Keynote Address: 20th Annual Information and Communications Technology for Sustainable Economic, Business and Social Development Conference

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I want to welcome everybody. I think as the morning progresses, the level of particularity and information will continue to increase. I will try to bring a few ideas to the table that will give you maneuvering room and value as you go forward.

I want to say if you marvel today at this transformation of computing, information and communications has created, we still have to look back on history and say this is not the first time. When they were beating signal drums in Africa, they were not just doing it for the rhythm. It was information, it was a warning about colonial slave trading, it was a warning about stealing them away as slaves. So data has been communicated for a long time across distances.

And, of course, if you were Lord Nelson, you saw the value of a set of signal flags that could rally 60, 80 ships to a major naval victory. Again, using data across distances. Think of Europe in the Victorian era. You could use a semaphore and get a signal from London to the coast at Portsmouth in something approaching a minute. In fact, it was Einstein's watching railroad signals that led him to think about time and light and led ultimately to $E=mc^2$ and relativity. And we have the case of Abraham Lincoln, the first president to fight a war using telegraph that had a major impact on what was going on and how he commanded his generals.

And then of course in the 20th century, there is at least one author who said that if diplomats had picked up the phone before World War 1 instead of writing letters, it would have prevented World War I. The potential for settlement was so close, but they insisted on using letters and the delay in letters led to the loss of two million lives.

We have seen information used across the world over distances for a long time. This is nothing new. Now if you go to China— and I spent two weeks in China in April— the discussion symbolizes where we are headed in the big picture. More and more young Chinese talk to me about our hardware and our software. You can say there is nothing new about that, Jerry. Of course, they need hardware for computers and software for the operating systems and all that goes on the applications. Hardware to them means all of the infrastructure and structural parts of their life. Hardware means the computers, the communications, the roads, the buildings, that's the hardware. And what they are saying more and more, it's our software that we need to make better. And by software they mean the values, the culture, the interrelationships, the reduction of bribery and the ability to trust the transaction. So keep this metaphor in mind as you think about your role as a CIO. You've been using different words and I want to propose a different perspective.

Let me tell you the three things I'd like to cover today. First the role of the CIO in shaping society; second, the CIO's need for what I am going to call a T-shaped skill set; and third, the role of the Global CIO Forum and Academy, which AIT and GAID have organized, and which New York Polytechnic is participating in.

First, let's talk about the broader role of the CIO. I like to think of three letters: I….M….S. I is the traditional role many CIOs saw for ICT. That is running the inside of the organization. This was someone who ran the telephone system, ran the computer system…essentially communicated within the organization. Most of you know that's a pretty old-fashioned perspective.

Second, more and more any CEO worth his salt is asking the CIO to deliver on the business mission. This is the M. This is what you do in the world so that you succeed at making a profit or succeed at accomplishing the goals of your organization if you are a government agency.

Third, I would propose the S for society. You would say if you were a business person or a business CIO, business does not have a role in society. They do their thing. But I would challenge you that Google has essentially changed society. Google may make money. Google may communicate internally great. That is the I and M, but their impact on the S society, their impact on the software— in the Chinese sense I am using— has been enormous. How we have access to information, how we handle information, and you can add to that Cisco, Microsoft, IBM, HP, Yahoo and any number of other companies the sum of which have changed how society operates. This is why the global economy exists. The global economy does not exist without the infrastructure of communications and computing we have. And more and more, if you want to succeed at your business you want to see how society operates. Let's take a simple example, you want to run a successful business in India. Well, you have to know how India operates as an economy, as a society. You certainly have that issue in China. You have that issue in Africa, and I would say more and more you have that issue in the U.S. If you can tell me what the job's engine in the U.S. is that is going to give us an economy that basically does not borrow from China and consume products made across the world… where are the jobs in America… step up. But if you think you are going to run a business in America where no one has any jobs, I say that's a failed economy and we need to face that potential.

Think about where we've seen this already show up. Barack Obama's campaign organization and fund raising. How he has organized people. Why did he forego public financing? Because he understood his people could use the Web so effectively to raise money, and that is value added to whoever understood on his team how to do that. And that is changing society. Second think about China and the recent earthquake. Look how China's leaders and citizens have engaged with each other after the May earthquake. The people knew what they were owed and what was going on. It's not a perfect system, but a changed system. And third, look at Zimbabwe. If someone had designed a cell phone or Wi-Fi system that had a truly secure encrypted electronic means of voting that protected individual citizens, there would be a different result in Zimbabwe today. That is where ICT changes society, not just the business, not just the operations.

Think IMS and how it changes society. Think of the CIO who is this kind of person. I would propose that he/she would be a T-shaped person. You can't buy a dress that's a perfect T; you can't buy a suit that's a perfect T. Think of T in this sense….vertical, meaning I have expertise. You've got to be smart to be an IT professional or CIO. The T-axis is the ability to understand the business world and the society around you. If you think you can be a good CIO without knowing the world around you, your boss is going to say take a hike. You need to be a T-person.

One of the things I do as a university president is try to build T-people. So what do we do? For instance Polytechnic hosts the Intelligent Communities Forum World Conference every year because we are trying to take communities and turn them into thriving economic entities.

Read for instance John Sexton's, the president of New York University, paper called "Fire and Ice." An interesting proposition. Fire, he is saying, is the past…finance industry, insurance industry, real estate. Talk

about New York City at this point. Such is where the value came from. His proposition is Ice. Intellectual, cultural, educational is where the new value in this city will come from and without it New York won't be a global city and I would say the same thing applies to the city you live in.

Just making the financial industry, insurance industry, manufacturing successful will be insufficient for the modern person. They are going to be a T-person and they want a T-life and you are going to want to operate in a T-world.

Now there are clear trends and I think you see them and are going to hear more about. Security and trust is giving CIOs new opportunities. CEOs have come to trust us. Green IT and urban sustainability, not only green in terms of IT operations being energy efficient, but also using IT in helping urban sustainability. Saving energy, less travel, better transportation, that is where the real value in green computing will come from.

Security is clearly still an issue. You are going to hear from one of our great professors Nasir Memon, an expert on security this afternoon. When I was Under Secretary of the Navy, I watched the attacks on the Pentagon's information system and they were enormous. One of the major services proposed putting up an air gap between the Internet and its own computing system. Put a physical divide between the two. You can't operate like that, but that's what they wanted to do.

Clearly innovation is important, and one that is dear to my heart virtual management and virtual distance. Learning to manage across distances without traveling is going to be one of the skill sets that will make young people competitive and give companies a competitive advantage, because you are going to be global and you don't want to be the person that flies around the world every two weeks to manage your team.

Now finally one closing thought. I was a young naval officer in Vietnam and I have seen war. As Under Secretary of the Navy in the United States, I had responsibility for over $100B a year and 800,000 men and women in the United States Navy and Marine Corps and we did some powerful things and not only in terms of war fighting. You can argue about war fighting, but without protection and stability in world everything else we dream about is meaningless. We created the network operations revolution, basically took information communications and totally changed how organizations operated. Secondly, I created the Navy, Marine Corps corporate Internet, the consolidation of over 400 WAN into one network, that placed 450,000 people on the same Intranet.

I concluded that as much as you can do on defense, you can't make a safe world on force alone. So that is why I am a university president and that's why the Millennium Goals exist, because I believe if we do not bring change to the world, we will not have stability. We will not live like we want to live in the 21st century. So what plays into this? Like I mentioned earlier, thinking more broadly – IMS. The internal organization needs to know what is going on, but you got to get well beyond your own organization if you are going to be effective. When you do that you create value for your company, agency, CEO and in your own career.

Now, more and more as we pursue the Millennium Goals and if you are in the business of pursuing the Millennium Goals, I recommend for instance, reading Paul Collier's book "The Bottom Billion." It's a hard-hitting book that says aid alone and good deeds alone are not sufficient to build a world that eliminates poverty and gives people hope. Collier spells out what it takes to changes society and if that is one of the reasons you are here, move past the clichés and into that territory.

AIT and GAID at the UN have formed the Global CIO Academy Forum. This is a network which you can communicate, get the best practices, learn what's going on and to continue this discussion. Our role at

Polytechnic is to provide an academy. So this fall we will provide a series of courses related to issues like I talked about – green, security, innovation, sustainability that I think you will find helpful in your life and in the lives of people that work for you.

The forum and academy are a real effort to turn discussions like this into educating people to be the T-personality I described and IMS…..internal, mission, society view of their obligation.

Finally, Poly merged with NYU for a reason. Poly is a great engineering school, but we needed a global reach. NYU gives us that. We need to share our engineering with their sciences, their humanities, and their policy. We needed their global campuses. They have eight campuses around the world and need our students to be from around the world…from Argentina to Shanghai, Italy, France and Singapore. And finally, we wanted to team up with their 14 great schools. They are number one in math and computer science, the Stern School is nationally ranked and the law school is number four. It's a great school and gives anyone who participates at Poly greater reach. Most of all, we did it because I like John Sexton who is committed to a better world in which society, not just the enterprise or agency, clearly increases and improves in the 21st century.

I don't know about you, but there is one friend from California who says there is enough molecules, enough energy to make this world work. The question is can we take these molecules and energy and make it work.

The 21st century is a different time. It's not the old game, the old approach and information is at the heart of this. Between us we will make the kind of changes the world deserves.

It's been a pleasure being here.