of we've got to get these two or three things done because of how you see the competitive threats, what would those be at the national scale?

And the second issue is sort of building on the last conversation with Secretary Bryson. If the national government goes on a frolicking detour for a period of time, can we imagine the states, the cities, the metros, the advanced research universities, the major corporations, doing what they can do to set the platform for advanced industry and advanced manufacturing and how would you prioritize that? That may be the world we're in politically.

So first question, national scale because we need national solutions -- how do you prioritize in the near term? And then assuming we still are in this period of partisan gridlock and ideological polarization, can we push this out in some structured way to our laboratories of democracy? Anyone want to start?

MR. CONNELLY: Okay, I'll have a crack at that. First of all at the national level and again, most of the key issues have come up today. I think the education, whether it's K through 12 or university, community colleges, that's one where the international comparisons are unfavorable and becoming worse. When I talk to my -- some of the times I've been to the plants, the question I ask is which horse do you bet on in a race, the one that's out in front or the one that's running the fastest? And, of course, the answer depends on how long the race is. But if we're in this for the long run, we can't afford to have other people out there running faster than the U.S. economy. So I'd say let's -- one of the things that's holding us back is education. Let's get after the education piece.

The next thing, I'd put together a number of things that create uncertainty. Nothing's worse for business or investment or manufacturing than uncertainty, and we have elements of uncertainty that can't be addressed. Hiring is -- I view it as a long-term commitment. You don't want to take that on if you don't know what your future's going to be like. Manufacturing requires fixed assets. You make investments; you need to earn a return on that investment over perhaps a 10-year period. If you don't know what the future's going to look like, you'll keep your money in your pocket or invest it in another jurisdiction where you understand or where you sense less uncertainty. So uncertainty around tax rates, uncertainty around R&D policies, uncertainty around energy and climate policies, all of these uncertainties cumulatively result in a reluctance to invest. So I think what this town can do is really drain the uncertainty for the manufacturing investment.

MR. KATZ: That's great. Dominic?

MR. BARTON: I think it's similar. I would probably have three I would do. One is around the immigration issue, the cap. What I feel is we need to jolt the system, and I think it would give business a lot of confidence if a move was made that way. People would say, "We're serious now about trying to build this." And so I think I would debottleneck that and get that to happen.

The second one is actually around the R&D, getting a tax credit on R&D. There's the uncertainty issue because it's for a year and then it's -- was that really linked with how people think about R&D? I mean, you do R&D not for a year. You do it for longer. So I -- and we've got a trillion dollars. Manufacturing companies have a trillion dollars in cash outside the country that's, by the way, earning zero. We heard about that before. This is not only -- we need it for R&D. We also need it for the velocity of getting things moving. So I would try and do something on the R&D front, a tax holiday on R&D. I would want it, though -- as I think someone mentioned earlier, it's not just the white lab coats. I'd want the actual manufacturing to go with it because we could get all sorts of tax loopholes. But I think something on that.

So I'd do the immigration, the R&D side, and then similar to this uncertainty thing, I would think about setting up some body -- it's like a fast-track mechanism where people can go somewhere to deal with all the convoluted processes because part of the challenge -- we've seen this actually with some of our clients that want to invest. There was one Chinese client who basically said, "We would like to invest" within a particular area -- it was in semi-conductor area actually -- and said, "It's like chickens talking to ducks." That must be some Chinese saying because we don't know even where to go or what to do. I remember actually Larry Summers was there and he was being very kind. He said you should talk to McKinsey. I said, "We actually don't know."

MR. KATZ: You're a giraffe.

MR. BARTON: We're a giraffe. You're probably right. So some sort of fast-track mechanism to be able to -- where the issues can pop up and people -- we can hear what DuPont's dealing with or what Toyota's dealing with and people can say, "Okay, here's how we're going to try and move it." Those would be some things we'd --

MR. KATZ: Well, in some ways you're arguing for a level of transparency about these regulatory barriers that obviously just don't make any sense whatsoever.

I'm going to open up in a second. I already have a question here. Just one last question about the states and the localities and the universities and all the rest of this. And Jim Robinson is sitting here and he was on President Reagan's Advisory Council on Federalism. I mean, we are a federal republic. Washington doesn't really act like it's responsible for galvanizing the talents and energies of the full nation. It sounds like it's just sort of inward focused on the national government. Should we be thinking about a race to the top on advanced industry? Right? I mean, should we be thinking about saying to the states, across advanced R&D, across skills, across infrastructure, across export policy, across FDIs since the states mostly do the foreign direct investment, not the national government? We want to challenge you to basically come forward to us with your own strategy. More likely the states will have a strategy, frankly, with their cities and metros than the national government will have a strategy. Is that what we should be thinking about given this moment, political, economic, fiscal, and otherwise? Any initial response to that?

MR. CONNELLY: Well, I'm not just saying this, Bruce, because you're up here, but I actually think that's vital and that's where we should be heading, to the state and actually the city level. First of all, there's a -- you'd have a better perspective on who's more open minded -- but we've just seen three or four places where there is a huge appetite to actually do this. And when we think about it, it comes back to the world in many ways and a glomeration of many cities. There's like 600 cities that account for 60 percent of the world's growth. And if I look at Singapore -- we didn't talk about them; they are too small you could say to be drawing an analogy for it -- they do this integration phenomenally well. They think about the forces at work. They think about the jobs of the future. They tie -- they have a regular -- it's every six months -- they have the Minister of Finance, the Minister of Education, the polytechnic heads, the three polytechnic heads, and business leaders, and they literally map out water is going to be a big opportunity. And we're talking about skilled manufacturing-related or research and water. How many jobs will that create and how many, therefore, educationally spots will we have? And that's how they deal with it.

They teach history in Singapore and they teach philosophy, which is important, but the number of spaces is limited. There's more spaces to learn about water technology. So I'm not saying we should go the Singaporean model, but I'm saying there's a lot of examples like that. And I think we have a lot of places like that in the U.S. where we could actually get a lot of things going. And I think when you mention this to external players -- investors or organizations -- if they could actually see and meet people like that, these states and cities are like countries in and of themselves.

So I think it's a very big push, and if we could provide some more transparency domestically and also globally to where are the people that actually really want to make something happen? Who can we communicate with? I think we could really get something moving. And your kind of race-for-the-top idea, I think, is a good one. I think if we can get other states and cities seeing that other people can do it, I think people will start to push.

That's the last that I'll blather on for a bit here, but you look at Itasca in Minneapolis-St. Paul and you look at how business, government, and the social sector have come together to deal with big issues. There are places like that that actually really want to move. And I think we should really push on that.

MR. KATZ: That's great. Questions? Right over here, and can you identify yourself?

SPEAKER: Yes, my name is Keith Rogers, and my question is for Tom Connelly. If I understand it correctly, part of DuPont's business relates to advanced industry, part of relates to lower-tech, grassroots industry, in terms of both your customers and suppliers. So my question is, are those types of local grassroots industries actually having a tough time these days because banks have gotten bigger and internationalized, investment firms are big and internationalized. And at the local level to get financing for their peculiar local enterprises, well for a homebuilder, the bank can meet certain standardized underwriting criteria, however sound or not, and that mortgage can be sold on a secondary market. But if you have a local enterprise that's has very localized and specific characteristics, it's probably not going to excite a big venture capital firm, may not excite a big international bank. In your perception, are some of those types of enterprises being squeezed?

MR. CONNELLY: Well, I would certainly say that the lower-tech industries in a manufacturing situation where they face competition from other parts of the world, yes, they will be squeezed. DuPont itself in our portfolio don't have many of those types of product lines, but we certainly sell to customer bases, for example, in the construction industry, to use your example, where they are local operators with a lower technology mix. But I would suggest that for the future, even in an industry such as construction, there are opportunities to bring much more technology to the building industry in terms of energy efficiency to name just one dimension. And for that producer who is feeling the pressure and is being squeezed, I think it's time to innovate. I was asked recently whether innovation costs us jobs. I said, "Failure to innovate costs us jobs." And that would be my advice to that lower-tech producer who's feeling the pressure.

MR. KATZ: Questions? There's one right back here.

MS HUSEN: Hi, my name's Marilyn Husen. My questions are first of all, as we talk about these advanced industries and the need to put as much as we can behind it, both political will and also the necessary resources, my first question is around quality control. I mean, I think we've seen lately in this rush to roll out products and services, it seems we've seen an increase in recalls of a lot of products and services. How do we marry quality control with making sure that we can get the best products out there utilizing technology?

And then the second question I have relates to a survey I saw recently about China's wealthiest class wanting to immigrate to countries like the U.S., Canada, and England, and that they raised the issues of health and education being the two reasons apart from the one-child policy. What are we missing that we're not seeing in terms of the opportunities they have at home, but the desire to leave their country?

MR. CONNELLY: Well let me start, certainly with the first part of the question, which was around a rush to get new products to the marketplace and are we missing something. And let me say first of all that business is always in a hurry. That's part of being in business. It's about being faster and it's being more efficient. But there are certain ground rules around product stewardship, and I think that is the piece where if there have been failures, there in the area of product stewardship. For a manufacturing operation, product stewardship is about how we make the product first and foremost. How do we make the product? How do our plants perform? What emissions do we have in connection with producing those products? How energy efficient are our operations?

But product stewardship is also about how the product performs. How it performs in its intended use, how it performs when misused, how it performs at the end of the life cycle in those dimensions. And I think what you're seeing is a lack of focus on that product stewardship process, and leading manufacturing companies are becoming more and more rigorous around that. Within

DuPont we have a chief sustainability officer, and that role is really all about understanding how our products perform in their intended use, how the products perform if misused, and what happens at the end of the life cycle. So that is my response. There are checks and balances, processes that need to be in place to address that.

Maybe Dominic on the second part of the question?

MR. BARTON: Sure, your question was what are we missing, why is it that people want to move here when maybe we're complaining it's not so good here -- I don't know if that's the gist of it. I think that's a whole long talk itself, but I think you have to segment it in China. I think there are a lot of people that are moving into the middle class from the rural areas to the cities and it gets 900,000 people a week. They're very happy where they are. If you look at actually, it's interesting, trust in business in China -- the Edelman Survey is just coming out -- is actually one of the highest in the world believe it or not. That's where it is. So there are actually a lot of people that don't want to leave, that are happy with where things are moving, and feel very good about the future and where their children are and the focus. And they put a lot of focus on education. I think it's more in the very high wealthy group that actually wants to have places in different parts of the world and move. I think there's an interesting question for the U.S. I literally think there are millions of people that would like to buy houses in the U.S. if they want to deal with the housing issue. I don't know whether we want to do that or not. I'm just saying. I tell you, there's a big demand for that because there is a large number of wealthy people.

So that's kind of how I would look at it. I have to say just on a comment, though, when you look at education -- and that was one of the points you were making -- and that is I think an Asian advantage. If you look at the amount of emphasis and focus on how important that is compared to how I think we see it -- I know I'm generalizing; it's very big. I'm amazed, for example, in Korea at the size of the private tutorial market for children between the ages of 4 to 8. There are billion-dollar-plus companies that are serving that market. Australia's third largest export is education primarily to Asia.

MR. KATZ: That's interesting. Questions? Right over here, just got to find a microphone.

SPEAKER: Yes, I'm Jeff Alexander. I'm with SRI, formerly the Jefferson Research Institute, and we do a lot of work in regional economic and workforce development. And there's a kind of contradictory message that I've detected, which is here a lot of people have said the technical institutes and community colleges are an important part of workforce and job growth. But we have a strong message in this nation about everybody needs to have a four-year college degree, we need more kids going to university, and local governments use the percent of population with a four-year degree as a metric for their success. Don't you see those as kind of contradictory? How would you reconcile those two messages for policymakers?

MR. BARTON: Well, I would agree with you. I think we need to put much more emphasis on it is higher education. And it doesn't mean having a university degree means that's where you are. We need to broaden the aperture of where that is, and I think maybe we're simplifying too much when we say we want university education -- we want more education. I actually think we have to be -- again, I would be emphasizing much more on the polytechnic side.

Also there's this sense, too, that it's not -- you go there if you haven't made it. I think that's just -- it's really a bad image to have there because, by the way, there are a lot of cases of people who have gone to the polytechnics. They do the work for awhile and then they -- there are a number of CEOs that have come through that group. It's a time for all sorts of reasons, different reasons, for skilling reasons and so forth. So I think we have to get more of the story out about that and broaden it to do it.

The other thing I would just say, too, is this aging population. You know, why is it that we think once someone's over the age of 55 they can't be productive anymore? Why are universities focused on 20 to 30 year olds? Maybe we're going to have to start to think about educational institutes focused on 55 year olds for another way because if you just look at the world and where that's going. So I think our kind of mindset on education needs a reset fundamentally.

MR. KATZ: Just listening to this question, the back and forth. How many folks in the room either have read the book, *Money Ball*, or have seen the movie? Okay. Brad Pitt, right? And it just seems -- for those who have not read the book or seen the movie, the whole premise is you've got to measure right essentially. It's about baseball and the Oakland Athletics and Billy Beane who was the general manager who basically with insight from a young statistician basically decided that there was a better way to measure baseball performance than just RBIs and the traditional, sort of batting average. On-base performance was sort of the focus.

And it's almost like we should have a money ball for manufacturing or a money ball for metros, you know, where we're measuring the right thing. And it's a little bit more comprehensive. I mean, we do these cartoon measures. Everybody's got to get a four-year degree. We go off on that frolic for a couple of years. And then at this point we need to have a much more textured, nuanced view of our economy.

I would just say also in response to this question, it's not just post-secondary education. About six months ago I went out to see the Austin Polytechnic Academy which is on the west side of Chicago, which used to be the big manufacturing base of Chicago. It still has many small- and medium-size enterprises. They set up a public high school from what we used to call "voc ed" and the small- and medium-size manufacturing firms are basically in charge of the curriculum. So people are getting the normal education, but then for a portion of their education, they're being trained. And at the end, they actually get the NIMS credentials. They can literally leave high school and go on the factory floor in the west side of Chicago. And when you look at the class coming into this high school, many people are coming in with third-grade reading, fifth-grade reading and math. By the time they leave, they can move directly into the workforce. So we can push this down further into our system, probably again along the German model and some of the other models. There's a question back here.

SPEAKER: Thank you. Larry Checco, Checco Communications. We were told at the outset of this day that GDP in the country is pretty much back to what it was prior to the recession with 6 million fewer workers. That's a very disturbing statistic. And is this a trend that we're going to see? I mean, and how do we -- it's a big hill, looks like a mountain to me.

MR. KATZ: Let's go at this for a bit.

MR. CONNELLY: Right, I think that's why we're here. I think part of that answer is more manufacturing in the country because manufacturing addresses not only the domestic market, but it addresses all those emerging consumers in other parts of the world. Manufactured goods as we've heard represent a smaller fraction of the economy than they do of our exports. They can create wealth for the country by sales to consumers elsewhere. On one level, the fact that we're producing as much as we did before the recession with fewer workers says we've had an increase in productivity. That's never a bad thing. But what we need to do is to take those additional resources, put them back to work, and manufacturing is a great place to do that. And the emerging, developing, markets are a great place to sell U.S. products.

MR. KATZ: Dominic, McKinsey came out with that study. I guess it was in conjunction with the President's Job Council where you really looked over the course of the decade and were trying to sort out what are some different scenarios of growth. I think at one end of the continuum was 21 million new jobs. I think Gary did a great job today of saying, you know, what's the joblessness hole we're in now? And how do we sort of climb out of it? And how long is it going to take?

How big of a deal would manufacturing be in contributing to this kind of job creation that has to occur, whether they're the factory jobs or this broader continuum of jobs that we're describing?

MR. BARTON: Well, again, we have scenarios on it, but I think that it's very large. It comes back to just what Tom had said; that there are a lot of opportunities. Our sense is that a lot of the -- we're a very consumer-driven economy, right? We heard and it was great, but how much we're going to spend depending on the value of our house and where things are. You know, innovation and technology create wonderful new, I think, opportunities for jobs and also for consumption. It's its own virtual cycle.

So taking aside just the point about the number of jobs that can be created from many of these advanced sectors, health care as we look at it, whether you look at it positively or negatively, is going to be one of the biggest industries in the world. You just have to look at the demographics that are going on. There are a huge number of jobs we think that can be created in that from the very basic level back to the point of -- we don't have enough nurses, we don't have enough radiologists, which is one level. But there's a lot with big data. If you think about what we can do now with data and our bodies and where things are and what's happening, I think this is just going to erupt into a big area. So it's not only sort of the basics of what we're doing now, but I would say where it's going to be going. And that's why I say with food.

Someone mentioned before about standards. There are actually very big businesses to be built on standards, and I'll tell you that a Chinese consumer would buy that. If you had -- if you think about what happened with milk and what happens with drugs, and where things -- that is a very high-value-added area to develop, just standards in how we do it.

So our sense is we're sort of seeing 2 million jobs that we could see directly. That was one number that we'd used. We could break it out. On the whole big data area, we think that's going to be half a million jobs. But again, it all depends on how much we do in each of these different sectors.

MR. KATZ: That's great, very helpful. Questions, comments, criticisms? Your hand immediately went up.

SPEAKER: Thank you for very interesting discussions. My name is (inaudible) with Voice of Vietnamese Americans. So we're talking about jobs and creating jobs for Americans. Would you say that we have a global area playing field and how do we enrich that? Are you having troubles with the wages and the labor laws here for us American workers compared to China? And would that create problems for your end products? The Secretary said that we want to create it here and export it around the world. So with the idea of the FTA and the TPP non-tariffs, how are we supposed to compete with the wages and labor laws between here and over there?

MR. CONNELLY: So if I understand the question, can a U.S. base compete with a competitor who is based in a different part of the world with different labor standards, et cetera? Is that the nature of the question? And I would say it is an issue, no doubt about it. There are parts of the world with lower cost of capital and lower unit labor rates than we have. So that's a statement of the problem; it's not a reason to give up. So I think what we need to do then is to look at where we want to compete. There are some sectors where we cannot through our product technology or our manufacturing technology bring enough to that sector to make a sustainable business out of it, and we will exit those businesses. But what we have found is there are enough places, thanks to our intellectual property, where we can create a product that has value for the consumer in those developing regions and where they're willing to pay a price of a U.S.-manufactured good.

Part of it is the security question, and Dominic's absolutely right around food products and food ingredients is a new and important business within the DuPont Company. Part of it is the quality of our products, the consistency of our products. Part of it is specification-driven. Goods that are manufactured in Southeast Asia may be for markets in the West, and the materials will be specified at a DuPont international standard.

So there are ways to compete. There are some markets where we cannot compete. And it's up to the business leader really to find out where and how his business or her business can be successful.

MR. KATZ: Follow up?

SPEAKER: So we're talking about value-added at a higher level of products. Do you have any problems with the IP protections because that's where we're being -- the minute we have some products coming out, shortly after they are imitated.

MR. CONNELLY: Absolutely, and I mentioned IP earlier. It requires constant vigilance, right? And don't think that just because you have a patent that's sufficient. You need to construct an IP and protection strategy, and I like to think of it as concentric shells. The patent is the outer shell, but you need to build layers of IP protection that go well beyond simply holding a patent in one part of the world. We study the applications. We have proprietary ingredients. We have proprietary processes that we use. We worry about cyber security and penetration of our intellectual property. And it requires constant vigilance, and I think it does require government-private cooperation to build that IP fortress around our ability to manufacture in the U.S. and succeed in global markets.

MR. KATZ: Question right here.

SPEAKER: Yes, thank you. My name's Peter Gluck. It strikes me there's been no discussion of what I see as a contradiction between the need for national investment -- infrastructure, education, and so on -- and the dominant political climate in the United States where nobody wants to spend anything on anything in the Congress; and, if fact, they want to spend less on everything, and it may be worse after the 2012 Congressional elections.

So what is the appropriate role of the private sector in publicly advocating for these kinds of greater expenditures in areas like education and infrastructure? I recall a program here about a year or two ago where the case was made for an infrastructure board, and the argument was made there that even Republicans support that. But I don't think anything's happened.

MR. KATZ: Nothing has happened yet. It's happening in the states, but not at the national level.

MR. BARTON: I would just jump in, I think -- I don't know if it was the Secretary or someone mentioned that we've confused investment with expenditure and we treat it the same. And I think that's just wrongheaded. So I think we've got to get back to the basics about accounting and how we look at things.

Just on infrastructure because it's an area I'm very passionate about, we feel we know that if you were to invest $250 billion to $300 billion a year in U.S. infrastructure -- and we know sort of precisely what areas, it's in roads and grids and so forth -- you would create 2 million jobs. By the way, that $250 billion-$300 billion will come from outside. The China Investment Corporation -- I see John Thornton talked about it when he was here -- the Canada Pension Plan. There are people who actually want to invest in infrastructure. It's not even our money. They'd rather actually buy that than bonds to be honest. And yet we can't -- so everyone says that's great. We have people that actually want to put the money down. We have needs that are in the areas, but we've got a market that doesn't work. And I think that's a shame when we have unemployed people like that.

And that's where I feel we need some -- you mentioned it, Bruce -- I don't know if it's a transparency thing to say by not doing things or taking -- I think Klaus talked about it or Andrew -- going to take six months. You're costing people jobs that are out there, and I just wonder if there's some other mechanism that we could put up. Why is it that we look at the stock market every 25 minutes on television about where it's moving? Why aren't we watching what the progress is on an infrastructure project and, therefore, jobs and then get people? Why aren't we putting tents up around that? So I feel very passionate about it because the money is there to put it in. The people are behind it. The needs are there, and there's a bottleneck. And maybe again, I think the good news is there are some local leaders that actually want to do something. We just have to get the transparency there so that people see it.

MR. KATZ: Antoine, and then maybe one question after this just to get everyone sorted.

SPEAKER: Dominic, I think -- Antoine (inaudible). I think you raised an absolutely fundamental question here, and that is the way the government does accounting for expenditures verses investments. It's idiotic. Now why is there not an outcry in the business community? I mean, this is something that could bring two ends of the political spectrum together because it is so totally obvious that we need the infrastructure to remain competitive. And it is so totally obvious that we have a big budget deficit. And it is also totally obvious that with some financial ingenuity, we could develop the instruments to do this. This is where I personally think the McKinseys and the DuPonts and everybody should push and where Brookings should push.

MR. KATZ: Absolutely, good point. This is actually going to take us back to the cultural conversation. So you watch the stock market; I'm on Twitter all day long. It's very interesting because if we were up here talking about biking in cities with a celebrity, let's say, there'd be thousands of tweets right now; if we were focusing on transit or urban building, maybe hundreds of tweets. The bikers, by the way, tweet more than anyone else. I'm trying to get some tweets now. But there's not a lot of Twitter traffic on this, and I'm wondering. Is that a sign that when we talk about the real commanding heights of the economy, so to speak -- advanced industry, innovation, exports, foreign direct investment -- we're talking about a certain cohort of individuals and institutions, but individuals, who are not really plugged in to social media. They're not spending most of their day engaged in this way.

And the end of this question or really comment is, you know, to use a Margaret Thatcher phrase, "We might have to sex this up a little" to really get the culture change we need around labor, around skills, around seeing this as a career path and a professional path and a life path. When you think about America, there is a past that we have of people tinkering, you know, in these makers fairs that happen around the country. I mean, they're well attended, right? We have to think at just the cultural level. There needs to be a different thought process, outreach, along with what Antoine's describing, with some of the key policy things we need to hack at to get done.

I don't know. Are you guys on Twitter?

MR. BARTON: Oh, I can barely handle e-mail. But, you know, one story I could say on that, and I'd give a prize to Antoine if we could get Twitters going on investment verses expenditure. That would be a -- but one thing I have to say is we could -- I do think, that said, we could leverage it.

Just one story I was going to give. I met the fellow who basically did *Chariots of Fire*. I can't remember his name. He's in the House of Lords now, and he changed his life to now focus on education. To cut a long story short, he basically was doing advertising awards, and they gave it to a social media house. And the company that won, it was for lifeboat savers in the U.K. And the people who are providing the money, their average age was 65 so they had to change the demographics. So what this small little advertising agency did was they found 25 bloggers whose average age was 15 years old. And these bloggers had a following on the order of 150,000 people, so a big group. And then they sent a jacket -- from the RSL they sent a little video about these people that volunteered and so forth. Cut a long story short, they ended up signing up 100,000 people with an age actually of 21. Not a single dollar spent on advertising. So again, I think that there's a lot that could be done to tap into people to identify what the problem is. I think people just don't know necessarily what the problem is and make it tangible to people.

And then I think it's a matter of -- there are so many vehicles whether it goes back to education and the schooling system. Do we talk about this? I think in media we talk about -- a lot of it is on compensation and banking -- where are the stories of these heroes that are inventing amazing things that are going on right now. And so I just wonder, too, if in the media we couldn't glorify or have some heroes or prizes or, I don't know, something. Doesn't have to be on the invention side, but that's a great thing to be able to go to.

Last thing I'd just say, I remember the Germans actually. There was a group of German business leaders that decided to focus on this whole STEM thing. The way they did it was they went to kindergartens, and they developed a little box which was to get people to sort of look at how you could do little experiments. This was in kindergarten, because their view is if we get people excited about science in kindergarten, that's what these business leaders did. And it's probably not social media.

MR. KATZ: Tom, any thoughts about this, about unleashing the hidden tinkering talent.

MR. BARTON: No, I think there is a culture change, and I would agree with Dominic. It's got to start early and K-12 is the key to getting more interest in science, more interest in innovation at higher levels. I served on the National Academy's committee once and on a Saturday morning, sitting around a room with a table full of research professors from leading research universities. We said what did we all have in common? Why did we think we were here that Saturday morning? There were two things we had in common. One was a Gilbert Chemistry Set, and we were lamenting the fact that all the good stuff was now out of it for legitimate safety reasons. But the other factor that we all had in common was a high school teacher that made science exciting. And if we can put the excitement in the classroom, we'll get the kids in STEM majors in universities.

MR. KATZ: Well, we had Mayor Daley at a dinner last night, the former mayor of Chicago. And he made the point, which he's made many times before, but it was just so crystal clear and lucid, that we're not teaching invention, manufacturing, I mean any number of -- from the early stage up we sort of lost that. We had this sort of post-industrial nirvana we were marching through. Well, post-industrial means you don't have industry, minor problem. So you don't need to teach it.

I really am struck by a lot of sort of what's been sort of added to the conversation here on both the policy front and on the contextual front. Last question, and since I have the floor, I can ask what I want. We've been working with a group -- and it really builds on this question about Vietnam and some of the Southeastern economies -- we've been working with a set of U.S. metropolitan areas on trying to both enhance advanced manufacturing and services, but also begin to engage with international markets. And our next panel is here, so this is going to be short. In the same way in *The Graduate*, when someone comes up to Dustin Hoffman and says "plastics," you know, bricks, civets. We've got a gazillion names now for all the emerging markets in developing economies. And in the United States, unlike many other countries, we have many immigrants here who relate back to these countries. So if you're thinking about the interplay of invention, commercialization, prototyping, production, and exports, your probable answer will be, "Well, I have to understand what the metro is and what their sectors are before we end up talking about which country and trading partner they should really engage with." But out of all those acronyms, are we sort of missing sort of the next group of emerging markets? Are we focused too much on the big ones and, therefore, missing so many opportunities in the next tier? What's your view on that and then we'll close?

MR. BARTON: Well, I think there's this huge -- again, someone said before 95 percent of the consumers are outside and so forth. One plug I would like to make for is actually Africa and Nigeria. This is a place that's moving -- Nigeria will have more babies born than all of Europe combined this year. And so I would be -- Africa and food.

MR. KATZ: That's your *Graduate* moment?

MR. BARTON: Yeah, that's my *Graduate* moment.

MR. KATZ: That's good.

MR. CONNELLY: I would say for us BRIC has been more BIC than BRIC, but I was going to go exactly where Dominic went, and that was Africa. We sent a team of 30 young DuPonters to Africa last year, to go to the markets, to understand them. It's still early days. They're certainly not in the BRIC category yet, but it's time to lay the groundwork for what's going to happen there economically over the next 20 years.

MR. KATZ: Well, as the British say, we're going to have a march of the makers in the United States. And this panel and the prior-to panels I think really helped to illuminate how to do that.

And now I am going to turn it over seamlessly maybe to my colleague, Darrell West. Thank you very, very much.

MR. WEST: Okay, thank you very much. I'm Darrell West, vice-president of Governance Studies and director of our Center for Technology Innovation here at Brookings, and I have to say, the members of this panel occupy what has to be the most dangerous position of the day because we are the last session between you and lunch.

But we'll try and keep this interesting for you. Just consider us your intellectual appetizer for the meal that is coming up.

One of the themes today has been innovation and we're pleased to have three individuals with tremendous expertise in this area.

Peter Grauer, to my immediate right, is the chairman of Bloomberg L.P. He joined the Bloomberg board in 1996 and was named chairman of the board in 2001 succeeding Michael Bloomberg. He joined the firm as a full time executive in 2002.

Since then he has led the company's growth as one of the most influential sources of business, government, and financial news. Prior to his Bloomberg position he was managing director of Donaldson, Lufkin & Jenrette and managing director and senior partner at Credit Suisse First Boston.

Next to him is Ted Leonsis, who's the founder, chairman, and CEO of Monumental Sports and Entertainment. He is the major owner of the Washington Capitals hockey team and the Washington Wizards basketball team. And, believe me, when we're discussing innovation in our nation's capital, we could use a few more wizards, Ted. He also operates the Verizon Center in downtown D.C.

Prior to his foray into professional sports, he was vice-chairman at America Online. He's active in many different areas. He is the founder and chairman of SnagFilms, which produces and distributes documentary films, and he's had some huge successes in that area. He also serves as vice-chairman of Groupon and on the board of directors of American Express and a number of other companies.

He has a well-known blog called Ted's Take, which always has lots of interesting material on it. I was looking at it yesterday and it featured a quote from Winston Churchill, which, I believe, one of his season ticketholders had sent to him and the quote said, "When you're going through hell, keep going." And that sounded like good advice to me.

Bill Galston holds the Ezra Zilkja Chair in Governance Studies at Brookings. He's the author of numerous books and articles on institutional reform, government performance, and various types of public policymaking. He is putting out a paper today entitled *Political Dysfunction & Economic Decline,* we'll spend a little bit of time talking about that. The paper looks at the growing political polarization between our parties and the diminished capacity of Congress to address important issues.

Bill is very honest and direct about many things in part because in his earlier life he served as a sergeant in the U.S. Marine Corps, which I always thought was an important part of his biography.

What I'd like to do is start with Peter. I mean, you lead one of the major media outlets in the country and so you have seen the virtual revolution that has taken place in the media industry. How has the proliferation of new media changed the way in which providers create content?

MR. BRAUER: Thank you, Darrell, and I think on behalf of the three of us we're leased and flattered, honored, Strobe and Glen, to be here. But it's a formidable topic and, in fact, Dominic and I were having dinner last night in New York and I said to him that I really have gone through a pretty methodical process, so I'd like to take us through a little voyage, if I may, and start with the fact that certainly in the area of shifting media and how do content providers provide for these various platforms, clearly the sand is shifting between our feet.

The digital revolution, as you all know, just look at you in this room, Glen is on his iPad, Strobe is on his Blackberry, I mean, if we went through the room --

SPEAKER: (Inaudible) Bloomberg.

MR. GRAUER: Of course, I know you are, but I asked this question in St. Petersburg last year at their version of the World Economic Forum, because I was giving these incredibly pithy and thoughtful remarks, literally everybody in the audience was looking down at their laps. And I said, come on, give us a break -- no, I'm kidding, but the digital revolution has clearly transformed how information is created, distributed, shared, and displayed.

In the past, as we all know, and particularly those of us in the older generation, we received our news from offline, traditional stand alone media -- radio, television, print sources, newspapers, magazines. Today everyone, all of you in this room, basically assemble your own media mix integrating traditional sources with email alerts, websites, social networking feeds from Facebook and Twitter, and other technology, like the Bloomberg Terminal.

It is, as we all know, a great time to be a consumer of news. The advent of these new technologies have opened the door to a plethora of new news sources and tools for distributing the news.

The way we gather news has changed too. What used to take a film crew with large equipment can now be done from an iPhone, and as we look at the gentleman in the back filming this activity, our head of news was in Cairo when the Arab Spring broke and basically broadcast from his iPhone digital quality video that people put on the air.

So, the need to have a camera crew with lots of satellite hook up equipment and various other things has changed quite dramatically.

Citizen journalism, as we all know, the consumer is now basically in control. The expansion and the choice and number of media outlets available has led to consumers spending more time consuming media. They choose when and where to get content, how to share it, some even report it themselves, as we know. They can get content on demand when they're ready to consume or in real time through desktop, tablet, phone, or TV, in text, video, still images, audio, or an infinite combination.

Data has become customizable. Readers can set parameters as they wish. Based on their particular interests, their results are tailored for them. But there are, as we all know, crosscutting trends that are going through this. TV is on the phone, Internet is on the TV, newspapers on the tablet, the world of converging media, we see lines being blurred every single day.

The implications of this change on content providers are the following, and that is: the medium today drives the message. Consumers are able to demand that content providers deliver content to their preferred platform and device in various formats -- audio, text, graphics, and video -- but providers just can't pour the same content into a different wrapper. The challenge is creating content tailored for each of these sources.

We have to constantly re-conceive how we deliver the same message and figure out what works in each place. Think of content today as software, it needs to be optimized for the device or platform to which it's being delivered, and this has changed the way media gathers and disseminates news. Media and information technology companies who fail to do this, as we all know, will become obsolete. Words and images and platforms are all so intertwined, to consider individual parts of the public process in isolation is to miss transformative connections between gathering, writing, delivering, consuming, and sharing.

Few, if any companies, have to think through the ramifications of each new medium the way and to the extent we do at Bloomberg. We are, I would underscore, totally agnostic. We don't care how you want it, where you want it, and when you want it, but we're going to deliver it. And let me give you a couple of examples. Our terminal users, 315,000 subscribers in 170 countries around the world, are sitting at their terminals, in most cases, between eight and twelve hours a day. They're busy. They're interested only in the facts, and the prose of future stories is not what they want to see when they're sitting there worrying about key decisions in the financial markets.

But our tablet reader, where we provide *Bloomberg Business Week, Bloomberg Markets Magazine, Bloomberg Television Plus,* and *Bloomberg Radio*, are usually seated, relaxed, and prepared to spend time absorbing information. We have their full attention, which gives us an opportunity to tell a much deeper and longer story.

In our web audience, Bloomberg.com and BloombergBusinessWeek.com, believe it or not, we get most of our traffic from 11:00 a.m to 2:00 p.m., a lunchtime audience. They want information quickly, but they also want a diversion and are much more likely to watch a video.

On mobile, people don't want to read a long story on a small device, we need to shorten those stories.

So, what does this mean in terms of the shift of our focus? In the past, the value of a provider's URL was the most important factor. You always wanted to drive traffic back to your website and your homepage. Today, you, the average news consumer in this room, go through nine to eleven different sites every day looking for news.

We have so many distribution channels we don't necessarily need to drive them back to the homepage. We're happy as long as they're reading our content and don't care where they find it -- homepage, search engine, Facebook, Twitter feeds, et cetera -- and once the content is on the web, others will share it and this enables providers to reach readers they may otherwise have had no reason to interact with.

Our current model, by the way, for our online offerings, one-third homepage, one-third search engine, and one-third social media. And keep in mind, as we all know today, Facebook reaches more people than any other U.S. media outlets combined, a great way to distribute our content, they do some of the work for all of us. It's a very -- and continues to be, a very meritocratic world where everybody is competing with everybody, the best story usually wins. This is good for us as a quality content provider and as a new player.

MR. WEST: Thank you, Peter. Ted, you work in both the technology and in the entertainment business and you're very skilled in your personal use of social media and public outreach. For those of you who don't know, Ted has over 22,000 followers on Twitter, and anyone interested in following him can sign up @tedleonsis. Mine is a lot fewer than that in terms of the people following, so I have to admit I suffer from Twitter envy when I go onto Ted's site.

So, let me just ask you about social media. How are social media transforming what you do in the sports and entertainment area? And then one of the things that I think you do especially well is you talk to fans but you also listen to fans, and so I'm also curious your views about how technology enables two-way communications and how that affects the way you do business?

MR. LEONSIS: Well, thank you. It's an honor to be here and it's really interesting, the Brookings Institute kind of at the epicenter of really the new economy. We forget we're living in this world where everyone lives their life on the net and our government really initiated and launched this birth of a new economy, the internet economy.

And we're living in a very sobering time right now where we're not connecting the dots well enough between government and private industry, especially to try to focus on the number one problem facing our country, which is how do we get America working again.

And, so, what I wanted to talk a little bit about is a little round trip and lead to a political discussion about what's happened right before our eyes and how we know these facts and statistics happen but we become numb to what the big picture change really means for us.

So, today there are two and a half billion people around the world connected to the Internet, two and a half billion. The United States has 300 million Internet connections, so we are becoming a very small player in an overall connected world that changes the (inaudible) in terms of not only social adoption and change in IP and the educational materials that are available now, really, will have staggering impact for us.

The good news is that from a business standpoint, it's U.S. based companies that have been driving the innovation and, frankly, the business models, and they've created great franchises.

Probably in autumn of 2012 Facebook will hit one billion users. Google and all of its sites already has one billion users. That means their revenues will start to mirror their usage and where their customers are, and so all of these great Internet franchises, the Amazons, the Ciscos, the Googles, the Facebooks, the Groupons, more and more of their business is being generated outside of the U.S. They're hiring more and more people outside of the U.S., that's where their growth is coming.

And that's troublesome right now because their revenues get taxed in their sovereign country, and so one of the things that, I think, we have to look at politically and from a tax system is how do we get these great companies that were initially venture capitalized with risk capital, who then went out and hired lots of people and now are hiring lots of people outside of the U.S., to take some of those profit dollars that have already been taxed, and bring them back to the United States and maybe have some kind of tax moratorium if they invest those dollars in private equity firms and venture capital firms, that continue the cycle to invest in young, innovative companies.

Four years ago a young entrepreneur visited me. There were four people in his company. His name is Andrew Mason. He'll actually be featured on *60 Minutes* this Sunday, so tune in, and he had this idea about social shopping and the ability, in a bad economy, to be able to aggregate up the power of people seeking discounts. But more importantly it also was a way to get cash back into the system to support small businesses.

Banks had stopped lending to small businesses. Factoring and receivables financing was drying up. And so he started a company called Groupon. Groupon became a phenomenon. *Forbes* named it the fastest growing company ever. It IPOed. We now employ about 12,000 people around the world, and basically it's created a new local shopping commerce phenomenon.

More than 50 percent of its business, very quickly, is outside of the United States. And, so, I really do think we need to not lose sight of, we were advantaged because we were the early adopter of the Internet and the web and web 2.0 kinds of activities and technologies, but now that genie is out of the bottle on a worldwide basis, and we have to drive lots and lots of new policy, new partnerships between government, between private industry, between the banking system, to make sure that it doesn't get away from us and that we can continue to drive innovation and create jobs for our economy.

If I was running for reelection, that would be one of the major programs, the Start-Up America Initiative that one of my friends and partners, Steve Case, is running, I think is vital for our country because it is small businesses that are venture capitalized that are hiring people. And so the more money and more support that we can offer that system to grease those skids, I think the better off our economy will become.

In regards to what's happening in social media, I think that it's even more dramatic than people understand. I started to make some movies a couple of years ago and I was stunned at how this $8 billion industry, an industry that defines what are culture is like around the world, one of our biggest distribution products around the world, how antiquated it had become.

In fact, you shoot a film in digital and then you turn it into an analogue product, which amazed me. I'd spent my career taking analogue products and turning it into digital. And you then mail it out to a movie theater and people buy tickets and the industry is pretty archaic. And, so, I started a company called SnagFilms, and I'm very proud of what it's doing under the term of what I call film anthropy.

There are so many movies now that are being made that want to shine the light on a tough subject, that want to activate volunteerism, that want to right a wrong, that want to raise money around a cause.

And, so, SnagFilms, in three years, we now have 3,000 full-length free movies. You can go to SnagFilms and watch a movie for free. It's on your iPad, it's on Roku, Boxee, Hulu, Blackberry and the like. If you like the film, you can snag it and you can open a virtual movie theater and you can show that movie to your friends, on Facebook or on your blog or your webpage or your editorial page.

We now have close to 200,000 virtual movie theaters open. That compares to 30,000 physical screens in North America. We're streaming, literally, 20 to 30 million films per month. We're supporting 550 charities and we embrace the filmmaker. We've created, literally overnight, a brand new infrastructure through streaming and distribution of these good work films.

And I think you're just going to see example after example of new technology activating great new applications and opportunities that really shake up the status quo of traditional media companies.

MR. WEST: Thank you, Ted. Bill, the other panelists have focused on IT and media innovation. You think a lot about political dysfunction and the need for institutional reform, and, as I mentioned, you're putting out a paper today. The title of your paper is *Political Dysfunction and Economic Decline*, so I was wondering if you could explain both parts of that, the political dysfunction part, and then the impact on the economic and innovation.

MR. GALSTON: Well, I'll do my best, Darrell. Let me begin by saying that it's an honor to share this platform with two such distinguished private sector leaders and I hope that what I have to say will add a little bit of value to the tremendously important things that you've already put on the table.

I actually thought the most useful thing I could do as the last presenter, before lunch, would be to try to connect some of the dots from what has been said this morning and connect those dots up to the topic on which I'll be focusing.

Ted Leonsis just said at the beginning of his remarks that we live in sobering times. Indeed, we do, and I think that's a very good way of describing them. Not only because of the Great Recession, which, God willing, will end someday, but also because, on a more fundamental and secular, as opposed to cyclical, basis, the American economy and society are being buffeted by the twin forces of globalization and technological innovation.

These forces are transforming our economy and our society and they are also posing a tremendous challenge for our political system.

In the face of these dizzying changes, the question is: How are we doing? How effectively are we responding? My answer to that question is: Not well at all. And I didn't hear a lot of dissenting views this morning. I heard various amplifications of that judgment that we're not responding very well.

So, what I'd like to do is just to unpack that sense that we're not doing very well in responding to these challenges by making four points.

Point one, we are enduring a very high level of political dysfunction in our national politics. A good portion of my paper is devoted to spelling out some of the details. If anybody disagrees with that judgment, please raise your hands, and I will be happy to go into greater detail. I don't really think it's necessary.

Everybody remembers the debt ceiling fiasco, but it goes far beyond that. We heard references this morning to the atmosphere of political uncertainty that is hindering long-term investment decisions. We heard multiple references to the most serious challenges that we are really not confronting with the scope and scale that they deserve. And it occurred to me that, you know, when I was younger, political risk analysis was something that American analysts did about foreign countries, and now it's something that foreign analysts do about the United States. This is a sea change and a very unwelcome one.

My second point is this, and it is foreshadowed in the title of the paper that's being released today, political dysfunction is the enemy of economic growth. These two processes cannot be decoupled. There is no way for the economy to go around politics. Like hell, it's something you must go through.

Now, I made just a list of all of the different linkages that people this morning talked about and it is a long, impressive, and depressing list. It includes immigration policy, education and training, infrastructure, trade, taxation, regulation, what a couple of panelists called directed public investment. Well, I'd like to ask you the following question: How on earth are we going to mobilize resources for directed public investment if we're on an unsustainable fiscal source and seem incapable of coming to grips with that simple, massive brute fact?

It's not a rhetorical question, it's a troubling question.

Here's my third point, and this is really the affirmative and forward-looking section of the paper that I'm releasing today. Institutional innovation is a key, I would say, indispensible part, of the response to political dysfunction. We can't sit around hoping that political leaders and political parties will join hands and sing *Kumbaya* around the fabled campfire.

We are going to have to change institutions so that the incentives of actors within these key political systems are changed so that they will behave differently, so that they will produce better results for all of us. And in my paper I lay out three key baskets of institutional innovation.

One basket directed towards making Congress work again, I can talk about the details of that if you're interested, but it deals with everything from, you know, the confirmation process to filibuster reform to the restoration of majority rule to linking Congressional pay to the performance of basic Congressional duties, such as producing an annual budget on time.

The second basket deals with the budget process itself, and I lay out a number of options for reforming the budget process, which was put in place, let us recall, through the 1974 Congressional Budget Act, which is almost 40 years old and worked better at the beginning of those four decades than it is now.

And, finally, reforms to the electoral process to begin the process of de-polarizing our hyper-polarized and gridlocked political system.

Point four, and finally, and this is a direct response to some of the things that I heard this morning, not only can we not de-couple politics from economic policy, we cannot de-couple governing politics from electoral politics. What is said during political campaigns is a very good leading indicator of what you're going to get out of the political system and not get out of the political system, and to be blunt, if it's not discussed in the campaign and it's a matter of any significance, it is extremely unlikely to happen during the governing process, during an administration.

What people say, matters. What the President says in his forthcoming State of the Union Address, matters. What appears in the platform of the opposition party later this summer, matters. What is discussed in the general election, matters, and I have to say, and this is my closing thought, there is an almost complete discontinuity between the very important topics that have been discussed in this room this morning, and anything that has been discussed in national political discourse at a level of visibility during the past year or right now, during the presidential nominating process. And these are bad leading indicators for the kind of discussion that we're likely to get in the fall.

Bottom line, there are many people in this room who are capable of influencing what is discussed in our nation's politics. This is a very important election, this is a very important moment. If you want the topics that you care most about to be on the public agenda, you are going to have to act affirmatively to put them there.

MR. WEST: You know, I like Bill's idea of linking Congressional pay to actually producing federal budgets on time. I mean, that might actually change the incentives in a significant way.

I'd like to follow up on this exercise of connecting the dots and throw out a couple questions. Any of the panelists who want to jump in, feel free to do so, and then we'll open the floor to the audience after that.

How well is government doing on innovation, in particular, and what should the government, if anything, be doing to promote innovation? Any of our panelists. And you can talk about innovation either in public sector, private sector.

MR. GRAUER: You know, I was asked earlier in 2011 by someone who I consider to be an incredibly thoughtful scientist engaged in trying to combat a very important disease and he said, you know, who would you introduce me to in Washington so that we can try and get some of these programs moving? And I'm ashamed to say in front of this group that I told him that I thought to the extent he could avoid Washington that was probably the best outcome for him.

And my sense is that there is very little that would induce the private sector to really reach out to government to try and figure out how to solve a problem. And that may be an incredibly parochial and naïve view, but I think it's -- you know, we are to a certain degree, on our own. I think one of the great lifebloods of this country, as Ted was talking about before, and certainly we see every day in our company at Bloomberg, is this incredible power of innovation that occurs regardless, almost, of what the external environment is like. And, so, I'm ashamed to say that with the malaise that exists in the world of politics and government, that to the extent you can avoid that beat, I think you're better off and have a much shorter path between development and ultimately success. But I don't know, Ted, whether --

MR. LEONSIS: You can't measure it, you can't manage it, and if we're serious about innovation, we have to create national database and make it transparent to see how we're doing. And you could, very quickly, come up with some signposts. It could be numbers of start-ups, how much venture capital is flowing in to start-ups, how many patents have been filed, how many new product launches have there been, how many new plants have been opened -- you can make a list -- how many jobs have been created, and I don't think we do that.

And, so, we leave it to the singular, heroic, romantic figures. It's why we were, as a country, in national mourning with the passing of Steve Jobs. You know, Walter Isaacson's book -- I was on vacation, and people reading it, it was like the Bible. We are desperate, as a people, to recapture what made the company great. We're a start-up nation. We're, at our heart, entrepreneurs. The country was based on innovation. Our Founding Fathers really were our first entrepreneurs, and so I do think that Washington, because of this political gridlock, gets in the way more than it helps, and that's, really, the biggest issue.

One of the big intellectual fights is, do you want government to create jobs or do you want industry to create jobs? It's pretty binary, and if government creates jobs, how do we know that we're getting our money's worth? Because we, as taxpayers, in essence, are becoming the venture capitalists. And will the government be able to manager those functions and those businesses and investments well?

We know there's infrastructure and management and leadership on investing and trying to make these companies successful. And, so, you know, I'm ashamed to say that I'm agree whenever I'm asked, what's the best thing that government can do to help entrepreneurial business I say, do nothing, get out of the way because speed, innovation, fresh ways of looking at things, is what differentiates a start-up from an institution, and the government is going, truly, the other way in terms of not being able to move quickly on things and over-regulating things, especially to blunt young companies to scale.

MR. WEST: Bill?

MR. GALSTON: Well, I hope everybody was listening very, very carefully to those last two remarks because they bear eloquent testimony to one of the perverse consequences of political dysfunction, and that is that important parts of the private sector, if I heard correctly, are basically giving up on government.

And it seems to me that if there's any key question that we face in this day of discussion and as a country, it is whether that represents an adequate response to the challenges we face.

Is it simply a matter of government getting out of the way, to quote? That may work for some purposes, but for others, others that, you know, throughout human history have required effective public investment starting with infrastructure but not ending there. It's unlikely to be sufficient.

I believe, Ted, you were telling a story about your inability to figure out who controls the traffic lights in Washington, DC, which is a business issue, right? And that's a micro example of political dysfunction that has a bearing on your customers.

So, you know, I could multiply example after example, and just to be contentious, I don't think it is binary, you know, government creating jobs or business creating jobs, because there's a third possibility, which I actually think is the truth. Mainly, that the environment of incentives and opportunities and prohibitions and regulations that government creates, either facilitates or impairs the growth of business, and that has certainly been the case throughout American history.

You know, go back to the 19th century, you know, with the system of canals, facilitating commerce built with, you know, built through the public sector, and Henry Clay's American plan, and all of that, the whole land-grant college system, Abraham Lincoln's finest achievement other than, perhaps, winning the Civil War. In other words, the idea that the best thing that government can do is get out of the way is -- may be a sad truth, but it is also the symptom of a deep disease that I don't think we can live with as a country.

I'm putting it just as starkly as possible, and if you don't agree, please say so. That's why we're here.

MR. WEST: Ted, jump in.

MR. LEONSIS: I think, too, what we're seeing is a forcing of business leaders to pursue double bottom line initiatives, that you're trying to run a business, but you're also starting to run these enterprises like they were governments.

You know, Facebook is going to be China and have a billion people with some centralized command. It can communicate to its citizens in a very efficient fashion. What do governments do? They have to defend their citizens. Facebook, honestly, is concerned about its citizens' safety and security. It creates currency. Facebook is creating its own currency.

We're starting to see organizations take a lot of what government should do into our own hands, might be in a virtual way, but we really are seeing that we have to take care of our employees. Howard Schultz is on the board of Groupon and I've become good friends with Howard, and he basically has taken on a "we" have to do the work, "we" have to be articulate and deliver the votes, "we" have to communicate to government, but we have to deal with our people and our customers as if we're our own governing body, and if we can be exemplars in the way we run our businesses, maybe that's a good proxy for what we should be asking for government.

I was mayor of my town for several years in Florida and, you know, I learned a lot about local government, and then when I was president of AOL I used to say, I'm running the fastest growing city in the world. We would go from one million to four million to seven million to twelve million people, and governing, really, is a function of focusing on the vital few.

And what I think has happened is that there's so much noise in our system right now that we've lost sight of what the big, vital deliverables of the government is. And, you're absolutely right, there should be a partnership and a simplifying of the best ways for the private sector and government to work around goals that are measurable. And that's the thing that I keep coming back to.

If you're a small business, mid-sized business, biggest industry in the world, you have shared goals and metrics, and you, on a daily, weekly, monthly, quarterly basis, you can review to see how you're doing. And the company with the biggest budget of all time, we don't do that. And I just don't get it.

And, so, I think if we could force that kind of accountability where we all had a national scorecard around what the big deliverables are and how we were doing, it certainly would make your election vote easier. It wouldn't be based on rhetoric, it would be based on deliverable, and I think that would be a way that we can start, maybe something that Brookings could help with.

MR. WEST: In fact, not only do we not have metrics, in some areas we've actually weakened our data collection and data analysis capacities. Did you want to jump in --

MR. GRAUER: No, I just wanted to add, and everyone in this room is sensitive to this fact, but one of the things that clearly the web has done for all of us with the instantaneous flow of information around the world, is given us a much better understanding as to what's going on in other parts of the world. And being lucky enough to be in a position to run a company that is very global in scope, the one thing that I come back -- when I come home after a trip, whether it's to Asia or South America or the Middle East or wherever -- or Africa or wherever it may be, is the lack of sense if urgency that exists here in dealing with some of these issues, and dealing with these issues in a much more highly competitive world than we've ever operated in.

And if we, which I hope we never do, give up the role that we play in the global economy, we are at risk today of ceding that responsibility to others, and I think, to a large extent, some of that will be our fault, and I think that adds a further complication to what both Ted and Bill were saying, and that is, the world is flat, it's smaller, and it's just a lot different than it was when many of us in this room were growing up, and we have to factor that in when we think about the competitive implications of what goes on, whether it be in the private sector or the public sector.

MR. WEST: Okay, why don't we bring the audience into this? We have a question right up front. There are microphones coming around.

MR. ROBINSON: Jim Robinson. Let me make an observation, because today is in stark contrast with yesterday. We're here at Brookings, we had the metro program, the focus on mayors, the focus on governors, and the feeling that it's a Brookings moment because we are generating metricies, we are having examples, significant examples, of public/private initiatives, leadership by governors, mayors to make a difference, because they realize just what we're saying here: the federal government has gotten themselves to the point where they're irrelevant, at best irrelevant, at worst, which is what is happening, they're in the way.

So, how do you deal with this paradigm? And it's got to happen at the local level, in state and local, and it is happening and I'm optimistic about that as much as I'm pessimistic about the thought that we, somehow, are going to change and break that dynamic between the political process as counterproductive with economic development and job creation.

That's just an observation, but I wanted to make it because yesterday was quite upbeat in that regard.

MR. WEST: Any reactions?

MR. LEONSIS: I've lived in Virginia for a long time, I just moved into Maryland, but Virginia kind of has it right. It's been ranked the top managed state year after year after year. It has great business practices and I think there's a direct correlation between their governor can only run and serve for one term, and so when they get in, they have to work as hard and as fast as they can.

It's also unlimited giving, which I find interesting. I thought that that would be a detriment, but they've had a series of really good governors, the state runs well, and it's kind of, you're in, you've got your 100 days to articulate your plan, you sprint to that fourth year, and you're gone. Next guy comes in.

So, I agree with you. I think a centralized version of running things versus a decentralized, high tech, high touch, I can understand why yesterday was more upbeat than today.

MR. GRAUER: Jim, I can assure you that this natural bias will be seen by everyone very quickly, but if you look at what the mayor of New York has done in the ten years that he's been there and the entrepreneurship, the most recent example, which many of you have seen, is the Cornell project, which obviously has been spearheaded by Mike, but it does show, if you have an ability to make decisions and have the authority to execute those decisions, you really can have a significant impact.

I think the biggest concern about the city of New York is when the mayor steps down and it goes back into much more of a political process, and unfortunately I think some of the gains may unfortunately unravel.

MR. GALSTON: Well, just a brief reflection on, you know, the dichotomy that you're observing, which is absolutely right, under our Constitutional system, there are certain large policy questions that only the federal government is empowered to address, and many of those questions have an impact on economic growth and innovation.

And I was listening this morning, as I'm sure everybody else was, a number of people, for example, talked about immigration policy, particularly in those areas that require a continual stream of high skilled people, you know, especially in the sciences and engineering, and despite the best efforts of a few of our states, immigration policy is still the exclusive province of the federal government.

And the last time I checked, states and localities did not have the power to negotiate trade treaties, the absence of which can, you know, have a very important, debilitating effect on export opportunities, et cetera, et cetera.

And, you know, so I don't -- in the same way that I don't think the private sector has the luxury of retreating from the public sector, so too I don't think our concern with governance has the luxury of retreating from national dysfunction to state and local function, right, because there's too much that's vital that's left languishing in this state of gridlock, which I don't think as a country and as an economy and as a society we can really afford.

And that's why I spend my time as a Brookings scholar beating my head against what most people in this room probably regard as a wall, a very hard, stone wall, because if we don't get through that wall, if we don't have a national government that can function once again, then our future is one of economic decline and, I would add, class division. I don't think that's a future that anybody in this room would like to see.

MR. LEONSIS: If we say innovation, job creation, or the deliverables, and we say, well, we need math majors, we need to graduate more than 20,000 mathematics PhDs per year, algorithmic work is the basic building block of everything that we're building in the new economy, from financial systems to media to marketing, it doesn't matter. We graduate 20-30,000 students per year and so if we said that's important then we would embrace bringing in more students who were mathematics PhDs and getting them to stay here and work for our companies.

Let's not forget, Sergey Brin, who's the co-founder of Google, hired a lot of people, they built a lot of value, his father was a Russian émigré, came to University of Maryland, he was an instructor at the University of Maryland. My dad's a Greek immigrant. He was a waiter, he wasn't a mathematician, but I just think that the discussion becomes politicized and gets away from the basic, what are we trying to accomplish, and right now the economy and unemployment are the two big drivers of the malaise that the country is under.

And, so, you know, we put people on the moon, we've been productive in Manhattan projects, mayors have proven that they can organize and turn major economies around. We can do it, I just think that you have to hold people accountable for what it is that we want done and then hold their feet to the fire to get those vital few things built.

MR. WEST: Okay, we have time for one more question. Right here. Antoine.

SPEAKER: Antoine (inaudible). Both in Palo Alto, when we went there with the board, and today, it was, I think, quite striking to hear that many of the panelists basically said that Washington had become an anachronism. So, my question is, what specific metrics and goal could Washington have to kind of regain its validness? What would be your view?

MR. LEONSIS: GDP. Knocking down unemployment. Having a quality of life index. Bhutan has a happiness index. We're now the 13th least happy nation in the world. I mean, I do think that we can rally around some very, very important things. We've done it locally. You know, college education as the deliverable. Stunning. Forty percent of DC high school students don't go to college. So, that's a metric that people are rallying around locally because we know the biggest indicator of poverty is not getting a college education.

And, so, I do think that there are some glaring, big things that we can metric and measure, and, you know, maybe that is something that the board at Brookings can start to work on to have a national index that we can have dialogue over. And that probably would be more instructive and helpful to politicians who basically listen to the loudest minority voices that have been amplified by the web.

The downside of what we've created in social media and this plethora of new distribution is that, you know, if you have an opinion, you can now deliver it on Twitter and Facebook and on video and YouTube, and instead of it being one vote, one voice, it looks like a majority of the voices.

And, so, I do think that there's been an overhang, a negative overhang, from this plethora of communications on the political system.

MR. WEST: Okay, we're out of time, but I want to thank Peter Grauer, Ted Leonsis and Bill Galston.

(Applause)

MR. BAILY: Okay, I think we'll get started. My name is Martin Baily. I'm a senior fellow here at Brookings in the Economic Studies program, and I'm very pleased to be here with this very distinguished panel to talk about some of the aspects of manufacturing and technology. And we're also going to talk a little bit about Germany and what's happened in the German labor market over the last few years, and how that may be different from what we've had in the U.S.

So we've got a terrific panel. Leo Gerard, who's to my right, is the international president of the United Steelworkers.

MR. GERARD: Only physically.

MR. BAILY: I don't think when I was in the government, I was necessarily the AFL-CIO's favorite economist, but those days are past. Relative to the current political spectrum, maybe I fall differently. Anyway, next to him is John Surma, the CEO of U.S. Steel.

And next to him is Elisabeth Jacobs, who is a fellow here at Brookings, in government studies, and as I already previewed, has written a paper which is outside, has attracted a lot of attention. It's a very good paper on what's happened in Germany and some of the differences with Germany.

Now, Gary Burtless told us in the first panel of the morning, that the biggest problem for employment that we have is lack of demand. So this is still a business cycle. It's not a recession, because recessions are defined as the part where you're falling, and we're not still falling.

We are rising, just not rising fast enough. But we are still essentially, in what feels like a recession given the high unemployment and the biggest reason is because of caution about spending by business, by consumers, and by government also.

So we're not filling capacity in our factories and offices, and we don't have anything close to full employment. But this panel, as some of the other discussions have really been turning about the role of the U.S. economy in the global economy, and its ability to be competitive globally, and sell its products and services overseas.

And I think we're going to have a great example, both to hear about what's happened in the steel industry, and also what are some of the implications of that for the rest of manufacturing. Two of our panelists got pretty warmed up at lunch, so I think they'll be able to hit the ground running on some of these issues.

I'll say for the record, I'm a little more skeptical than some folks that U.S. manufacturing can be a big source of jobs going forward. I think it may be -- we may get some jobs.

We've had in 2011 as someone said, we have had a modest increase -- I think it was Secretary Bryson said, we've had about a couple hundred thousand, and we may be able to repeat that or do a little bit better as the economy recovers, but I don't think over the next 10 years we are likely to get much additional employment from manufacturing.

And I'm one of those people who thinks the main reason for that is because of technology. That it takes only 2 people to make a ton of steel, whereas it used to take 10 people to make a ton of steel. But whether that's true or not, I think the importance of manufacturing and certainly the competitiveness of the US economy is terribly important.

We cannot, I think, go back to the period of analyst six percent of GDP trade deficits that we have before we went into this recession. I think that would be a significant drag on growth and would make it difficult for us to get back to full employment. I think it would also create a new imbalance in capital flows and trade of the kind that we had before.

So I do believe that manufacturing is tremendously important, and the future of U.S. competitiveness is heavily tied to manufacturing. So with that sort of guarded preamble I guess covering my bets in different directions, let me turn to our panelists and I'll start on my right -- at least physically on my right, with Leo. Now, you have some fairly strong views. Listening to you -- at comments that you made a little earlier, I'm going to change my question to you slightly, in the sense that you believe that policy -- the reason that manufacturing employment has declined so much, is because of policy, policy neglect, policy that's really been hostile towards unions, and maybe hostile towards manufacturing.

So let me ask you, as my first question, what do you think policy makers should do in order to create the kind of manufacturing sector that you would like to see? And to the extent that you can point to examples within the steel industry, that would be helpful too.

MR. GERARD: Let me answer the questio I wanted to ask as opposed to the question you wanted to ask and --

MR. BAILY: Okay.

MR. GERARD: I'll try to say a bunch of things in sort of bullet point form so I can cover a lot of area. First of all, the only real creator of real wealth in any economy is when you take things and make things. Manipulating financial instruments doesn't create real wealth, it creates illusionary wealth.

And we've gone for an excess of 30 years in this country, and in countries that adopted its philosophy of saying that it was the service sector, it was the financial sector that was going to matter, it was this, it was that. And then we said about even saying that manufacturing doesn't matter, it's passé. And in that period of time, we fell from manufacturing being about 22 to 23 percent of gross domestic product, and depending on which economist you listen to, somewhere between 9 and 11 percent.

If my premise is right, that real wealth is taken when you take raw material and you mix it together and you create something, and then that something is put into something else, and you end up assembling that with something, and after a while, you've got 8,000 parts and you've got a wind turbine or you've got a car, or you've got something.

That's how you create real wealth. And if my belief is right, then what we're trying to say is if we leave manufacturing the way it is, is that less than 10 percent of the population is expected to create real wealth for the other 30 percent, and that can't be sustained. Then if you put that beside -- and I'm pleased to hear your comment about six percent of GDP and trade deficit. Except for what happened in '08, we had hit 25 years in a row of year after year record breaking trade deficits to the point now where one of our main trading partners, if you want to call it that, is China. And we've been running a continuous trade deficit with China in excess of 200 to 250 billion dollars a year.

And it's not about -- as John will readily tell you, it's not about our man-hours, and our cost per man-hour, because we can now make steel in Pittsburgh at Edgar Thompson Works with about two hours -- give or take a little bit more or less than two man-hours per ton.

So labor costs don't enter into it. It's all the other cheating that China does, and I don't want to just refer to China because the Asian economy that we're going to be competing against, which is going to be our biggest competitor, they've actually got a job strategy.

And what America doesn't have is a job strategy. We wanted to go out and get renewable energy. We couldn't get a renewable energy standard so that people couldn't make wind turbines, because there's no market, because there's no standard.

So at that point in time, I think that unless America decides that it wants manufacturing, there's a saying that people tell me is an old Chinese saying, I don't know if it is or not, but it goes something like this: Unless you change direction, you'll continue in the direction at which you are heading.

And so, we can't continue to head in the direction of losing manufacturing if it's the real wealth creator, which I believe it is. Manufacturing pays a higher wage, union or non-union. Simultaneous to that, we've had 30 years of attacks on collective bargaining and attacks on the trade unions across the board by both governments and large employers, small employers, the Chamber of Commerce, and everybody that can, which has led to a falling and declining standard of living for many people, which has led to the incoming inequality that we have, which has led to a demand crisis in America.

We've got a deficit issue; I'm not sure it's a deficit crisis. But we've got a crisis in manufacturing, we've got a crisis in jobs, and we have a crisis in inequality. And the only way to deal with those is to have a sit down, and decide that we want to make manufacturing over the next 5, 10, 15, 20, 25 years grow its way back to 22, 23 percent of GDP, and that way we can put people back to work.

MR. BAILY: Okay. So you think that -- coming out of it, what would be the top three things you'd sit down and say you want to change in manufacturing? So you want to change the way unions are bargaining so the conditions for organizing and bargaining, organizing particularly.

MR. GERARD: This might shock you. The first thing I'd do is blow up all the rotten trade agreements that lead to 25 years of record breaking trade deficits.

MR. BAILY: Okay. So you'd blow up the trade agreements.

MR. GERARD: I'd negotiate new ones. I believe we have to trade. I don't believe there's such a thing as free trade. All trade is regulated. It's on whose behalf will you regulate it for. America has to be a trading nation. We need to ask for -- back it up. The Germans have a trade balance with China.

MR. BAILY: They do.

MR. GERARD: Okay. The Japanese have a trade balance with China. Why don't we?

MR. BAILY: Everybody --

MR. GERARD: Everybody but us does, right?

MR. BAILY: The Chinese trade surplus is greater with the U.S. --

MR. GERARD: Than anyone else.

MR. BAILY: -- than it is in total. That means they are in net deficit with everyone else, except us on balance. I mean, I'm sure there are --

MR. GERARD: So my point is, that's a policy decision.

MR. BAILY: Okay, so you would really revamp trade.

MR. GERARD: Then I would want transparency.

MR. BAILY: Transparency of what?

MR. GERARD: I would want transparency in all our trade agreements, and all our relationships on trade with all the other countries we have. We want to know what we're doing. We want to make sure we're bargaining apples for apples and oranges for oranges. I would want to make sure that we're talking about, and I don't know if we can ever get it, but we ought to at least pontificate about wanting a level playing field.

We can't go into -- I mean, John may want to make a point with this. I believe we can make a ton of steel in Pittsburg at Edgar Thompson Works cheaper than they could make a ton of steel in Beijing, because we have the raw material, we have the talent, we have the energy, and we have all that stuff. They can't. But we can't get a ton of steel into there, okay.

MR. BAILY: Okay, so the problem with manufacturing is basically trade and unfair trade.

MR. GERARD: Well --

MR. BAILY: Is there anything -- now, let me just ask a far out question. Is there anything that you as a union could do in terms of skills, training, improving work practices --

MR. GERARD: We're doing that now, and we've been doing that for 20 years with the employers that will do it with us. And U.S. Steel to use again U.S. Steel. We negotiated an institute for career development 20 years ago. We continuously train our people. We've got training programs in the plant. John as the CEO of U.S. Steel, I as the president to the steelworkers in the areas where we can have influence. We go talk about community college, vocational training. We need to go back to talking about high schools doing vocational training.

You can't expect it. Everybody's going to graduate with a four year degree and go get a job if there's not the jobs there. And so, the other thing that, you know, you can only be angry with so many things and still get some sleep at night. I put on my sticker that I supported the Occupy Wall Street -- the Occupy movement. You know why?

I saw a kid that they interviewed about two weeks into it and they stuck the microphone in his face and they said, why are you here? And that kid looked like he was about 26, 27 years old, about the age of my daughter. He said, I'm here because I did as I was told. I went to school and I got two masters degrees, I've got college debts I can't afford to pay the interest on, and I can't find a job.

When we're at that level, and we're carrying record breaking trade deficits of $700 billion, and we keep telling people, this is going to be the pathway to whatever and we don't get there, at some point people have got to recognize that we've got to change direction. And there isn't one thing you can do.

We didn't get in this mess in six months. We didn't get in this mess since '08. '08 just aggravated this mess. We've been getting in this mess since the 1970's. And so we need a plan to get us out of this mess. Why don't we have an infrastructure bank? Why don't we set up an infrastructure bank so that people could invest in that bank, and that we could modernize our infrastructure the way they do in Europe?

We can't put energy on the grid without losing 7 percent. We don't drink water out of our taps because we're not worried about it, so we drink bottled water. I mean, look at all the things we could do. 60 percent of the schools in America are older than 50 years old.

MR. BAILY: Okay. I'm going to cut you off and give you another chance later.

MR. GERARD: I've got two more weeks of this shit.

SPEAKER: You can see why negotiations take so long.

MR. GERARD: But we get there.

MR. BAILY: This is great. I'm not sure I want to swap places with Europe, actually right now. But anyway, John --

MR. GERARD: It's never about right now, by the way. That's the problem.

MR. BAILY: I should have just shut up. I shouldn't have tried a comeback. John, I think as everybody has said earlier, and I think we'd all agree that technology is a very key part of being competitive. I think you've got some interesting things to tell us about new technologies or applications of technologies that are making a big difference in your industry. And to the extent that you can see outside your industry, tell us about that too.

MR. SURMA: I'd be glad to. First, Glenn, thank you for inviting us, or just me and my distinguished colleague here. Our company's in our 110th year of operations in the United States, and we make things in the U.S. and we're really glad to be here, so thank you. Thank you.

We operate in four countries, so we do what we do in a variety of places and we can compare a little bit, the policy matters. And I think the U.S. is a good place for manufacturing, and we have a lot of natural positives that we can use to our benefit, and manufacturing certainly will have some positive direct employment benefits moderated by the productivity gains we're making with that.

Martin, I think you're quite right about that, but there are some policy things I think could be very positive that would encourage us to do things that are big investments. In our line of work we make hundreds of millions of dollars of investments and they stay in bay for 30 years. So we have to be really positive about what we want to do. We need to make sure we have a field that we can play on.

I agree with Leo on the trade front. I think we need to have strict enforcement over trade laws. Those laws should be maintained. If we compete straight up, and my colleagues that Leo represents at Edgar Thompson Works in Pittsburg, Andrew Carnegie's first plant, still going strong, and if we lose straight up, we lose. That's okay.

But I don't think they should have to compete with a country. They can compete with a company, that's perfectly fine with me. One of the things that is the most important thing that's happened in our sector of 10, 20 years probably is the whole energy change. Natural gas and natural gas liquids, the enormous technology benefits that the natural gas industry and extraction industries have brought to our country. Gas today is trading for less than $4. Let me give you some numbers. In our business, it takes about five MMBTU's to make one ton of steel. Five. Today it's trading at, let's just say 4, that's $20.

We make steel in Europe. We use the same five. It's 10 euro in Europe, that's $50, okay. North America, the U.S. is a really good place because of that. We have an enormous opportunity to harness that energy. It needs to be extracted in a proper way, it needs to be well regulated, it needs to be environmentally -- stringently regulated, and there's no reason it can't be, by the way.

The technology here is not all that hard. But it's a huge opportunity for the U.S. and manufacturer. We are one small industry, one small company; we only have 45,000 people, 20 billion in revenue, just a small company. And there are others who are much larger in the chemicals business, who see even better and more enormous opportunities.

So I'd say the energy policy choices that have to be made are extremely critical, and they should not be exclusive. They shouldn't be only this, or only that. I think we need, you know, a broad portfolio because they each bring different benefits with them. But an enlightened energy policy that encourages natural gas usage in a big way, I think it'd be a real positive.

The way we make our product, by the way, we're an extractive industry, so we actually extract iron ore from mines in Minnesota and Michigan. And we've reduced that to elemental metal with carbon. We introduced carbon to it. And mostly that is today, coal we make into coke, which we then reduce iron to make steel.

It could be a little messy at times if we're expensive. We're building a new coke battery today near Pittsburg. It costs $600 million dollars, I think, 600 million. It'll run for the next 30 years. Big decision for us. Instead, we could take natural gas and use the C's there to reduce iron ore to elemental iron at about two-thirds of the cost and about half of the capital.

And it's a disruptive technology. Several units are already being built. Huge change in technology that will give us great opportunities to compete in the world, and it's all enabled by this enormous progress that's been made in energy extraction and discovery. So, I know there's lots of emotion about that subject.

I think we should give it a chance, and I would really encourage our policy makers to make that a piece of what we do to rejuvenate North American manufacturing.

MR. BAILY: So do you think -- again, it's a little bit outside your area, but do you think you may see some of the petrochemical industry coming back to the United States? I mean, I think a few years ago, you'd say it's all going to go to the mid-east, or Africa, or somewhere where the raw material is. But --

MR. SURMA: It's going to go to where the lowest cost C's and H's are. That's where it goes. To put it in simple chemical terms, in Pennsylvania, where our home state is, where I live in southwest Pennsylvania, the Marcellus Shale, you all heard about that, large extraction activities there.

Very wet gas, lots of liquids, ethane, butane, natural gasoline, et cetera, more ethane than can be easily consumed. And so there's probably enough ethane there for a cracker, which is an enormous investment building in two, three, who knows, and all the downstream that comes from that. I'm not in the chemicals business, I was at one time, but it's a huge opportunity. And there were lots of plants which were shut down by other companies. I think -- was Andrew here this morning? Liveris?

MR. BAILY: Yes.

MR. SURMA: He may have talked about that, but I mean, he had a much different view of natural gas in the U.S. before than he does now. It's enabled his great company, I think, to be much more competitive in the world as well, with big investments. So the availability of low-cost C's and H's in the U.S. is a huge, huge opportunity, not just for our company, but for all sorts of industries.

MR. BAILY: I don't want to put you too much on the spot, but you do have a unionized workforce, you have non-union competition in the United States, a lot of steel capacity has grown up that's non-union. You do have imports as well, coming in.

So what's your secret? How have you been able to be competitive and survive and remain as a union operation and remain -- I know you and the steelworkers have had your fights along the way, but at this point you have a pretty good relationship. Can you tell us a bit about how that's been accomplished?

MR. SURMA: I give a lot of credit to my distinguished colleague, right here. But I think the last decade has really changed the way we viewed things. In the early part of the 2000's, our sector companies were really in a tailspin, and were heading over the edge. 35, 40 companies at (inaudible) probably at that time. Not ours, thankfully. And we began to talk about how we had to change that, otherwise we were both going to go over the edge together.

And we, I think, agreed on a number of things. We agreed that our employees work hard under potentially dangerous conditions and they should be rewarded for it at a competitive basis. They should do better when a company does better. They should be safe. They should have a retirement that would allow them to have a dignified career and a dignified retirement.

And a company should be able to make some money to invest, to make sure that stays. So we agreed on all of those things. Now we can argue about what the Saturday premium should be, and the safety shoe allowance. We can argue about that, but I think the basic elements of safe, reasonably compensated employees in a productive, competitive, profitable company, we agree on that.

And the only way to get there, we concluded, was to be productive in our labor contracts through no fault of anybody except us together. Not us, but our predecessors over 50 years, ended up putting so many barnacles on the way we worked, that we were just denying the benefits of capital in productivity, and it didn't work. So we had a big change back in '03 and took out 35 percent of our workforce, probably?

SPEAKER: Yeah.

MR. SURMA: Greater on the salary side than even on the union side I think, as it all turned out. And we ended up with a much more productive workforce. Those folks were all treated with dignity, they all received an exit payment pension, everything was fine, nobody complained I don't think. And today, we're a much more competitive company.

And our costs from a wage and social cost standpoint are not a competitive disadvantage. And 20 years ago, Leo will tell you -- 10 years ago, wage and social costs were the access of competition in the world in our sector. And we would complain about the Europeans and what they paid for, what the Japanese paid for.

Today that's not the issue. We're way productive. More productive than most of the other countries in the world from the steel standpoint, and by the way, the most environmentally efficient and reduced carbon steel industry in the world as well. The highest recycling, lowest carbon emissions, and lowest overall environmental emissions in the world. That's what our industry is. And we did a lot of that together.

MR. GERARD: Let me say something for John. U.S. Steel, four years ago, had already met and exceeded the Kyoto Protocols, four years ago.

MR. SURMA: We were one-third below our carbon emissions from 1990. Way, way beyond anything the Kyoto folks talked about. You know why we did it, by the way, not because someone told us to, because it was really good business for us. We use a lot less energy to make the same kind of steel.

So I think it's a long answer, Martin, I'm sorry, but I think --

MR. BAILY: No, no.

MR. SURMA: -- the story I would give you is that we found enough things that we could agree on, and when we meet regularly we try to focus on things we agree on and not usually on the things that we don't agree on. And we give those things to other people to figure out.

MR. BAILY: Thank you. And I'll turn to Elisabeth who's here despite the sickness of her daughter, which maybe has created a few bugs in you, too. So we hope you get through this presentation --

MS. JACOBS: Exactly.

MR. BAILY: -- so if she vomits, it's not the economic situation, it's the home situation.

MR. GERARD: As long as it's not our presentation.

MR. BAILY: I'm sorry. I shouldn't have. You told me and I took advantage of it. Okay, so Elisabeth has written a really wonderful paper. Back some years ago, I wrote a book with a colleague over across the street on Europe, and the model in those days of a European economy that had done well in its labor market was a Danish flex security system. Denmark is a very small country. It would be hard to sort of transport some of the institutions that they had to bigger countries or to the U.S.

But Germany is a big country. It's gone through some transformations. It's doing some things the same and some things different. And Elisabeth particularly, is talked about the labor flexibility and some of the working time accounts that they've been set up. So Elisabeth, could you tell me some of that and how you think it's affected how they've gone through this economic crisis?

MS. JACOBS: Sure. So the starting point for this paper was really the fact that -- despite the fact that the contraction in Germany's GDP was actually larger than the contraction in U.S. GDP during the great recession, their labor market took a slight hit, and then it's continued to improve. It was doing well before the recession, and it's really continued to do quite well.

Unemployment is down compared to U.S. unemployment. As everyone in this room knows, our labor market is really hurting. And so the question that, you know, -- I came to this project with the question of what's Germany doing right, and what can we learn in the U.S., potentially to borrow from abroad? This is a sort of -- it's a new perspective for me. I'm not a comparativist, but I came off of several years on The Hill working on stimulus health insurance reform and then looking more broadly at this very slow recovery we're in the middle of, and feeling like the dialog was really stuck.

And so that was how I ended up turning to this German comparison. And what I found is -- kind of the top line explanation, is German public policy embraces this program that incentivizes labor hoarding. So it incentivizes companies to hold on to their employees, reduce their hours but don't fire them, so that when the economy improves you can ramp back up.

And there are public policies in place in Germany specifically, this short time compensation or work sharing program, which essentially lets employers collect money through the unemployment insurance system that then is passed along to workers whose hours are reduced. So when workers' hours are reduced, their salaries aren't fully cut back equivalently.

So workers get some security and employers get to hold on to their employees. So that was my starting point. I knew that before I started the project. A lot of people in this room, if they've heard the German-U.S. comparison, may have heard that particular point. And in thinking about it a little bit more and in starting to dig into some of the literature, it was very clear that that wasn't enough. It's not just like -- we can't just transplant this, oh, we should have short-term compensation here in the U.S.

For starters, we've tried and it actually hasn't done very much. There was sort of, bigger questions worth asking about how German business, how the German government, how German employees, how German unions, what Germans refer to as the social partners, kind of how they interact and how they think about kind of their public project of building an economy. How does that work in Germany?

And really, I mean, as people in this room probably know, it works quite differently than it does in the U.S. There's much more of a commitment to sort of -- a long view they have very public policies regarding job creation, regarding a really advanced manufacturing economy, an export oriented economy.

And the government has sort of provided a space, I would say. I don't think the government has actually really done the work, it's really the social partners, which are the employers and the unions, which are far more powerful in Germany than they are in the U.S. But I don't think that means that they're not worth paying attention to.

They really got together in a room over the course of decades, and have put together kind of this -- I've called it a flexible working time tool kit, something along those lines, with this idea that if you're thinking long view, it doesn't really make all that much sense to fire all of your workers during a recession because when recovery comes along, you have to re-hire workers, you have to re-train them.

In Germany, that's extremely expensive because employers put so much time and energy into training their workers. It's a very different set-up than what we have in the U.S. And so, in looking at all of this and digging into, kind of, the private policy around labor markets it's very clear that these working time accounts that Martin mentioned were part of what developed in this working time flexible tool kit with private employers.

Working time accounts, sort of, the short-hand is if you think about a time bank. If you're an employee and you're working the union is conceited in the interest of employment security to allow their employers to basically keep track of their time. They were allowed to be -- required to work overtime in good times and they accumulate hours in these accounts.

And what happens then, in bad times, is that rather than, you know, taking a cut, they basically draw down those accounts. Now it's not immediately obvious why an employer would want to do that, right, because there are no immediate cost savings to letting an individual just draw down this, sort of, imaginary saved time. It's not imaginary if they did work it, but just in the past. And this issue is the way that these programs were designed, and this is, I think, because of savvy negotiation on the union's part, is if you want to fire a worker during a recession who has a working time account, you have to pay out a pretty large severance.

And so, it's less expensive for employers to hold onto these workers, in addition to this, kind of, long view of wanting to hold onto your worker because they're going to be quite valuable to you after the recession is over. There's also a short-term cost, because you have to pay out a bunch of money at exactly a time when you're probably, you know, cash poor.

And so, it's not just the public policies that many of you in the room have probably heard a bunch about. It's also this evolution over time of these flexible working arrangements. And I think, sort of, going back to the big picture in terms of how labor works in Germany, you know, Germany for a long time was seen as the sick man of Europe.

Its economy wasn't doing particularly well, its unemployment was quite high, they dealt with, you know, as Klaus Kleinfeld was saying in our lunch earlier, he would have talked about the fact that, you know, Germany acquired a pile of rubble. So many people in the economic literature have talked about what it meant for the German economy to absorb East Germany. And over time that meant that business and unions had to really sit down and figure out how they were going to survive in the long run.

And unions and businesses both looked forward, wanted to maintain the sort of productive, competitive economy, and really made some concessions that have allowed for a lot more labor flexibility. Now comparing that to the U.S., it's not that Germany looks exactly like the U.S. I think that's an important point to make. Germany didn't succeed because it decided to make itself look just like the U.S. in terms of flexibility.

Germany is far, far more unionized than the U.S is. Employment protections in Germany are far, far stronger, even after a major overhaul of their unemployment insurance reform system. It's far more generous, far more focused on training, getting individuals back to work effectively, evaluation, they have wage insurance.

I mean, all kinds of policies that are still kind of pipe dream policies even for progressives in the U.S., are all very much in place in Germany. But they got rid of some of the labor market rigidities that, I think, were potentially kind of dragging down the economy in the decades prior.

And the result has been -- I argue that they've potentially hit a sweet spot that's really let them weather the recession in a way that looks pretty different from what the U.S. has been through. So that's kind of, the quick and dirty summary of the paper. I have some recommendations. I think the key for the U.S. if we want to -- the lesson to take from Germany is really to incentivize the kind of behavior that Germany has come up with.

I think that the two admirable folks we have here are in some ways an exception to the rules, so it's exciting to have them here. But I think it's unusual for people like this to sit down and really kind of have the mutual respect and a long view of the fact the workers and employers really do have a shared interest. That's unusual.

So figuring out ways that the U.S. can potentially incentivize that kind of thinking through policy is kind of the macro recommendation. And then I have some specific ones, but I think that's a big picture project that we haven't really put much time or energy into.

And we -- I include myself in that we -- and I'm just starting to really think about ways that we might be more effective in incentivizing that kind of thinking, because there's some evidence that it has the potential to not just be good for workers, but also be good for the macro economy in the long-term, as well.

MR. BAILY: Okay. Let me push back on you in a couple of ways. One, you sort of compared the U.S. recession and Germany, and you say the drop in GDP was about the same. But let me just question whether the recessions really were that similar. As I think Gary correctly identified, we had this real estate bubble collapse, and it's that that's really at the heart of the persistency of the recession we're in now. We just don't seem to have the same umph coming out of a recession that we did in previous recessions in '82 or '75 because of this loss of wealth and the housing bubble. So I wonder -- I mean, if you look back, Germany had a housing bubble following reunification, and I think they had a pretty persistent period of weakness after that.

So I think those -- I wonder if these recessions are quite as similar as one might think on the face of it. And then the second thing is, there are a lot of problems in Europe right now. What Germany has done is been very successful at being very competitive. They are competitive in the global economy, but the way they are really competitive is within Europe.

So they've been able to out-compete all their neighbors in Europe. And I was in a session the other day on a panel with some German folks and I said, look, you guys are all in the same lifeboat. And Germany has made itself super competitive and Greece has fallen off the boat and Italy's about to fall off the boat. So to what extent has this -- so number one, is the recession really the same? And number two, has Germany been successful in part at the expense of its neighbors?

MS. JACOBS: To the first question, I think you're right. I mean, Germany didn't have the housing bubble, and it means that it's not necessarily an apples to apples comparison. That said, I mean, Germany did have its own financial crisis. I'm not super well-versed on the intimate details of Germany's recession, but it wasn't completely unlike ours.

So I don't think that they're so different that it's worth saying that this is just not worth looking at. And in some ways, I think this kind of gets to your second point, that in my mind I don't actually think the most interesting thing coming out of the thinking and the work that I've been doing is so much getting the precise answer to why Germany does well.

It's more thinking about whether there are new ways of thinking about problems that we've been kind of stuck in, in the U.S. that might move us forward in any direction. So that might be dodging your question. In fact, I'm quite sure it is, but I think that's how I would go with --

MR. BAILY: Wouldn't be the first time.

MS. JACOBS: -- answering it. And I mean, I can, you know, give my two cents on whether Germany is succeeding at the expense of Europe. I mean, it does actually seem, you know, my house -- my home at Brookings is in government studies, and from a government's perspective it seems to be very -- it's a very easy case to make that Germany really is succeeding at the expense of Europe.

And that's a separate conversation, and not necessarily what I was aiming to get at in the paper, but one that's certainly worth having.

MR. BAILY: Well, thank you. And, I mean, Germany is really amazing. It's economic -- it's manufacturing at least. Not so much services, but the manufacturing performance. I mean, high wages, they don't work that many hours, they have long vacations, and yet they're still able to be very competitive, not only within Europe, but outside.

So there's something they're doing right, and I think you've told us some really interesting things about Germany. So I'm taking out of this discussion then that we need to focus on manufacturing. There's a view here that we need to -- we've been treated unfairly in trade, and if we could somehow change that we would get a lot more jobs.

We've obviously got to use technology effectively to make ourselves competitive. And maybe we should think about the way we operate our economy, not so much short-term as in thinking about how to use human resources more effectively, not just get rid of them as soon as there's a downturn. In some sense, be a bit more like Germany.

Okay, so let me throw now the discussion open to the audience. I'd be interested in comments, pro, con, or a little divergence. Have we got some questions?

MR. ROGERS: Hello, my name is Keith Rogers and I have a question that’s a little bit of a segue, but it does seem to me that all over the world we are seeing a huge problem of the collapses of terribly built concrete buildings in earthquakes and other natural disasters.

Where's the reinforcing steel? Is there any economical way that the steel industry could meet those needs either with the reinforicing or other steel components that would stop all these terrible problems we're seeing?

MR. SURMA: Well, certainly I think steel is, we think, the best construction material. We have that debate with builders about whether to be steel oriented or stress reduced concrete. I think in other regions there's not nearly the applications of reinforcement that you would see in the U.S. or other developed areas.

We're members of something called the World Steel Association. We do evangelical work in all sorts of undeveloped regions to try to promote the use of steel and local applications of steel. Because when you think about the basic elements of life, you know, shelter and warmth and water and mobility, steel is central agriculture to all those things. And construction, broadly defined, consumes about 50 percent of the steel in the world, and the biggest breakthrough markets is steel in housing applications, usually multiple dwelling applications, in the underdeveloped part of the world.

And it's the question of expediency versus building something that's going to last. If you go -- you're in the Gulf Coast in the U.S. today, or if you're in fire prone areas in the West Coast, steel roof, steel frame, if you're in mold or -- steel framing. So, I think, essentially codes take care of that. But in the developing world, there isn't nearly the kind of progress on that as we'd like.

But we're trying to work on that because it's a wonderful market. I'm not sure if that helps at all.

MR. GERARD: Let me jump in, because not all steel is the same. I know -- I'm not very good at the social media stuff but if you go and Google the Bay Bridge in San Francisco, you'll find that there's a bridge there that's three years behind schedule and almost $2.5 billion over budget that somebody decided would be better if they made it with Chinese steel.

And the Chinese steel won't hold a weld. So when you talk about what can you do, there aren't many applications that we could have in steel that's made in America or in North America for that matter.

MR. SURMA: In most developing countries, the initial steel capacity which is installed is electric furnace based rebar production.

MR. GERARD: Yeah.

MR. SURMA: That's with the initial investment traditionally, and that's the way it is in most of the world.

MR. GERARD: Low end of the scale.

MR. BAILY: Yes, question here.

SPEAKER: Antoine (inaudible). I was really wondering listening to you about Europe. Clearly, there are some very serious reasons to be concerned about what is happening in the Eurozone. But my sense is that we are overlooking something. What we're overlooking is that there's a real difference between what you could broadly call Northern Europe and Southern Europe.

I for one, Martin, don't believe for a minute that Germany has become competitive only relative to the rest of Europe. It has become competitive in comparison to the rest of the world. They export things in competition with everybody else in the world to China.

MR. BAILY: I don't necessarily disagree with that. I mean, they had a very firm policy of holding wages down.

MR. ANTOINE: Yeah.

MR. BAILY: And there's a lot of resentment in Germany about that, but --

MR. ANTOINE: And that is actually the point I was trying to make, is that Europe has been facing -- Northern Europe, I'm talking about now, has been facing some of the same issues that we are facing at the moment, and has taken action which we have not yet fully done. And as a result of which, things have changed.

Not just in Germany, but in Holland, in Denmark, in Norway, in Sweden, all over Northern Europe. And they have brought about -- we pride ourselves on labor mobility. Well, labor mobility according to some of the things I've seen in Northern Europe now, is higher than in the United States. That had a reason, and the reason was they took some action. And I think that is what is being overlooked in this discussion. I would like your comment on that.

MR. BAILY: I agree with that, and if I said something that disagreed with that, I take it back. But why don't I give Elisabeth a chance to respond. Or do you not want to go outside of Germany? But what's your reaction to that?

MS. JACOBS: No, but I think broadly the point that -- I mean, I can bring it back to Germany, that Germany got where it did because it took some action. I mean, particularly, Chancellor Schroder put a lot of cards on the table in terms of making real progress towards overhauling the way that Germany balanced essentially opportunity and security. That's kind of the umbrella framework that I use for thinking about my work, and I think it applies to Germany because Schroder sort of put everything on the table.

He arguably lost his government because of it, but he accomplished reforms that wouldn't have happened if he hadn't. And I think while some of the evolution of what was happening in the private sector outside of the hearts reforms, which mostly had to do with unemployment insurance reform, but we're broadly within the same kind of policy space of labor relations.

They all fit within the same idea that Germans kind of saw that there was a problem. They realized that this wasn't sustainable, and eventually, for a variety of reasons, they really actually did something about it. And we're not doing that in the U.S. You know, Bill Galston's paper gives a lot of good reasons as to why not in terms of looking at the political dysfunction, and the ways that we're really stuck, particularly, in light of Congress.

And, you know, that's a whole day’s worth of conferences to talk about; a kind of political sclerosis in the U.S. But it's having a real impact on the economy and I think not just in the context of this particular recession and this particular pretty flat labor market recovery, but also more broadly as far as our competitiveness and what it means to be an American worker and what it means to be an American business for that matter, for the long run. So that's my attempt at an answer. Hopefully that gets at the heart of what I think the question was about.

MR. BAILY: Yes. More questions? Yes? The one at the back there.

MS. SEGERO: Good afternoon, ladies and gentlemen. My name is Rosemary Segero. I'm the president of Hope For Tomorrow. Our organization focuses on job creation and entrepreneurship. Thank you for your wonderful presentation. You talked about China and its strategy on manufacturing, and also imports.

Initially, I come from Kenya. That is Africa. How do you look at the importation now that China is going all over the world, especially, Africa? If you are importing materials of steel from Africa and now China is going with their technology and their strategy to Africa. How do you look at your importation of raw materials in the future, and for how long? Thank you.

MR. SURMA: That's an interesting question. I think the premises that -- just for context, the world makes about 1.4 billion tons of steel every year, roughly. China, about 700 million, okay. About half of the world's steel capacity is in China, and the majority of that now, half, two-thirds of it is on imported materials, so China's resource short on iron ore, ferrous scrap, and carbon coal coke, those kind of things. The China companies have been very aggressive in buying resource positions around the world, many in Africa, Latin America, as well. Other places also, even some in Canada on the energy side.

The US and North America for steel making, raw materials is very well positioned. North America is a net exporter of iron ore, a net exporter of metallurgical coal for coke. So there are a few things that are imported from China for steel making in the U.S. that we're concerned about.

And in fact, China was taking steps to limit exports, and the USDR along with some other countries courageously and thoughtfully brought a very strong case that I think we've had a least one positive step on so far. There's more to go there, so I think we need to make sure there are open flows.

But the big volumes, the big values -- U.S., North America, is in very, very good shape. I think some other regions that are also net importers largely from Australia or Brazil, Western Canada, U.S., probably have some other concerns. But its resource competition in the world right now, is very, very important, and the companies in China have been very, very aggressive.

If you're looking to build an iron ore mine, and you go somewhere in Africa, or Latin America, Asia, China companies have already been there. It's very expensive.

MR. BAILY: Let me ask you, we've only got about a minute or so left. If I look at the development strategy that was followed in Asia by a number of countries, it was really a very heavy investment and heavy industry, and China has been down that road.

Are they already, or are they going to end up with a lot of excess capacity as a result of that? Can you tell either from steel or from other sectors?

MR. SURMA: I mean, I don't think anybody knows for sure, but I think the policy that I understand that the authorities in China have espoused, this is in the 12th 5-year plan, or the 5th 12-year plan, whichever one it is, I think the view is that their steel capacity should be roughly equivalent to their consumptive needs, and that seems to be a sensible policy.

There would be nothing in it, either economically or environmentally for China to build a big export machine like the Japanese and Koreans did, is what you're referring to --

MR. BAILY: Right. Right.

MR. SURMA: Materials would virtually all be imported. Iron ore from Western Australia or Brazil, coal, if you can imagine this, the coke and coal market in China is balanced by metallurgical coal from West Virginia. The people in China didn't know there was a West Virginia 10 years ago. Now that's where the coal comes from. So it would be economically really not a good move, plus using energy that's otherwise on allocation, very high emissions just because of the lack of controls.

And so, they say they don't want to be a large net exporter. I tend to believe them, but if there are small blips in their economy and 10 percent of their capacity becomes export capacity, that's 70 million tons. The U.S. industry in total is about 100 million. So it could be very dramatic if something went wrong. We keep a very close eye on it. But their policy I tend to believe because it's actually a sensible policy.

MR. BAILY: We're about out of time, but if you have a last comment, throw it in.

MR. GERARD: Yeah, I wanted to just make a comment about something you said when you started this forum. That you didn't think there was much room for manufacturing growth.

MR. BAILY: Employment.

MR. GERARD: Well, manufacture employment. At U.S. Steel as we work to get more productive my understanding is over time, unless we can expand their market, we're going to have less people.

MR. BAILY: Right.

MR. GERARD: It's just the way life is. But we're going to take good care of the people when they leave because if you ever worked in a steel mill for 30 or 35 years, it's hard work. So we're going to take care of them because I want the companies we work with to be successful so our people can live well.

But one of the things we need to understand, and I'll come back to it, we can't continue to fool ourselves and swallow these ongoing trade deficits in manufacturing. Right now you've heard people talking -- even today, about the future with an advanced technology products and all this.

We're running a multibillion dollar, almost a $100 billion trade deficit with China in advanced technology projects. In the last 4 years, since the recession started, we lost 2.9 million manufacturing jobs in America, and we created 2.7 million manufacturing jobs in China with companies that left here to go there. We can't just continue to say that's okay.

And don't ask me what the solution is, because I'm not smart enough to know the solution. I just know that we can't do that. But I'm willing to get in a room with other smart people and figure out, how can we have a policy that over the next 25 years we grow manufacturing back to 22 or 23 percent in GDP so my grandkid, who maybe can't get a masters degree, can go work in a plant and make $35 or $40,000 a year and be able to take care of his family.

MR. BAILY: Thank you very much. I appreciate everyone in the panel and the audience. And our next panel that’s coming up will also be about some of these labor issues.

MR. GREENSTONE: Okay. Welcome to the last session of today's important conversations. We're going to cover state and local economic development policies, and how they fit into a broader growth agenda for the United States.

So I wanted to begin this panel by illustrating the urgency of, I think, effective state and local economic development policies, especially in the current environment, with three, I think, somewhat simple observations.

The first is that local economic distress can be real. Like in the blackboard world of economics, there aren't any things that economists call "frictions," but something bad happens, and then the world adjusts, and everything is fine. In practice, that's not what happens. And there's a really, I think, salient example that comes from the recession from the early 1980s.

If you just look at the 600 counties who had the biggest shock -- I'm sure Pittsburgh and Buffalo are in that group -- and ask, "Well, what happened to those places 30 years later?" And the really astonishing thing -- which I think is not always fully appreciated -- is those places, it's not that they continue to bear the scars of that shock and that their incomes are lower, but they have not yet returned to the growth path of the rest of the country. So, just think about that -- 30 years later, they still, in many respects look like different places. And before, they had looked like just the rest of the country. So that's one observation.

The second, which I think is related to the first, is that there's a long history of local economic development policy proposals. And I think the shortcoming of that history is that there's an element of a merry-go-round to that history. Ideas come and go in and out of fashion, without any real rhyme or reason. And along the way, we never develop a play book of the ones that worked, and the ones that, despite the best intentions, didn't work out quite as well.

And so I think evaluation of state and local economic policies has to be part of developing an effective set of them.

And then the third is that I think -- and I don't think anyone has accused me of being a political scientist or having particular insights that deserve lots of notice about the political environment -- but I would say, as someone who's not an expert, it does seem like the federal government is not going to be a leader in growth policy for state and local economic issues in the coming years. And so I think that shines an especially important light on trying to identify policies that work well.

And for that, we have really a fabulous group of people here. I can't quite believe the testament to the Growth Through Innovation Project, the group of people we have here.

And I think the way we're going to run this is I'm going to ask each of our panelists a question in this broad topic area. And I thought I would start with Bob Rubin, who despite being former Secretary of the Treasury, actually has a lot of expertise when it comes --

MR. RUBIN: Let's see where this sentence goes.

MR. GREENSTONE: -- a lot of expertise when it comes to local economic development. He's the Chairman of the Local Initiatives Support Corporation, which gives away, or makes investments of more than a billion dollars a year, I believe, in local communities.

And so, Bob, I guess my question for you -- besides recognizing your vast importance as a Treasury Secretary --

MR. RUBIN: That wasn't quite the way you said it -- but, all right.

MR. GREENSTONE: I'm trying to recover a little bit.

MR. RUBIN: Recover ground -- yes. It's like being in the bottom of a deep hole. And you look up.

MR. GREENSTONE: And so I wonder if you could talk a little bit about what role states and cities play in a national growth policy?

MR. RUBIN: Okay. Good. Let me give you my view, as best I can.

Look -- I have thought for a long time -- and maybe I was mentored a little bit in this by Bruce Katz, and at Metro Project -- but it has seemed to me for a long time -- and now with the dysfunctionality of the federal government it seems to me it's even more to the point -- that states and cities have a lot of natural advantages. And I, at least, think that states and cities, or state and city activity, ought to be an important part of any national growth strategy. And let me just make a few more specific comments that follow up on that.

One is, states and cities have comparative advantages in various areas. And it seems to me that one great opportunity for our country is to build around those comparative advantages. Some obvious examples are Silicon Valley developed around Stanford and Berkeley.

You could develop industrial parks around transportation hubs. You could develop -- of course you could, obviously, ship the output more readily. You could also develop industrial parks around areas where there are large numbers of low-skilled labor, and that way you could have labor-intensive industries in a more obvious and advantageous position.

So I think there are a lot of opportunities.

Another good example are the many areas of this country, I think, that have great natural endowments but are still underdeveloped as tourism sites -- the Adirondacks in upstate New York being one example. So that's one set of points.

Another is we have the federal system. And the federal system gives us a great advantage, which is we could try different approaches to areas that are critical to growth, and then see which ones work best, and then take the best practices and spread them elsewhere. And a certain amount of that's going on in K through 12 education, in health care costs, and in other areas. And I think that's something that we could build a great deal more around.

A third one -- which I think has gotten far less focus than it should -- is that we have immense infrastructure needs in this country, but we have a paucity of capital. I think there's a real opportunity to attract very large amounts of capital from entities around the world that have it -- for example in China and the Mid-East. And very often, the greatest impediment to that kind of flow into infrastructure is the concern about political reaction. And you could structure that either by ownership of actual infrastructure assets, or the infrastructure assets could be publicly run, but there could be ownership of the revenue flows.

And I think there's a tremendous opportunity for mayors and governors to develop strategies around infrastructure, and then work with these entities so that the mayors and the governors bring their own expertise about navigating in our system to help them navigate through the political issues and the regulatory issues.

And, finally, let me mention LISC, which Michael just mentioned. And it's a very technical subject, but let's leave all the technicalities aside.

The reality is, as Michael said, LISC distributes, in various forms, about a billion dollars a year in inner cities. And I think there are four essential points that you could take from the LISC experience.

Number one, LISC, though it's a 501(c)(3), is run as a real business, with real business metrics. It seems to me that could be applied to the public sector.

Number two, the projects are neighborhood-developed and neighborhood-led. They're not led from Washington or from LISC, or from anyplace else. And I think that's another example of what could be done in the public sector.

Third, a lot of it depends on low-income housing and tax credit. Which means that in that indirect sense, public funds are being used, but they're combined with the private sector expertise. Or, more accurately, which private sector financial discipline. That's another lesson for public sector activity.

And, finally, LISC provides technical assistance with respect to the projects, and also with respect to these local neighborhood institutions that have developed the projects.

I think there's a lot to be learned from that experience, in public sector activity. And let me just wind up by making one observation in that regard.

Michael told me once that there was a study done someplace or other that he seemed to think was a serious and responsible study or he wouldn't have mentioned it -- or maybe that assumption's not right -- but in any event, that showed that the return on infrastructure in the United States

today is about 2 percent per annum. That has to be because the infrastructure investment resources are allocated by a political process, rather than the kind of activity you have at LISC, where capital is allocated based on private sector investment criteria.

So for all those reasons, I think, Michael, that state and local activity could be, under any circumstances -- or should be, under any circumstance, an important part of a national growth strategy -- and particular now, where our federal government seems to be relatively dysfunctional.

MR. GREENSTONE: Bob, can I ask a follow-up question?

So, I understand your vision that a lot of the knowledge resides locally. Suppose that the federal government were operating on its maximum efficiency curve, what could the federal government do to facilitate some of those activities at the local level?

MR. RUBIN: Oh, I think it's probably a lot about -- Alice Rivlin once did some work on this, if I remember correctly -- I think there's a lot of opportunity, Michael. You just don't have a choice in a lot of these things, a lot of activities. You can either run them from the federal level, or you can devolve them down to the state and local level and provide federal funding for them.

And I think there's a lot to be said for the devolution idea, where you then have neighborhood -- or you have localities deciding where a bridge should be, or where a street should be, or where a road should be, or where an industrial park should be, as opposed to somebody in Washington that doesn't begin to know the area. And where you could also, I think, create more accountability, and more efficient management, and more metrics, and the application of metrics, and so forth.

So I think it's devolution with federal funding.

MR. GREENSTONE: Okay, next I wanted to turn to -- thank you, Bob -- to Shirley Jackson, who's the -- actually has many roles, and has a very unique perspective on state and local development, both as a president of a major research university, to her serve on the President's Council of Advisors on Science and Technology, and is co-chair of one of Governor Cuomo's economic development councils in the State of New York.

And with that perspective, I wondered if you could talk a little bit about your views on the elements that comprise an innovation ecosystem, which I know you and I have talked about before -- and, further, how do cities and states fit into that?

MS. JACKSON: Well, I thought I would just talk about what is the kind of "evolved view" of what the key elements of an innovation ecosystem might be, and then to talk about three examples that are actually spaced 50 years apart -- you know, 25 years, roughly, each -- 26, to be exact, being a scientist.

And those elements are a strategic focus, idea generation, translational pathways to bring things into commercial realization and therefore provide an economic base, and infrastructure. And that means human, financial, and infrastructural -- human, physical, I should say, and financial capital or infrastructure.

So let me talk about three things that have occurred over time.

Back in 1959 -- and I don't know if most people realize it goes back that far -- business and academic leaders down in the Raleigh-Durham area came together with the idea of creating a locus for high-end research activity and business. And they started with creating a park -- Research Triangle Park. And the idea would be to be proximate to at least the three great research universities in the area, Duke University, North Carolina State University, and UNC at Chapel Hill. It's since evolved to include a larger number of universities, including an historically minority institution.

And they started about with about 200,000 square feet of occupied space. Today it's over 22 million, and home to 170 companies -- many major enterprises or parts of enterprises. And so there was an example that I think plays into something that Bob Rubin mentioned about you have certain assets, you have a certain geographical opportunity, and then one sets out to build on those. And we all know about Research Triangle today.

Fast-forward about 26 years from there, and in 1985 Governor Tom Kean got the New Jersey legislature to create the New Jersey Commission on Science and Technology. And that was at a time when other states were looking at things like this, and the idea was to have the state capitol leverage university-industry partnerships in areas that were deemed to be important to New Jersey's economy. The structure of the commission deliberately was structured to have government officials -- in fact, the state senate majority leader and the speaker of the assembly on the commission -- presidents, at any given time, ex officio, of two of the research universities in the state, always one public and one private, and then a certain number of private citizens who were gubernatorial appointees. And I was one of those. It was not a paid position, I assure you.

And so the commission focused on creating centers -- advanced research centers -- building actual infrastructure, and then it had a budget to do a competitive grants program in certain research areas that the commission discussed and deemed to be important. Things like advanced biotechnology and medicine, informatics, at that time, and computation, and so on. And it's interesting, in a way, how many of those things are still things people talk about today. The one thing that was missing from the discussion at the time was, of course, nanotechnology.

And I would say that that effort, in fact, strengthened mightily Rutgers University as a research university. It certainly has played into pharmaceutical industry in New Jersey, and helping to retain it -- not alone, but it has played into that -- and has just improved the overall visibility of the state.

So now we come 26 more years down the line, in 2011, and Governor Andrew Cuomo was elected in New York State. And he creates -- he has the state divided into 10 region, and each of the regions has 8 to 10 counties in it, and creates regional economic development councils. And sets out a competitive process to have each region develop its own strategic plan, and to have those plans then competitively evaluated against each other -- but to lay out a framework with at least a five-year outlook.

And in the end, there were four -- quote-unquote -- "winning plans" that had certain characteristics. But all of the regions developed, 10 regions developed these plans, and therefore have a strategic outlook for the next five years. It caused people to come together in collaborative ways. Some were further down the pike than others in that, in terms of readiness to launch activities. And so its' still a work in progress.

Now, what's the difference? Then how does it relate to what I said?

One, on the idea-generation side, one could make the argument that when you have the academic and business leaders come together, or you create people who are legislators and heads of the universities and business leaders in a New Jersey context, it's kind of more of a top-down process in identifying key areas for investment and so on.

What's interesting in the New York situation is that it's a bottom-up, because each region was asked to decide what was important for that region. Now, when that happens, one runs the risk of confusing "development" with "economic development," because people always want to build and have shovel-ready projects.

But I think these are interesting experiments. And I would say there's been persistent effects, to varying degrees, for each one. The one in New York is new.

Now, New York is coming at this process off of having had a very top-down process under a previous governor, and it made a huge investment in nanotechnology, which looks like, at least, is bearing fruit in terms of a major facility. But it cost $1.2 billion to get there.

So then if you go back through, all of them have these elements -- some more directly investing in human capital, in research, most of them investing in some kind of infrastructure. And the financing mechanisms were different. In New Jersey it's a bond issue. In New York it's appropriated money. And, frankly, I don't remember in North Carolina.

So I think these are elements we need to think a little bit about, because it's a question of what's strategically important, how is competitive advantage really -- persistent competitive advantage -- developed and/or conferred?

And that played into work we've been doing in PCAST. And if I have a chance to talk about it, I'd like to do that.

MR. GREENSTONE: Shirley, could I ask you one question?

MS. JACKSON: Sure.

MR. GREENSTONE: You've identified all kinds of ways in which states and localities could be dynamic. I tried to do a little bit of it.

But at a time when almost every state is facing extremely difficult fiscal constriction pressures of their own, where's the financing for all this going to come from?

MS. JACKSON: That's a good question. And let me talk about New York, because we're right in the middle of that.

Well, I think, you know, you had a governor who came in -- came in with a real kind of mandate. Managed to work across the partisan divide, and get people to really pass a true balanced budget. It required some cutting, and he worked through that and was willing to do that.

Then, essentially, it amounts to essentially using funds that the governor always, in New York, has available to him, and essentially redirecting those funds. But coupled with that, creating a more consolidated funding application process for the "usual" things that the government would fund -- maybe at whatever levels the budget allows. And so it gives people more of a one-stop-shopping. So there's an efficiency factor and clarity factor that gets put in.

I'm not going to argue that we're totally where we, you know, need to be. And there are issues about regulatory reform, and other issues that all of the councils want us to deal with. But it's really being willing to make the hard, strategic focus decisions to redirect. Because the New Jersey situation came along in a different time, when these kind of bond issues could be passed. But here, it means taking what you have and placing debts. And that's always hard to do.

But that's -- the other is, embedded in some of the regional plans are collaborative mechanisms of having the banking community come together to create loan funds. That was actually part of one of the plans, a revolving loan fund, as well as having local example of Grameen-type funding, and things like that.

MR. GREENSTONE: So this is -- if I could interject -- this is exactly why I was so excited to be able to moderate this panel, because the question has moved to funding -- and who do have sitting to my left but Judith Rodin, who's President of the Rockefeller Foundation.

And I am just dying to ask you -- because I know you've been doing incredibly innovative work on financing for state and local governments, and I wondered if you could talk a little bit about that.

MS. RODIN: We have. And we were driven to this perspective because we recognized that there really are not enough dollars in philanthropy or development to solve the large global problems that we face. And that when countries all over the world are facing these kinds of situations, we really need to look at other mechanisms, create a really ecosystem around pilot opportunities for exploring innovative financing.

And so I'd like to talk about three, briefly. And they really touch on something Bob said, and something Shirley said.

So, Bob, we are now funding a collaboration among the states of Washington, Oregon, and California. And they are putting together the infrastructure that will ultimately create an infrastructure bank for the western coastal states. And it's the governors and the state treasurers together -- and I think they've recognized, quite correctly, that innovation is about process as well as product. And before they're able to create the product, they really have to align and platform the kinds of issues which are timeframes, payback. State budgets don't have 10-year budgets, and so how can they really give a payback horizon?

And so they're actually building the kind of infrastructure, including multi-year budgeting, in their states that would allow the attraction of private capital, aligning the policies that would really do that. And they're ready to roll in about 18 months, I would say, from now, to really begin to attract large private investment with regard to infrastructure, which they think is going to be in the next 15 years about a trillion dollars of needs -- and which they don't think they can get through conventional bond structures.

So that's a new kind of both debt and equity structure.

MR. GREENSTONE: Can I just interrupt for one second? These four states are --

MS. RODIN: Three states.

MR. GREENSTONE: -- three states, they're not going to wait around for the discussion of the 47^{th} version of the Federal Infrastructure Bank?

MS. RODIN: No. No. I think what we're seeing -- and maybe this is even a better place to start -- I am actually optimistic. Bruce Katz and I have been writing recently on what we call the "pragmatic caucus," which is what our first two speakers are talking about, which is the fact that in a lot of areas in the United States, the metro regions are not waiting around for the federal government.

MR. GREENSTONE: But there's 47 very good plans about national infrastructure banks floating around this city right now.

MS. RODIN: Right. We hope that they will come to fruition. We actually funded the construction of two of those plans. But we're not waiting either anymore.

The innovation is occurring in the states and the metro regions -- it's really clear -- for whatever reason. And we could spend 14 hours speculating on the reasons. We're not going to get that kind of creativity, currently, out of the federal government. So we ought to go back to a "federalist" system, if you will, which is what we're really talking about, and look for ways to promote that kind of energy and creativity at the regional, state, and local level.

Two other incredibly innovative examples -- so we have had the privilege of supporting the pilot in the UK on social impact bonds. These are bonds that really try to take a proven social intervention -- in the case of the first UK pilot, it's reducing the rate of juvenile incarceration, re-incarceration. So these are juvenile re-offenders. And the UK government was able to see the cost to them for the repeated re-incarceration. They developed, with the investment bankers, a model where they would float a bond, sell it to the private market, and the payout would be if they could reduce the rate of the re-offending -- if this social intervention, this proven social intervention, could reduce the rate of the re-offending below what the government had then.

It is in the marketplace now. It was sold out very, very quickly.

And it's been brought, the idea has been brought to the United States, and Massachusetts has now solicited RFPs for proven social innovations. They've gotten 34 really, really interesting ideas. Minnesota has actually gotten the legislature to float a $20 million bond for trying this process.

So how you marry private sector capital with proven social innovation, where you demand metrics -- because the payout requires both metrics in advance, and metrics-driven assessment for the payout -- you're really getting a triple win. Because one of the questions is, are these interventions really being measured and monitored?

The next different example, one that Rockefeller led about five years ago in creating a New York City housing acquisition fund. And, actually, LISC was one of the beneficiaries of this. The idea here was that the commercial banks didn't want to put money up for the acquisition of land. Obviously, they felt that the risk was too great, particularly for low-income housing.

So a group of foundations came together and put in $50 million for the first level of risk capital. That allowed the commercial banks -- J.P. Morgan, Deutsche, HSBC -- to be willing to take the second tier of risk, and they put in $250 million. And then New York City put in the third tier of risk.

That has built tens of thousands of units of housing, without waiting for money from HUD.

So, again and again and again, what we're really seeing is that the marriage of Wall Street capital, equity, and debt structures to government policy in producing social outcomes is really, really going on. And it's very powerful. And it's very compelling.

MR. GREENSTONE: Thank you.

I think Shirley --

MS. JACKSON: Yes, I just had a quick kind of follow-up.

You know, another marriage that has worked and created more sustainable advantage has been the marriage of universities with government and the private sector. And you're here in your incarnation as President of Rockefeller, but you were president of one of our great universities -- you know, the University of Pennsylvania. And at that point, you did some amazing things with the University of Pennsylvania in Philadelphia.

Can you talk about that, and how that -- that was then, and this is now. But are there any lessons learned out of that?

MS. RODIN: Well, you gave such great examples of the economic development capacity of really bringing together universities and the private sector and government. We -- Penn sat in the middle of a very disadvantaged neighborhood, West Philadelphia, and we felt that we had a strong commitment to helping to rebuild that neighborhood, not only economically, but socially -- its housing stock, its schooling stock.

And so we initiated a multi-pronged intervention, over a number of years, initially, actually, investing university endowment funds in order to then both get believers -- so that we put our money where our moth was -- but also then to be able, ultimately, to attract private capital, as well.

And so we intervened in safety and security, in building back housing stock, and building really high-quality schools that were neighborhood schools. They weren't for the Penn faculty -- unless they lived there. And building economic development by creating a mechanism that said, "Buy West Philadelphia first." So Penn owned five hospitals. We sent our laundry out all over Philadelphia and New Jersey. We created a minority-owned laundry in West Philadelphia that now has all of the hospitals in Philadelphia as their client. It supports 2,000 jobs, and really has started to move the economy forward.

So I think that the moral commitment, the intellectual capacity, and the economic resources that universities have make them a critical partner as we talk about regional development. In my case, I wrote about this as the role of urban universities -- and you've been doing such magnificent things, as well. In most of our large cities and small towns, eds-and-meds are among the largest private employers.

And so we often don't look to universities to be one of the partners economically, in terms of their resources -- not only their academic capacity. But I think, as we think about what states and regions and cities will need going into the 21st century, they will not be able to accomplish this without universities really putting some skin in the game.

MS. JACKSON: And universities, let us not forget, are really attracters of talent.

MS. RODIN: Absolutely.

MR. GREENSTONE: We're also extremely fortunate to have Alan Berube here, who is part of the -- a leading part of the fantastic Metropolitan Program team, and a wrote fascinating paper that is part of the papers released today. And I think Alan and his colleagues really have their finger on the pulse of what's going on around the country at the local level. And one thing that comes out of reading that paper is there's a lot of diversity of experiences.

And I wondered, Alan, if you could talk a little bit about what's allowing some places to flourish in kind of a relatively tough macroeconomic environment? And what's holding some places back?

MR. BERUBE: Sure. I'd be happy to do that.

You know, I think, in Washington we live in all sorts of different bubbles of our own creation. But one that those of us who live here are fortunate to live in is a bit of a labor-market bubble. This is a fairly healthy regional economy, lots of buildings being built, our restaurants are pretty full. I don't know that many unemployed people. Maybe it's because they're all working on infrastructure bank proposals.

But, you know, in the Washington area our unemployment rate stays 5.4 percent. It's more than 3 percentage points below the national average.

Several months ago I was visiting my friends who live in Modesto, California, in the heart of the Central Valley out there. And you drive out to their house, and you pass these sort of ghost-town subdivisions on your way. The downtown has a lot of vacant storefronts now. They know, personally, a lot of people who are unemployed and underemployed -- people who have college degrees. Their only saving grace is that the two of them commute back to San Francisco and San Jose for their respective jobs, much healthier labor markets.

But the local unemployment rate in the Modesto area is north of 15 percent. It's double what it was before the recession.

So the point of all that is: This is a very big country, vastly different conditions on the ground when you look around. And I think, you know, we talked a lot about the macro measures that, I think, are vitally important for our broad labor market recovery. But I'm not convinced that they're really sufficient for addressing the unemployment crisis, and the differences in the nature of the crisis that affect our local communities.

So the paper that I wrote looks at what's going on in the hundred largest metro areas across the country. They're two-thirds of our population, they're three-quarters of our GDP.

And I see three factors that are present, in combination, in varying degrees, across these hundred different markets that I think have implications for how you address the crisis at the local level.

One is just about industries, and what different metropolitan areas do -- what they did before the crisis, what they're doing coming out of the crisis. We all know that there were a lot of manufacturing areas, particularly the auto manufacturing belt, that were clobbered in the first stage of the recession -- Detroit, Cleveland, Greenville, South Carolina. Actually, those places are recovering very, very quickly right now. So they've made up a lot of the ground that they lost during the recession. The unemployment rate in Detroit, for instance, has dropped by 5 percentage points just over the last two years, versus about a 1 percent decrease nationally.

So I think you see a lot of strength in some of these export-oriented metropolitan areas. They're focused on meeting domestic demand and foreign demand.

At the same time, you've got these metropolitan areas that were very invested in housing, real estate, consumption economies, before the housing crisis -- Las Vegas, Phoenix, a lot of places in Florida -- struggling to recover right now, struggling to rebalance their economy towards more productive sources of employment, meeting demand elsewhere, outside just the local economy, and bringing wealth back in.

As well, you're seeing a lot of government-focused metropolitan areas, that were buffered from the worst effects of the initial crisis, struggling right now in the face of public sector employment cuts, and the ripple effects of those.

A second related issue is just the nature of the housing market, and housing prices, and what happened there. Gary Burless just talked a little bit about that this morning -- between a Las Vegas, where prices are about 65 percent off their peak values pre-recession, to a Pittsburgh, where they're only 8 percent off their peak value.

So, of course, the metro areas that had these larger house-price declines -- irrespective of how many people were working in construction -- have experienced stagnant unemployment rates, both because of, again, the direct effects of that unemployment, but also the indirect effects in terms of how wealthy households feel, and what their consumption patterns are.

And then the third thing that we've talked about at the macro level today, but which I think is relevant at the metro level, too, is workforce skills. We know that less educated workers are unemployed at much higher rates -- 13.2 percent for individuals without a high school diploma, versus 4.4 percent for individuals with a college degree.

At the national level, the evidence I've seen -- I'm not totally convinced that workforce skills are a barrier nationally to labor market recovery, but at the local level we do see it affecting the longer road to recovery in some metropolitan areas. Both places like Philadelphia, Little Rock, San Antonio, where there seems to be a bit of a gap between what the occupational structure of those metropolitan areas suggest is needed from an educational perspective, and what their workforce really looks like from an educational perspective. And then places like an Augusta, George, a Los Angeles, a Memphis, a Phoenix, that have the sort of double-whammy of both the industry structure problem, and what looks like a significant education problem, too.

So I think, in the main, that's mostly a longer-run issue, but one that may be having some more short-term effects in certain metropolitan areas.

So, as the panelists have already noted, fortunately I think there are a lot of state and local leaders across the nation who are responding to this crisis, not just generally -- right? -- but specifically with respect to the unique sorts of issues that their places are facing. And, in fact, our program is working directly with several governors, metropolitan leaders, across the country on initiatives supported by the Rockefeller Foundation under the auspices of our Brookings-Rockefeller project on State and Metropolitan Innovation. And Judith might talk a little bit more about some of the examples coming out of that work.

So, some of those are highlighted in the paper. But, again, I think these places are largely acting in the absence of federal leadership. But the upside of that is that they're tailoring their interventions in ways that I think are really about the unique sorts of challenges and opportunities that they face.

MR. GREENSTONE: I think Bob had a --

MR. RUBIN: Yeah, I do -- or anybody in the panel, I suppose.

Michael asked me, before, what the federal government could do to try to contribute to the vitality of state and local activity. I answered "devolution."

Turn the question the other way around: What is it the federal government does that impedes the state and local governments from doing what they could do? And what are the changes that could be made? That's one area where maybe even in this dysfunctional federal system you could get Republicans and Democrats to come together -- which is to free up local energy.

So -- that's a question for anybody.

MR. BERUBE: Sure. And I'll start.

I'd say the various metropolitan areas that we're working with as part of this project on export initiatives, to try to increase their reach into foreign markets for consumption of the goods and the services that they produce, they're having to navigate a very complicated and incoherent thicket of federal programs, policies, agencies that, in the end, it's not transparent, things are done at too small a scale because they're distributed and diffuse in a way that doesn't actually allow these areas to act on what, in many cases, is a very coherent strategy. But, you know, the federal government, for better or worse, still retains a very large responsibility for foreign trade. So there's only so much that these cities and metropolitan areas can do on their own.

And I think some of the stuff that Secretary Bryson talked about today, in terms of bringing greater coherence to the way that the Commerce Department works -- doing that in collaboration with cities and states, and actually acting in more of a bottom-up way that promotes their ability to interact with foreign markets, I think that would be a huge thing the federal government could do.

MS. RODIN: Yes, I'll build on that.

The problems don't land on the ground in cities and regions in convenient packages that have the labels of the federal agencies. And so how that kind of collaboration across the federal government can occur with funds that they already have -- so we have a Sustainable Cities Initiative among EPA, Transportation, and HUD, that is one of the first of getting these agencies to really work together, to recognize that each of the three of them has, both from a regulatory and a funding perspective, a real ability to transform the sustainabilities of urban America. They can't each do it in this siloed way.

But those kinds of collaborations are few and far between.

MS. JACKSON: I would say the following -- that the government, historically, has always played a role in three key areas: in education, in research, and in infrastructure. And many times when we talk about infrastructure we think about roads and bridges. But let's not forget things like the internet, the development of the microprocessor, the, you know, GPS system. Now, these things came our of mission-driven needs of the federal government, but their being opened to the commercial sector actually has led to, you know, the creating of many great industries.

An area where there are clouds on the horizon really does have to do with support of our great research universities, particularly the private research universities. And there, they're being hurt both by state-level policies in terms of support, as well as a definite slowdown in federal funding for basic research.

So we just had this discussion about the important role that universities, particularly major ones, can play. They obviously are in the human capital business, but they also are in the research business. And they are an attracter and retainer of talent.

So immigration policy is another area. And that affects, obviously, businesses. And we hear a number of technology-oriented companies speak to that. But it has an effect on the research universities as well, both at the -- particularly at the level of faculty and researchers, but there are even some wrinkles in the world of students and student visas.

So these are two key areas -- the research and support and immigration. But then there are broader issues having to do with coherence of governmental approaches relative to major infrastructure, particularly as it relates to energy, broadband, the use of the spectrum, et cetera. And these are things that do rest with the federal government.

And earlier, in a different, in a more private conversation, I talked about the fact of having a discussion about the degree to which the government should be the first-follower versus the first-leader. And I think there are a number of innovative initiatives and pilots being done at the state and regional level that, rather than the government having its program that people compete for, it might be the time for the government to focus some of its resources to undergird some of these initiatives.

MR. GREENSTONE: You know, I just want to pick up on a thread that you put out there.

Look -- I think there's nothing that says that the United States has to have the highest living standards in the world. And, in fact, a lot of that reflects, a lot of our history reflects conscious choices.

And, you know, one cannot help but think that, as you see the inability to pass a highway bill that's more than six months at a time, or to kind of meet infrastructure more broadly, or basic research and development, in many ways we are choosing a future. And state and local governments are obviously doing a lot to respond to that, to try and fill in the gap, but I think the role of the federal government cannot be missed in all this.

Now, I think we have about seven minutes left. And we have such an excellent panel that I think it would be a shame to not give everyone here a chance to kind of talk to them and ask them questions.

And so I thought we'd open the floor for questions.

SPEAKER: Thank you.

MR. GREENSTONE: And if you could say your name and your affiliation.

SPEAKER: Yes. My name is (inaudible) from (inaudible) Company, Washington, D.C., office. I have a question about the SME -- Small and Medium Enterprises.

Today I learned that the 94 percent of global market is outside the U.S. And, of course, multinationals are doing good for export, and also FDI.

But how do you connect that growing market, rest of the world, with local SMEs? I know export is encouraged by the federal government. But FDI is not necessarily encouraged, because of the image that we are losing jobs outside.

But unless you get closer to end customers, you don't really expert growth of exports. So how do you connect the FDI?

Thank you.

MS. RODIN: One way -- and it goes to one of the innovative experiments that we're seeing on the ground -- is to really link the SMEs more effectively into an ecosystem with a larger global company. So, for example, there's an initiative in Puget Sound putting a number of universities, very large companies, and many, many SMEs that are a little further along down in the value chain, together to collaboratively -- and several research institutions -- to collaboratively work on energy-efficiency IT. And their goal is to become the energy-efficiency IT producer of the world, and then export, export, export.

The SMEs, then, go along in that ecosystem through that kind of collaborative process. Otherwise, you're really building them within a national or even a local environment, and the capacity to really grow may not be there sufficiently.

MS. JACKSON: Let me make one other comment.

You know, I had the pleasure of co-leading with Eric Schmidt of Google the advanced manufacturing study that PCAST did. And one of the key points that we talked about was the importance of the government, where possible, being a convener, or providing a safe harbor, for public-private partnerships, where you do, in fact, bring together the larger and the smaller enterprises -- particularly in areas where there can be shared infrastructure. Because that can be of great benefit to SMEs.

We've talked a lot here about manufacturing. But what we've not talked a lot about is advanced manufacturing. And when we talk about it, we tend to talk about it from the point of view of it cutting out jobs. But what we don't talk about is how more advanced techniques, including modeling and simulation, can help existing enterprises, existing SMEs, to improve both the productivity and the quality of what they produce, which helps their competitiveness vis-a-vis selling into global markets -- as well as a definition of advanced manufacturing that has to do with using the newer technologies, and bringing new approaches and new technologies to market.

And, to me, those are things -- and when you're talking, on the one hand, about pre-existing companies, and how they can, you know, grow and improve what they do, and on the other, you're talking about start-up, entrepreneurial enterprises, and having them. But they do come together at the level of public-private partnerships of a certain kind. And they do come together when it comes to having shared infrastructure that can be at a university, it can be government-sponsored out of a national lab or some other mechanism.

So I think those are important things to think about.

MS. RODIN: Another place -- we haven't mentioned the green economy today, at least in this session. And there's a whole SME infrastructure around the green economy, jobs that can't be outsourced because they're energy-retrofit jobs, waste management, water supply chain. All of those represent, really, growth opportunities in the United States.

And, again, we're seeing a lot of regional and local governments understanding, I think, with a fair degree of creativity, what the opportunity here is. And it's a real SME play at the local level.

MS. JACKSON: And the capital region of New York State has taken advantage of this.

MR. RUBIN: I'd just make a one-second additional comment -- and I don't know the answer to this question.

But the German economy, as you know, has enormous numbers of SMEs, and they produce little niche products which they manage to find out a way of exporting and to come into -- as you put it, as you say -- into appropriate nexus, or effective nexus with their customers all over the world.

I don't know how the German economy has done that, but it seems to me it's worth looking at that as a model.

MR. GREENSTONE: Okay, I think we have time for a couple more questions.

MS. VANDERHYE: Thank you. Margaret Vanderhye, McLean, Virginia.

I want to circle back to some of the things we were speaking about this morning, and tie it into your panel this afternoon, on workforce preparedness, and the opportunities that states and localities would have in terms of education preparation and job training preparation.

In Virginia, although we have a tremendous disparity between the sort of a booming economy in Northern Virginia, and what used to be the timber, textile, and tobacco economy in the south side, which is pretty decimated at this point -- but they share commonality, which I'd welcome your perspective on.

K-12 education is not really integrated with community college curriculum and preparation. So that our community college presidents complain that when their students come into the community college system -- which we have a very strong one -- 50 percent of the freshman class, the first-year class, needs remedial classes.

And they would like -- we've had a big discussion about this in Virginia -- we would welcome the chance to have some ideas and some thoughts about how we prevent these silos in education systems within states, what the federal government could do, what academia and businesses could do to help.

And the other sort of non-integrated part of this is we talk about "STEM" curriculum, whereas overseas they talk more about "STEAM," because the arts are added into it. And it seems if you're going to use terms like "innovation" and "creativity" and "creative work class," you can't create distinct sort of silos of the humanities and science if you're going to compete in a global economy.

What are the kinds of things that you see that the government could do to create a partnership with local and state governments to improve those kinds of things, and make us all competitive in the future?

MS. JACKSON: Well, let me speak as an educator on the panel. And then I, of course, defer to Judy, as well.

I think, first of all, any institution that says that it has people arrive at the door who are unprepared has to then make an articulation of what it is they expect, in terms of knowledge, skills, and abilities. But then you have to have people who are listening, in terms of the K-to-12 system, in terms of people having certain baseline skills, and how you bridge to the next level.

Secondly, I worry sometimes, when we talk about "training programs," in particular, that we say that there are people who don't have the skills for the jobs that are needed today. And that is certainly true. There is dislocation.

But some of it is a geographic dislocation, that the people with the skills are not where the jobs are. And so the question is whether there are incentives, and programs that could get people to make geographic moves.

The third is: How compelling is the curriculum when one does the more vocationally-oriented education? Because what I think is, how do you simultaneously train someone in a certain kind of skill, but give them some undergirding knowledge that allows them to have self-portability?

So if we're really talking about a migration -- which I think there has to be in our manufacturing sector. And it's already happening -- you have people who are going to be working with much more sophisticated systems, with computer-driven, with the use of sensors and actuators and robotics. And I'm not so clear that, you know, we're educating folks to that.

Now, that doesn't get totally at your question about what skills people arrive at the door with. But we all know that we need to think of different ways.

So I come down on the side of two things: the back to the fundamentals. Because I'm a theoretical physicist. But I tell you what, if you can't read, write, add, subtract, multiply, and divide, think on your feet and do a few fractions, understand, you know, what logarithms and a few statics are, and do some graphing, I don't see how you're going to do anything. On the other hand --

MS. RODIN: Half the people are going to walk out.

MS. JACKSON: But on the other hand, we have a number of new --

MR. GREENSTONE: Now, you know, Shirley, my wife is an English major.

MS. JACKSON: I'm sure she can add, subtract, multiply, divide, think on her feet -- you know, et cetera -- read and write.

MR. GREENSTONE: I'm not so sure about the logarithm thing.

MS. JACKSON: But the other thing is, you talked about the "A" and "STEM." And we built, we spent $200 million to build an experimental media and performing arts center. Why? Because we believe in the cultural-rootedness and the arts.

But, in addition, you can't just talk about "the arts," to "keep the arts in the curriculum." The real issue is what is the value added, and how does it play into what you're doing across a more integrated front? And use those things in new ways, given new technologies, to reach our students in a different way, to have different pedagogical approaches.

MS. RODIN: I would just add -- and I won't give examples -- I am serving on a White House commission on looking for community-based solutions, that the First Lady and Patty Stonecipher are chairing. And so we've been searching in communities for really good interventions that are working, that address this set of issues.

And the driver for us -- think about the depression we feel listening to some of Alan's data -- we were looking at data, at our first meeting, that showed the exponentially quickest growing country, in terms of middle-school dropout rate is the United States, in the last seven years.

And so we are on a trajectory which really is going to put us at far increased risk that the one that you just described.

And we can't solve that with the federal government. We have got to think about community-based solutions.

And so we'll be issuing a report with recommendations. But we're going to populate a website with all of the really great examples that we have found from around the country. And I really commend that to you, because it's a very good, and really heartening, demonstration of the kinds of interventions that work.

But we have a serious national problem here.

MR. BERUBE: I think we're out of time, unfortunately.

I think the one thing I would just -- to amplify the last two comments -- are, you know, if I were in charge of all state and local economic policy -- which no one has appointed me or even suggested that I be in that role --

MR. GREENSTONE: But go ahead --

MR. BERUBE: But I think, you know, the most important thing for living standards for Americans are skills. To a first order, people get paid what their skills are.

And to the last two comments, I think the K-to-12 system has not been -- you know, test scores are flat for 30 years. College completion rates are flat for 30 years. It shouldn't be surprising that -- and, in turn, wages have been, for many Americans, have been declining or flat for a long time.

So I think for state and local governments the most important thing is to get the education systems working as well as they can. (Applause)

MR. GREENSTONE: I think that was just a terrific panel. It's entirely possible that we left the best for last today.

So thank you very much for doing that.

As I said when we kicked off the day -- I know, there's a competition out here. Martin, I know -- come on, guy. You guys did a great job, too -- which was what I was just about to say, Martin. So, thank you.

Which is I promised earlier today that, among other things, you'd see Brookings intellectual property and its engagement with the real world on parade in front of you. And I think that's what we've seen today. So I couldn't be more proud and pleased about what we've seen, and what it expresses about Brookings.

I have one last thought to leave you today.

We heard a bunch of different perspectives from a bunch of different -- well, not only industries, but government, and union, and scholars, and other actors in the community. One theme that came back to us is the absolute importance of good governance in facilitating progress.

And we heard it from a variety of different angles, whether it's the new industries racing forward and not having time for the government to catch up. Whether it's state and locals creating what we call in the technology business a "work-around," the dysfunctional government in Washington. And whether the important questions that were raised about can you actually have a continuing economic prosperity in the absence of functional governance?

And if there's one thing -- what we're going to do from today is digest what we've heard, come forward with actionable paths forward, make this a very practical day. But the one thing I think Brookings can really do and which I know we're going to focus on is how we can create some kind of road map for functional governance in this town, without which very little gets done or if it does get done despite what happens here. So thank you very much for coming; enjoy your weekend.

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