Network Infrastructure Investments:

Create Immediate, High-Skilled Jobs and Stimulate Economic Growth

What You Will Learn

The Works Projects Administration jobs of the 1930s lasted only as long as the building projects took to finish. In contrast, the success of the economic stimulus program of 2009 will be measured not only by immediate jobs creation, but also by sustainable economic growth and quality-of-life improvements.

This document, intended for public-sector executives deciding where to invest stimulus money, describes four benefits of adding 21st century network infrastructure to all building and transportation projects:

- Jobs creation: not just any jobs, but sustainable, skilled jobs
- Swift start
- Immediate return on investment (ROI) from cost savings and reduced energy consumption
- Sustainable competitive advantage

The Role of the Network in 21st Century Public Works

The 21st century economy is based on high-speed information access and collaboration across the barriers of time and distance, which requires broadband network infrastructure. Building network infrastructure in schools, public buildings, and healthcare facilities and along highways and bridges creates immediate jobs and also provides long-term benefits for local economies, public safety, and education, which collectively improve overall quality of life.

The economic effects of broadband access depend on the number of people who use it at home, at work, and in the community, as well as the speed of the connection. Therefore, to achieve the biggest and longest-lasting benefits from the economic stimulus program, policymakers should make inclusion of network infrastructure mandatory, not optional, in every construction, transportation, and education project funded by the program. The remainder of this document describes the rewards.

Benefit 1: Jobs Creation

Multiple studies confirm the effects of investing in network infrastructure on jobs creation:

- A US$5 billion increase in spending on broadband infrastructure directly creates 97,500 new jobs in telecom and IT in the year in which spending occurs (source: Communications Workers of America, citing Department of Commerce and Brookings Institute models).
- A 7 percent increase in broadband adoption would result in 2.4 million jobs created or saved annually (source: Connected Nation).
- In California alone, a 3.8 percent increase in the number of adults using broadband would add 1.8 million jobs by 2017 (source: Sacramento Regional Research Institute).
- Injecting US$30 billion into U.S. infrastructure in 2009 would create 949,000 jobs, 525,000 in businesses with fewer than 500 employees (source: Information Technology and Innovation Foundation, January 2009).
- For each 1 percent increase in a region's broadband penetration, employment is projected to increase by 0.2 to 0.3 percent. That increase is associated with 300,000 more jobs (source: Brookings Institute).

Table 1 shows the incremental economic impact and social value of including network infrastructure in a school construction project. The left column shows the value of the project without network infrastructure, and the right column shows the additional value created by including network infrastructure.

Table 1. Adding Network Infrastructure to Building Projects Creates More Jobs, More Sustainable Jobs, and Long-Term Value

	School Building Without Infrastructure	Incremental 21st Century IT Infrastructure
Immediate Jobs	• Construction	• Cabling • Network design* • Installation: cables, wireless access points, video surveillance cameras, digital signage, and more*
Long-Term Jobs	• Teachers and staff*	• Network administrators* • Digital content developers* • Additional teachers to supervise distance-learning courses offered to students inside and outside the district*
Public Value	• Less-crowded classrooms	• Educational excellence with capabilities like video portals and using video and collaboration tools to share Advanced Placement and Honors teachers with multiple schools. • Increased administrative efficiency from collaboration tools such as voicemail; voice, video, and web conferencing; wireless voice; and instant messaging • Cost savings from reduced telecommunications costs, video-based training, and eliminating separate paging and bells systems. • Enhanced physical safety and security with network-based video surveillance and building access controls, digital signage to distribute up-to-the-minute emergency status and instructions, and a phone in every classroom with paging and an emergency button

* Skilled jobs

Significantly, the new jobs created from network infrastructure investments are skilled jobs that are in high demand. Employer need for networking skills is projected to increase at a 6 percent compound annual growth rate (CAGR) through 2011, significantly above the U.S. average job growth (source: IDC). These jobs are suited for new graduates as well as laid-off workers who have returned to school to learn new technology skills. Training for network-based jobs is readily available. For example, Cisco Networking Academy® sites in the United States have enrolled 819,000 students since this program's inception.

Benefit 2: Swift Start

Retrofitting existing buildings, roads, and bridges with network infrastructure can begin within 30 days. Network infrastructure projects require no permits, environmental impact studies, or other time-consuming processes. Governments can use existing customer procurement vehicles, such as the Networx contract, to accelerate project starts. To reduce planning time, network infrastructure vendors can provide standards-based architecture blueprints for different types of projects, including building automation, public safety interoperability, and school district projects.

Benefit 3: Immediate Return on Investment

Intelligent buildings produce immediate cost savings in addition to new jobs:

- Equipment and operational cost savings: Unifying previously separate voice, video, and data networks reduces capital and operational expenses. The town of Herndon, Virginia, reduced voice communications costs by 50 percent by sending its voice traffic over a unified network infrastructure instead of a separate voice network. San Diego City Schools in California expect to save US$5.5 million over five years from IP telephony, and an additional US$5.5 million from use of the network infrastructure for interactive video training.

- Additional savings by adopting business processes that reduce travel: By conducting meetings with legal counsel by video instead of driving to meet in person, North Wales Police, United Kingdom, eliminated 30 hours weekly in travel time for just one district, saving US$68,000 in six months and reducing carbon emissions by 2.8 tons.
- Energy savings: The largest portion of a building's total lifecycle costs, 75 percent, is incurred after initial construction. Energy use decreases when heating, ventilation, air conditioning, energy, and lighting controls are connected to the unified network infrastructure. This enables facilities managers to centrally monitor energy use to find efficiencies and to automate environmental controls so that lighting goes off automatically, for example, when a room or building is empty. The state of Missouri measured savings for one building using this approach, reporting that it reduced total energy consumption by 17.5 percent, weather-independent daily load by 25.4 percent, electric demand by 9 percent, and cost per square foot by 13.6 percent.

Benefit 4: Sustainable Social and Economic Value

The ripple effects of applying stimulus funds to network infrastructure include:

- Increasing the tax base by creating skilled jobs.
- Equipping students with 21st-century skills, increasing U.S. competitiveness in a global economy.
- Creating an ongoing need for skills training, adding jobs in the training sector.
- Gaining a competitive edge in attracting businesses to the community or region. For example, when Eclipse Aviation looked for a home base, it selected Albuquerque, New Mexico over 60 other communities, partly because of the city's 21st-century communications infrastructure.
- Empowering mobile workers, in government as well as in the private sector, by enabling them to retrieve and submit information from the field over wireless broadband networks instead of repeatedly driving back to the office. The city of Danville, Virginia, added a wireless extension to its network that will eliminate 27,000 service trips annually to read meters.
- Enhancing public safety with advanced technology, including communications interoperability and automated alerting and response to network-based sensors such as video surveillance cameras and chemical, biological, radiological, nuclear, and explosives (CBRNE) sensors.
- Providing the foundation for entrepreneurs to compete in a networked world by collaborating with global partners and customers.
- Creating telework opportunities, increasing inclusion for people in rural areas or who cannot work outside the home. Telework also benefits society by decreasing carbon emissions and enabling citizens to balance time spent at work and at home.
- Supporting government continuity of operations by enabling employees to securely access the voice and data services they need to do their jobs from home.

Conclusion

Treating the network as an essential infrastructure—electricity, gas, and water—will multiply the economic benefits of the stimulus program. Making network infrastructure mandatory in all building projects, including schools, roads, bridges, hospitals, and government buildings can stimulate economic recovery in four powerful ways.

First, investing in network infrastructure creates immediate, sustainable, skilled jobs that are in high demand, many of these in businesses with fewer than 500 people.

Second, network infrastructure projects inject money into the economy now, when it will have the biggest impact on recovery.

Third, local, state, and federal government agencies can start saving money immediately by managing one unified IP network instead of separate networks for voice, video, data, environmental sensors, building access controls, and so on. More cost savings come from lowering energy consumption and reducing travel. Money saved can be redirected to programs that directly benefit citizens and businesses, such as education and public safety.

Finally, network infrastructure investments provide sustainable social and economic value whose echoes will be felt long after the current economic emergency has been abated. An infusion of skilled jobs will increase the local tax base. Exposure to collaboration tools will better prepare students for 21st century jobs. Enhanced public safety capabilities will help protect lives and property. The ability to work productively from home will help people achieve a healthy work-life balance. Collectively, all these byproducts of 21st century infrastructure will contribute to sustained economic vitality and enhanced quality of life.

Get Started

Contact your Cisco® account team for ideas about how including network infrastructure in your project will help create jobs, increase ROI, and deliver sustainable advantages. Your account team can also provide the appropriate architectural blueprints and help identify procurement vehicles and partners.

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