



# The Digital Road to Recovery: A Stimulus Plan to Create Jobs, Boost Productivity, and Revitalize America

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## Summary Findings

A stimulus package that spurs or supports investment of \$30B in America's IT network infrastructure will create about 950,000 U.S. jobs.

### Estimates of U.S. Jobs Created by Investments in Network Infrastructures

IT Infrastructure Project	Investment	Jobs Created	Small Business Jobs Created
Broadband networks	\$10 billion	498,000	262,050
Health IT	\$10 billion	212,000	121,675
Smart power grid	\$10 billion	239,000	140,500
<b>Total</b>	<b>\$30 billion</b>	<b>949,000</b>	<b>524,225</b>

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# Employment Multipliers

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1. Direct jobs created
2. Indirect jobs created
3. Induced jobs created
4. Network effect jobs created

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# The Network Effect Multiplier

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- Network effects arise from the new consumer and business behaviors, functionalities, and downstream industries enabled by digital infrastructure.
- They occur because digital infrastructure acts as a platform that supports creation of innovative technologies and services.
- The network effect is greater in networks that are not yet fully mature.

Examples:

Broadband: Newer computers, peripherals, social networking, more e-commerce and e-government

Health IT: WebMD, Microsoft Health Vault, web cams, telehealth

Smart Grid: Smart appliances, plug-in hybrid electric vehicles, energy storage, and residential solar power

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# Methodology for Measuring Employment Impact

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1. Build a bottom-up analysis of employment impact by measuring the total increase in direct spending within each industry created by the stimulus proposal.
  - Determine the number of direct service, software, and hardware (manufacturing) jobs created in each industry using industry-specific employee compensation data from BLS.
  - Estimate mix of technologies (e.g. DSL & fiber optic) deployed for each IT infrastructure.
  - Assess labor component of equipment/hardware needed to deploy infrastructure.
  - Apply a leakage factor to account for loss of some mfg. jobs due to imports.
1. Calculate the number of indirect and induced jobs created using industry-specific employment multipliers from the BEA. (Type II indirect and induced.)
2. Apply a network effect multiplier to estimate additional job growth based on the anticipated network effect that creation of these digital infrastructures will have on employment growth.

# Methodology for Measuring Small Business Employment Impact

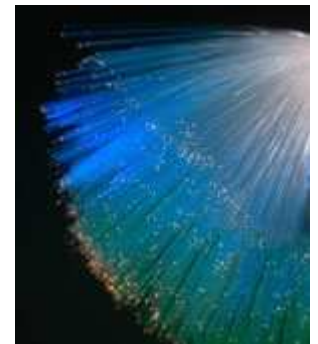
Small businesses are defined as firms with under 500 employees.

1. For direct jobs:
  - Apply U.S. Census Bureau data on U.S. County Business Patterns showing percentage of small business workforce in each industry (e.g. software, telecommunications, utilities, construction)
2. For indirect jobs:
  - Determine the 5-6 largest *intermediate industries* to the industry in question, using annual intermediate input (input-output account) data from the BEA, and
  - Multiply that percentage by the weighted-average percentage of the workforce found in small businesses in those “supplier” industries.
3. For induced and network effect jobs:
  - Apply the average percentage—50.9%—of the U.S. workforce situated in small businesses throughout the economy.

# Employment Growth from \$10B Broadband Investment Stimulus

## Broadband Networks: U.S. Jobs Created for 1 Year by a \$10 Billion Broadband Stimulus Package

Job Type	Jobs Created	Small Business Jobs Created
Direct telecommunications jobs	49,820	24,910
Direct capital equipment jobs	13,840	7,280
Indirect and induced jobs	165,815	93,200
Network effect	268,480	136,660
<b>Total Jobs</b>	<b>497,955</b>	<b>262,050</b>



# Employment Growth from \$10B Health IT Investment Stimulus

## Health IT: U.S. Jobs Created for 1 Year by a \$10 Billion Stimulus Package

Job Type	Jobs Created	Small Business Jobs Created
Direct jobs	43,410	31,790
Indirect and induced jobs	115,670	62,895
Network effect	53,025	26,990
<b>Total Jobs</b>	<b>212,105</b>	<b>121,675</b>





# Employment Growth from \$10B Smart Grid Investment Stimulus

## Smart Power Grid: U.S. Jobs Creation Under Various Options

Job Type	\$50 Billion Over 5 Years	\$100 Billion Over 5 Years	Federal Mandate
Direct and indirect jobs	58,645	117,290	22,725
Induced jobs	120,415	240,830	45,630
Network effect jobs	59,685	119,370	22,785
<i>Small business jobs</i>	<i>140,475</i>	<i>280,950</i>	<i>23,385</i>
<b>Total Jobs Over 5 Years</b>	<b>238,745</b>	<b>477,490</b>	<b>91,140</b>



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## Conclusions

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- Spurring additional investment of \$30 billion in America's digital infrastructure in 2009 will create about 950,000 U.S. jobs for 1 year.
- IT infrastructure investments are “shovel ready.” These projects—and the jobs they create—can get started in 2009.
- While most infrastructure investments only create jobs in the year the investment occurs, many jobs created through network effects enabled by digital infrastructure persist once the infrastructure is built out.
- Immediate short-term stimulus can drive networks for broadband, health IT, and the smart grid to the tipping point, after which investment can be almost exclusively sustained by the private sector.
- Beyond immediate jobs creation, IT infrastructure investments drive productivity growth and deliver personal and societal benefits that transform quality of life.