**"Building the Innovation Infrastructure"**
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## Building the Innovation Infrastructure

Good morning and welcome to the session on Supporting National and Regional Innovation for Economic Prosperity. It is my great honor to help set the stage for this discussion.

This meeting is all about competitiveness – how individual companies and countries can better position themselves in the global marketplace – and how the Americas as a whole, can work *together* to foster an economic environment that supports increasing living standards.

Integral to the success of these goals are the four main themes of this forum: enhancing education and workforce development, sparking and sustaining innovation, integrating global supply chains, and stimulating small business development.

Innovation – in particular, technology innovation – really underlies each of these four thematic areas. In fact, yesterday's luncheon speakers captivated the audience with examples of how technology, innovation, and competitiveness are intertwined. And innovation will continue to play a central theme in this session in which our panelists will look at regional approaches to innovation.

As a scientist – and as head of a U.S. National Laboratory – I see on a daily basis how scientific discoveries are translated into new products and services. The path from knowledge creation to application is often described as a smooth, straight line – but in reality, it is a very rocky, convoluted path with many mismarked exits. Choosing a good path, not just in one country – but across the Americas, is one element of ensuring our hemisphere's future economic well-being.

So how do we work <u>together</u> to choose the best path from discovery to use, accelerate the introduction of innovative products and processes, and reap the benefits for our economies?

Let me argue first by analogy. We all understand the physical infrastructures that underlie our economies. Our nations' highways, communication networks, and the electric power grid, for example, help define a nation's *capacity to produce and transport goods and services.*

In direct analogy to a nation's physical infrastructure, there exists an "innovation infrastructure" – which defines a nation's *capacity to innovate*. Components of this infrastructure include, for example, a nation's education system, public investment in basic science, worker training and retraining, and tax policies to foster private sector investment in research and development.

The innovation infrastructure is a key determinant in a nation's ability to be competitive in an ever-more competitive world.

Around the globe, however, a variety of studies have identified stress on the innovation infrastructure. These studies include seminal analyses by the Council on Competitiveness, the U.S. National Academies, as well as several countries represented here.

In the U.S., the government is addressing the health and robustness of this infrastructure through the American Competitiveness Initiative (or ACI).

The ACI is a bold plan. It will double the investment in some of the nation's most critical physical science research, modernize R&D tax policies, and address shortcomings in our education and worker training systems.

While the U.S. and other nations move ahead with these kinds of initiatives, we must remember that the innovation infrastructure itself is becoming global. For example, there are no borders when it comes to science. Thus our innovation infrastructures need to be reinforcing in order to ensure efficiency in the international marketplace. Without components being "in synch," the Americas will not realize our full competitive advantages.

One component that clearly needs to be in sync is the measurements and standards that enable robust and dynamic supply chains, global acceptance and compatibility of goods and services, and fair and equitable trade.

This century will be defined by new technologies that fundamentally change the products and services available, the way they are manufactured and provided, and the impact on our quality of life. But before these technologies can be realized -- and commercialized -- new measurement techniques will be needed.

For example, realizing the promise of computing and communications at almost undreamed-of speeds, electronic devices built up atom-by-atom, novel and custom-made materials, and other frontier technologies all require advances in the science of measurement.

Today, U.S. industry is limited not only in its ability to measure key parameters but also in its ability to identify which features must be measured to address potential health and safety concerns and regulations.

These are not problems that we face alone. The success of all of our nations in exploiting technologies for economic gain rests upon these same measurement and standards needs. It makes little sense for any nation to be developing these essential tools in isolation. It makes great sense for us to team in tackling these barriers.

For instance, nearly 500 scientists from other countries are working at our NIST laboratories on new measurements and standards for commerce. They include top scientists and engineers from all over the Americas. Together we are working in addressing common challenges.

The U.S. has also partnered for many years with the InterAmerican System of Metrology, or SIM, a real success story for cooperation among the Americas. This 34-member organization concentrates on measurement and standards critical to this hemisphere. SIM contributes to the measurement infrastructure required for equity in commercial transactions and fosters competitiveness and quality in the manufacturing sector. SIM also contributes to measurements needed to protect the environment and promote health and safety.

My last example of international cooperation in the innovation infrastructure is the joint U.S.-Brazilian efforts to facilitate the trade of biofuels. During President Bush's visit to Brazil in March, the U.S. and Brazil agreed to cooperate in establishing uniform standards to foster the global acceptance of biofuels. Currently Brazil and the U.S., combined, account for approximately 70% of global production of bioethanol -- and world-wide demand for biofuels is forecasted to increase dramatically over the next few years. This provides a real opportunity for enhancing our hemisphere's economic prosperity and energy independence.

This forum is all about improved competitiveness for the Americas. That requires cooperation -- and harmonizing components of our innovation infrastructures presents a specific opportunity. It is one way to further support national and regional innovation for economic prosperity.