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ABSTRACT

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INNOVATION

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- *Innovation encompasses research, invention, integration, product development, and marketing. Innovation is essential to economic growth, but it works differently in different sectors and under different market conditions.*
- *Information technology is the principal driver of productivity gains in today's economy and plays a critical role in enabling innovation across all sectors.*
- *Innovation policy should seek political consensus (the America COMPETES Act), but policy development should be forward-thinking and innovative in itself. It should be coordinated across agencies and engage the private sector.*
- *The Obama Administration should develop a comprehensive strategy for advancing innovation policy in support of long-term economic growth.*

Background: Innovation is the principal driver of economic growth, whether in the form of science and technology or new processes for making new products and services available. Today, there is renewed concern that innovation is critical to the long-term future of the U.S. economy. Although innovation is often associated with national competitiveness, putting emphasis on innovation speaks to the interconnectedness of the global economy and the common interest in technology, commercial efficiency, and economic development.

The mainstream consensus on innovation policy is represented by the America COMPETES Act of 2007, which emphasizes increased investment in research in the physical sciences and STEM education (science, technology, engineering and math); however, most of the Act has not been funded or implemented.

While it is important to nurture and advance a consensus agenda, innovation policy must also be open to understanding the changing characteristics and models of innovation, as well as rethinking policies to address evolving problems and opportunities. The mainstream agenda is dominated by the notion that we need more of the same – more scientists and engineers, more STEM education, and more federal investment in R&D – and that this will lead to more technology and more economic value. The assumption that more is better may preclude hard thinking about structural change in innovation and what that may mean for public policy. In the case of patents, it led to lower standards and the rise of speculation and opportunism.

Innovation must be understood in the broad sense of achieving change and impact. It therefore includes research, invention, integration, product development, and marketing. Moreover,

innovation is context-dependent; it operates differently in IT and services than it does in chemicals and pharmaceuticals. One size does not fit all as the debate over patent reform makes clear.

Information technology contributes to innovation in many different ways:

- The IT sector itself has shown tremendous productivity gains, as seen in rapidly diminishing price-performance ratios;
- Information technology contributes to innovation in all sectors. Virtually all of labor productivity growth throughout the economy is attributable to information technology;
- Information technology provides essential tools for addressing complex, large-scale challenges such as climate change and healthcare;
- Information technology offers a wide range of difficult-to-measure social benefits, such as enhancing family ties across distances;
- Information technology not only commoditizes itself over time, it also commoditizes information, making it cheaper and more widely available.

Innovation in information technology also differs significantly from innovation in other fields. In IT, distinctive roles are played by:

- **Standards** that are strategically important for defining new areas of technology, the development of new markets, and ensuring interoperability;
- **Patent practice** in IT which is dominated by the acquisition and non-exclusive licensing of patents in volume. These portfolios have a different impact on competition than do individual patents;
- **Infrastructure** that plays an important role at many different levels, from the bandwidth available in physical channels to platforms for services and applications to advanced cyberinfrastructure.

Due to the sheer scope of innovative activity and enterprise in IT, it is important that policymakers comprehend the economic forces at work in IT, digital information, and IT-dependent services. Similarly, IT-related sectors have a special interest in ensuring that laws, programs, and policies are attentive to diverse institutions and digital ecosystems.

There is presently no institutionalized focus on innovation policy in the federal government. Policies in many domains, from securities regulation to telecommunications and antitrust, may promote or inhibit innovation. In most contexts, there is no specific charter or direction for addressing innovation. The Congressional Office of Technology Assessment was abolished in 1994. The Technology Administration (TA) of the Department of Commerce, including its Office of Technology Policy, was abolished in 2007 by the America COMPETES Act. Formerly part of TA, the National Institute for Standards and Technology (NIST) now stands on its own. Although NIST operates more as a collection of technology-specific labs and lacks visibility as a resource for policy development, NIST can play a critical role in coordinating agency and industry interests.

CCIA's position: The Obama Administration should develop a comprehensive strategy for advancing innovation policy in support of long-term economic growth. Innovation policy is in practice dispersed but needs leadership and coordination. CCIA advocates:

- The implementation and full funding of the provisions of the America Competes Act, including the President's Council on Innovation and Competitiveness (PCIC) and studies of "service science" and barriers to innovation;
- The reframing of the OSTP as the Office of Science, Technology, and Innovation Policy. Developing a plan for supporting the development of innovation policy under the auspices of the PCIC.
- The coordination of interagency engagement and support for innovation and innovation policy through the NIST Director's Office;
- Charging OMB with coordinating regulatory policies and decisions that impact innovation.
- Promoting objective research, metrics, and analysis concerning the changing nature of innovation and role of the public sector in advancing innovation;
- Engaging industry in defining and examining innovation policy challenges in each sector.