



Five Crucibles of Innovation

General Session: Lunch Keynote Speaker
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ELIZABETH STEPHENSON: Hi, thank you. My name is Elizabeth Stephenson, I am a partner at McKinsey & Company and as Philippe so nicely said, I help run a portion of McKinsey called “Global Forces,” which is where we really think about the world and the trends that are going to change and transform the broader, global economy. I thought the best way to think about that is not first through words, or charts, or numbers, but just through some pictures.

As you guys look forward, you read the paper every day and you read about Greece, you read about what’s happening in China. How many of you guys look forward into what’s happening with optimism? I can tell you that it is only at this spa and wellness summit to see a crowd like this. When you go to a normal business summit, people are actually pretty pessimistic. They’re worried about the economy, where it’s going, what’s going to happen next. And it’s very easy to predict a “Dooms Day” scenario. The Euro is going to fall apart; the Chinese economy is in trouble and those kinds of things.

At McKinsey, we sat back and said, “If we had a crystal ball,” which we don’t, “what does the next decade look like? What is going to happen?” I think one thing that really struck us is that there aren’t many things you can predict, but you can actually predict general macroeconomic trends relatively well because it’s based on the amount of people in the population, the amount of people in the labor force and what their average output is. When we said, “What is the one fact that we can predict with the most accuracy?” It’s actually overwhelming positive.

The next decade, we will see more people exit poverty than in the entire history of humanity. In the developed countries, we will see incomes go up on average 40 percent per capita in GDP, and in the emerging markets, we will see household incomes more than double. What that means is that it allows people all kinds of opportunities to create, to invent, to reinterpret the world in ways that they never could before because they didn't have the resources. That one fact I think is so profound in terms of where the world is going. When we worry about all those things that could go wrong and we see the market slide or we see the DOW Jones slide, there are these underlining forces at work which are going to transform the world. I think the theme of your conference on innovation and imagination is that innovation and imagination is going to be unleashed.

We may not be able to predict everything but what we can predict is that there will be enormous amounts of change. When we stand back and say, "What is changing?" I always find it useful to go back 20 years ago and say, "What got unleashed 20 years ago that is going to make the next decade more exciting than any decade we have ever seen before?" So we go to early 1990s. Twenty years ago.

That is what China looked like. China was closed off from the global economy until 1992, twenty years ago this year. The political body was the G7. The World Wide Web in 1991 was an academic white paper. What have been unleashed over the last 20 years are forces of change, which have kind of been rippling along in the economy and they're rising up. Those forces of transformation and change are unleashing at a power and speed and magnitude that really are a tsunami wave coming out and changing many of the things that we've thought about and taken as the world is normal. We think about the traditional dominance of the U.S. and the European economy - if we think about that, a lot of those things are starting to change. We think about how business is run, its national businesses inside of national economies. Those are all getting exploded and new things are coming. The opportunist, the entrepreneur, the innovator, the person with imagination is the person who says, "What can I do with that next era?"

If we look at 20 years ago, we would never have imagined China like this or the G20. We wouldn't have imagined that five billion people in the world would now have cell phones, much less that you would be able to surf the web almost anywhere and you would be frustrated when your connectivity would go down. As you think forward, what that is going to mean is that we are going to need to change. We're going to need to transform and rethink business models. We went out and interviewed 250 CEOs and said, what did they think the next 10 years would mean and more than 50 percent of them said that big and established businesses are finally going to have to reinvent their business models to live in a world which is more global, which is more

interconnected, in which technology plays an entirely different and new kind of role that they would need to be innovating, and that this decade, it really was the decade of innovation.

We sat down and said, even though we cannot predict what the future is going to bring, we can't say what invention is going to be transformative, "What country is going to do what? What stock would we actually bet on?" We did say that we can actually see things, what we call our "crucibles of innovation." A crucible for those of you who don't know what it is, it's a melting pot, and you think about where things are coming together. There's enormous force, there's enormous pressure and enormous heat changing things. Where those points of tension are is most likely where you are going to see the most innovation, the most change and the most reinvention. Those are often the places where people say, "That's where the doom blooms, that's where we are going to hit something." It's precisely at those points of tension where you are actually going to see change. What are the five biggest points of tension and how are those going to drive change?

First and most important is what we call the great rebalancing. The move from an economy that has been driven by the developed work markets, by Europe, by Japan, by the United States, to one that is much more global: the rise of the emerging markets. Year 2009 was the first year in 200 years that the so called "emerging markets" created more economic growth than the developed economies – it was a massive change. If you run out the economic scenarios, that will not change until the 2030s or 2040s. You can expect that more than 50 percent of the economic growth in the world is going to come from these economies. That's driven from a very simple economic equation. If you think about what drives economic growth, it's the number of people in an economy times the amount of output they have, their productivity or their labor. If you look at where the workforce is going to be, people between the ages of 16 and 65, it's going to be in places like China and India. When you roll that out and you look at the fact that workforce is not growing in other places of the world, that growth is almost inevitable.

On top of it, compounding it, is something also amazing that's happening which is called urbanization. We are undergoing the world's largest urban migration in the history of the planet by a dramatic order of magnitude. There are 1.3 million people a week who move to cities, and what happens when people move to cities is they become more productive. They engage in the economy, they create more and they do more. What you're seeing in places like China and India, people who used to live in subsistent farms, they barely got by, they lived on one or two dollars a day, they are moving to cities and they may not be living in a dramatic and wealthy way, but they

are living much better than they did before. That is part of the rise out of poverty, and that is something that is changing and transforming the global economy.

This is an example of Shin Sin; it's a large city outside of Shanghai. This is what happened in Shin Sin in the 1980s. That's what it looks like today. Just think of the speed and pace of that transformation, and that's happening to people all over the world. We will see 80 percent of economic growth coming from cities and it will come from 200 cities, primarily in emerging markets. What we're seeing is that as families as move to cities, they become more productive. The global middle class is going to double in the next decade from 20 percent of the global population to about 40 percent as people move out of poverty. As they do that, they start spending, they have smaller families, they have middle class desires, they are starting to spend; although, it will look different from what we think about as middle class consumption here. On average, a household in China or India that's middle class has about 15 percent of the dollars to spend.

What you'll see is this mixing of aspirations as that comes together and reinvention of categories that are entirely different as people have aspirations to buy something, but they couldn't buy them at developed world prices. What you're seeing in cars, appliances, all kinds of things, is this reinvention of what products are and what they look like.

For example, and it's not just lower price points, if you think about the emerging markets and you think about India for example: What does it take to make a refrigerator in India? Well what does she need a refrigerator for? First off, she needs a refrigerator where the food doesn't spoil when the power goes off. She doesn't need something that is that big. She needs something that is smaller, that can move around, that can be more mobile. It's reinventing, rethinking what are some things that we think are going to one thing, but are actually going to be different.

I think the other important thing about emerging markets is that it is not just about emerging marketing. If you think about where is the fastest growth of luxury consumers in the world? It's in the emerging markets. The fastest growing luxury market in the world is in China. I don't know if you have been watching the IPOs, but a lot of the luxury brands are doing their IPOs no longer in New York and in Europe, but actually on the Hong Kong exchange, so L'Occitane, you guys probably know the beauty brand, when they did their IPO, they did it out of Hong Kong because they said that's where their market is. Their market is no longer in France, their market is China, Hong Kong, Singapore, and it's India.

I think you're also starting to see that many of the ideas are blowing back, so good ideas created to serve low-cost markets, many of them are good to serve upper income markets. So this is a great example from GE. They had an electrocardiograph that they sold to hospitals and it was \$10,000 to \$15,000 to buy, and they said, "What would we have to do if we wanted to sell this in India? No one could afford to buy \$10,000-worth of equipment." They put their team on it and reinvented it, and came up with something that was \$1,500-worth of equipment. They said, "Wow – we have this \$1,500 equipment that works really well in India, but wouldn't it work well in a bunch of clinics in the U.S. who wouldn't buy the expensive equipment either?" So they brought it back and they successfully changed the size of the market and they changed the ability to bring these very high-cost, expensive equipment things to many more people by changing the price point and reinventing.

Reinvention is something that you will see a lot of as people figure out how to serve new markets with new kinds of needs, different cultures and different kinds of ideas of what they want. Then you will start to see all that start flowing back in interesting kinds of ways. I find that really exciting because it's a place where you will see new markets get created and new ideas get created.

Our second crucible: the productivity imperative. So at the same time you see economic growth in the emerging markets go up and that largely being this up-escalator driven by demographics – sort of what's happening in the emerging markets is like the baby boom in the 1950s in the United States. You're seeing all the fertility boom of the 1970s that everyone worried would be the end of the emerging markets, we'd be overpopulated. Those people have grown up, they're having fewer babies, they're moving to the cities and becoming more productive. Well, that's already happened in the U.S. and we saw that happen. The babies got born after WW2, they went to work in the 1960s and '70s. They've changed and transformed things, women went back to work. That labor force growth is no longer part of the economy of the United States or a part of most of the rest of developed economies.

If you think about that equation I mentioned—economic growth is the number of people times their productivity—what we're seeing in the developed countries is a dramatic change. If you thought about economic growth in the United States in the '70s, for every dollar of economic growth, 80 cents of that dollar came from more people entering the workforce, all those baby boomers, all those women, we had a big wave of immigration in the '70s and '80s. And 20 percent came from people being more productive, that is, people working smarter. When you think about the coming decade, it's almost rebirthed. Basically in the United States, the population growth of labor force growth is pretty flat, it's not completely flat. Most of the growth that we are going to see is going to have to come from people working smarter and thinking

about how to work smarter. In the developed economies, think about Europe - there is no labor force growth, so 100 percent of economic growth coming out of Europe will have to come from people working harder because they're not going to have any more workers. In Japan, where you are actually seeing the labor force in decline, is the first country ever where the population actually went negative, have had more deaths than births. They're going to have to earn 160 yen of productivity to change that.

This is a really dramatic pressure that we're going to feel in the developed countries, and we're going to feel that. A lot of what you are reading in the newspaper, the bounciness, the volatility, it's actually coming from this dynamic coming to bear. No one really talks about it in those terms but if you really look at it, the growth isn't really there than it has historically been. We have to think about where that productivity is going to come from. Over the last 20 years it has come from the IT generation and we have seen a lot of gains, but the question is what the next act is.

I think a bit part of it is what is going to make the "do-it-smarter" companies? How do we get more from the people we have without destroying their health and wellness and allowing them to have the kinds of jobs and lives that they want, but doing things more intelligently, thinking about how they are going to drive the productivity of their companies? I think that's going to be a significant pressure on the cookies in the U.S., Europe and Japan, is what can we do to do more with a workforce that is flat and stable? I think what you're seeing in this pressure is that the amounts of jobs are changing, the nature of the jobs are changing, and the kinds of workforce we need is actually different. We need knowledge workers more than our traditional blue collar workers, our manufacturing workers. When you think about the employment in the United States, a big piece of the driver in that is that there is actually a structural change and we have too many of one kind of worker and not enough of another. If you look at our unemployment rate all the way through since the recession, there has been an opening of about three to four million jobs consistently through that we can't find the workers to fill.

Even though we have been at high unemployment rates, we actually don't have the workforce to fit the jobs that we need. Thinking about how do we change and transform our workforce and our labor force to create that innovation, to create those companies that are going to be the next near companies is actually the biggest challenge that the developed economies face.

This is a great quiz question: in the 1950s the U.S., on average, was the number one producer of college graduates in the world. One in three Americans got a college degree per cohort, so for every generation. Basically one in three Americans got a

four-year degree. Does anyone know what that is today? It's one in three. So we're no longer the best in the world. We've given up that competitive advantage, many companies have caught up, but what's important is that the jobs we're creating are actually very different. The needs of those jobs are different; the demands on those jobs are different. I think you probably spend a lot of time dealing with people who are carried from those jobs and are looking for ways to live their lives smarter, better, more healthily, and I understand that this is really where the pressure of the U.S. economies is going to be on. How do we create those workers and how do we make them more productive? I think that is something, as you think about your industry, that is going to be a very important piece.

The third major crucible we see happening is what we call the "global grid." If you think about economic growth over the last 20 years, GDP has grown over the recession at a very nice five percent annual per year. What is interesting is trade flows grew at one-and-a-half times that rate, and capitals grew at twice the rate and information flows grew exponentially. So the world that we live in is fundamentally more interconnected, we're exchanging money, we're exchanging goods, exchanging ideas, information. We can work 24/7 real-time around the world all the time and that is changing how our economy works.

If you think about it today, 5.6 billion people have cell phones. Basically anyone who is a user, earning more than two dollars a day, is now connected to the global grid. We have more than a billion people on Facebook, we have 500 billion connected devices on the grid and 1.2 billion people on smartphones. What does that mean with what you could do and how you could innovate? Most innovative companies are figuring out how they use the grid to do things more productively, to connect to more people, to reinvent their business models and change things.

There are some really great examples in health I was reading. I don't know if you guys read the article in the Atlantic all about what the first thing that actually showed true and stable behavior change in weight loss was – creating these online communities and constantly having reminders on your smartphone, your iPhone, that can actually help people remind them and help them manage it. If you think about health and longevity, how do you sue platforms like this to actually change peoples' lives and change behavior?

I think it's not just devices like this, we all know the iPad, but I'm actually much more excited about things like this. This is Peterbilt trucks, the company that makes them was rewarded Technology Company of the Year this year by *Info* magazine. That is because they figured out how to take devices that we all think about as a part of our traditional and industrial-based economy, and they figured out how to make them

smart. They're part of a node, they're part of a network and they're giving back real-time information. They're actually figuring out how they optimize activity, they actually figure out how to drive those things. So it's not simply the devices that you see, it's how you have automated, integrated environments that actually work smarter and do things smarter.

It's changing who we are. Neuroscientists have gone out and they've done all this research on our iPhones and when people see a picture of their iPhone and they evaluate their brain and their brain scan, actually what you see is the same thing as when you show them a picture of the person they are in love with. If you think about the cultural change that is going to happen as we become this connected, device-driven society, as we are all using these things, it is changing our behavior and how we react culturally.

All of this growth, all of this change is also putting an enormous amount of pressure on the planet and I think we all acknowledge that. As you see the emerging markets come online, what you are going to see is this huge increase in resource consumption, not just energy, but food, metals, almost any kind of commodity. The demand is going to go up almost 30 percent or more over the next decade. The supply for that is getting harder and harder to find, harder places to extract it, more politically volatile places, places that prices could be incredibly volatile. So what you're seeing is this enormous pressure of increase demand, harder rate to supply, and at the same time, a realization that we can't go on living at the same pace and producing the same amount of waste and use on our planet.

One of the things we're going to see an enormous transformation in is how do we use resources and how do we think about resources going forward? It's not going to change quickly. If you think about commodities being 10 percent of global GDP, a huge install base, it takes a huge amount of time to change. This picture shows the oil growth consumption, fossil fuel consumption going up about a third. What you see is actually clean energy as a percentage of that doesn't necessarily change over the decade. What you will see on the margin, where investment is going to change, is that it is going to go into new and clean technologies all over the world. There's two trillion dollars of investment going into new and clean technologies all across the world, and we're getting to a place where some of these are actually economic, which is a huge transformation. We could go to things like solar, but it is way more expensive so we can't justify it. Right now in some parts of the United States, solar is actually at a cheaper rate in terms of electricity, in places like California, Hawaii and parts of New Jersey, you are starting to see the prices coming down. You are seeing it in Europe as well. You see it in Japan. You'll start to see clean energies becoming

more and more part of our economy and part of what you see. You'll also see an enormous amount of innovation around how we use energy.

This is an example with UPS. UPS came up with all of these very sophisticated software programs to figure out how they optimize fuel consumption. Does anyone know what the big insight was that helped them save 2 percent off their fuel consumption? Yes. Fewer left turns. When you take a right turn rather than a left turn, you actually use less fuel. It's actually safer too. I was at a meeting where some of the UPS guys were there and I asked them specifically about this and they said it was safer as well.

It's those kinds of things when we actually think of how to use energy smarter. When you think about natural gas and natural gas disruption that is happening in the United States, the price for an equivalent transportation "gallon" of natural gas is now half the price of diesel. We'll start to see an enormous transformation of how do we live cleaner and more sustainably on the planet?

The fifth area of enormous tension is the government and the state. Everything in the world has gone global and states are left hanging the bag at a national and local level trying to solve problems with not all of the ability that companies, individuals, that entrepreneurs have because they're restricted. How do they think about reinventing themselves to be able to be adaptive in an increasingly complicated, complex, fast moving, fast changing economy? It's a massive problem. I think that governments are trying to maintain a social contract that they have had for years, but that not necessarily build in the flexibility to deal with it. They didn't prepare for the changes. They didn't prepare that their populations would live longer. If you look at the early social security numbers, the expectation was that you would die at 63 and social security would start at 65. Now that people are living into their 80s and 90s, it's a very different equation. How do you reinvent to solve that? OECD countries are facing enormous amounts of challenges, and the emerging markets area as well. They had no social contract, now they have to figure out how do they provide health for their country, how do they provide health care? I think this will be an area of enormous transformation and innovation, but a lot of pain as well. It will be the hardest things to change because governments can't just move with the markets. At the same time, you'll see a lot more competition between governments as they compete globally. Countries like the U.S. have never really had to think about it; countries like China are starting to think about it. When you look at little countries like Scandinavia, they're really good at competing for jobs and growth, and opportunities for their people. Countries like Singapore are much more sophisticated in saying, 'How do we optimize for our populations and make sure that we are getting the companies located here to? have equal opportunities here?' I think we'll see an enormous amount of fluctuation

as a bunch of national states that have always been national suddenly wake up and figure out, how do we become global citizens in an entirely different way when our populations are competing with people globally around the world?

Those are the five big areas of transformation that we see happening, and I think there are negative challenges across all of them, but here is a lot of hope across all of them too. You have to ask yourself: does the economy stand still? Do we just accept things the way they have always been? And part of being a human being is that we innovate. I think what you see is that the pace of change is accelerating, it's getting more and more rapid; the invention, the intention of invention is transforming. If you think about those 5.6 billion people who are now connected to the grid for the first time, and they may be learning English by text message somewhere in Bangladesh or in Kenya, you are going to see dramatic innovation. When you think about the country that has the largest amount of people using mobile banking right now, it's not the U.S., not Norway, not Finland; it's Kenya. You're going to see people who suddenly have the world opened up to them, and they're, for the first time ever, going to be able to invent and be entrepreneurs, and I think that is what is incredibly exciting. In the story of optimism and pessimism, I think that as we look forward, there is a tremendous amount of optimism.