Economic Development/Job Creation/Business Vitality

This Briefing Paper provides a synopsis of Chapter 13 of the National Broadband Plan. Chapter 13 covers Economic Opportunity. This paper also provides excerpts from:

- Does Broadband Boost Local Economic Development? By Jed Kelko[1]
- A Road Map for Accessible, Affordable and Adaptable Broadband Telecommunications in Portland
- 2020 Forecast: The Future of Cities, Information and Inclusion, Technology Horizons Program, Institute for the Future, 2010[2]
- Mt. Hood Cable Regulatory Commission's Community Technology Needs Ascertainment[3]
- IBM's Smarter Cities: Promoting Economic development[4]

Background

Broadband is becoming a prerequisite to economic opportunity for individuals, small businesses and communities. Those without broadband and the skills to use broadband-enabled technologies are becoming more isolated from the modern American economy.

- Sixty-two percent of American workers rely on the Internet to perform their jobs.

- The Bureau of Labor Statistics forecasts that jobs depending on broadband and information and communication technologies (ICT)—such as computer systems analysts, database administrators and media and communications workers—will grow by 25% from 2008–2018, 2.5 times faster than the average across all occupations and industries.

- Broadband and the Internet make it possible for small businesses to reach new markets and improve their business processes.

- Broadband has become a critical pathway for individuals to gain skills and access careers.

[1] http://www.ppic.org/content/pubs/report/R_110JKR.pdf
[2] http://www.iftf.org/inclusion
[3] http://www.mhcrc.org/docs/MHCRC_Communications_Technology_Needs_Ascert_Report%2804-21-10%29FINAL.pdf
[4] http://www.youtube.com/watch?v=AxWQC6jtFYQ&feature=related

- Broadband is a core infrastructure component for local communities seeking to attract new industries and skilled work forces.

- Certain communities, such as African Americans, Hispanics and rural Americans, face low adoption rates, further limiting the potential benefits of broadband.

- There is some evidence broadband prices tend to be higher in low-income rural areas than similarly populated areas with higher median incomes.

Supporting Small Business and Entrepreneurship

Broadband can provide significant benefits to the next generation of American entrepreneurs and small businesses—the engines of job creation and economic growth for the country. Small and medium enterprises (SMEs)—businesses with fewer than 500 employees—employ more than half of America's private sector workers and create roughly 64% of net new private sector jobs each year. As of 2006, there were almost 5.4 million firms employing less than 20 people in the U.S. and an additional 20.8 million non-employer firms. Of that total, approximately 7.6 million firms were owned by women and 4.6 million firms were owned by minorities. In the last 10 years, minority-owned businesses have accounted for more than half of the two million new businesses started in the United States, and created 4.7 million jobs.

Home-based businesses and entrepreneurs also have a profound effect on the economy, employing more than 13 million people in the United States in 2008. Small businesses have been particularly important in high-tech industries. They currently hire roughly 40% of all high-tech workers, and account for a majority of the more than 1.2 million new jobs generated by the growth of the Internet during the last 10–15 years. Moreover, telecommunications has proven to be a particularly successful sector for women- and minority-owned businesses. For instance, in 2002, the more than 6,000 women-owned businesses in the telecom sector generated revenues of more than $7 billion. That works out to $1.1 million in revenues per business, far more than $145,000 in revenues per women-owned business in the economy overall.

- Broadband and broadband-dependent applications allow small businesses to increase efficiency, improve market access, reduce costs and increase the speed of both transactions and interactions.
- The conduct of key business activities such as communication, collaboration, process enhancements and transactions is made easier by use of broadband applications such as online conferencing, social networking, cloud-based business software and e-commerce.
- An estimated 60 million Americans go online every day to find a product or service; but only 24% of small businesses use e-commerce applications to sell online.

Broadband allows small businesses to achieve operational scale more quickly

- Broadband and associated ICTs can help lower company start-up costs through faster business registration and improved access to customers and suppliers,

- Broadband allows business to lower physical and geographic barriers,
- Broadband helps provide the ability to compete with larger suppliers,
- Broadband provides one opportunity for small businesses to level the playing field versus their larger rivals.

Many SME's fail to invest in IT applications

- IDC, a research firm, indicates that roughly half of small and midsize firms say that they are cautious when it comes to investing in new IT. Other small businesses voice skepticism about select broadband applications either because of a perceived lack of applicability or uncertain profitability.

ICT and Broadband can support entrepreneurship and America's small and medium-sized businesses

- Small Business Administration (SBA) resource partner programs should provide enhanced information technology (IT) applications training.
- Current federal small and medium enterprise (SME) support programs should use broadband and online applications to scale their services and give small businesses access to a virtual nationwide network of experts.
- The government should develop a public-private partnership to provide technology training and tools for small disadvantaged businesses (SDBs) and SMEs in low-income areas.

> Should your community create a broadband mentoring program for small businesses?

- Congress should consider additional funds for the Economic Development Administration (EDA) to bolster entrepreneurial development programs with broadband tools and training.

Broadband can be used to deliver high quality federally-supported job training and placement services virtually

- The Department of Labor (DOL) should accelerate and expand efforts to create a robust online platform that delivers virtual employment assistance programs and facilitates individualized job training.

Congress should remove barriers and promote telework within the federal government

- Congress should consider eliminating tax and regulatory barriers to telework.
- The federal government should promote telework internally.

> What actions can your community take to promote teleworking with employers?

Broadband enables local and regional economic development

- The federal government should develop regional and community broadband benchmarks for use as a central component within economic development planning and programs.

- EDA should create an easy-to-use, dynamic online information center that gives regional development managers access to integrated federal, state, local and Tribal data.
- The National Science Foundation (NSF) should use its technology transfer grants to spur regional innovation and development as well as greater collaboration across universities.

Tools such as webinars and online training courses, provided by the SBA's existing Small Business Training Network, can potentially provide an effective platform for these efforts

- Adoption of videoconferencing and distance mentoring practices can allow these programs to move beyond networks defined by the location of the mentors to networks defined by the expertise of the mentors.

Congress should consider funding to create parallel entrepreneurial development programs in areas not covered by existing programs

- Each pilot would have a $3 million annual budget—reflective of the annual budget for those programs currently in place—funded roughly one-third each from federal sources, state and local economic development agencies, and private entrepreneurial support organizations.
- Ten million dollars in federal funding for this effort, with equal matching funds from state/local and private entities, would create 10 new support organizations in areas where EDA identifies the greatest needs. New programs should have an emphasis on broadband communications tools and training.

Job Training and workforce development

Jobs increasingly require new skills. Today, the average worker will hold more than 10 different jobs during their prime working years. A changing economy, supported by workers taking on jobs that require more skills, demands better training—training that evolves in real time to meet shifting workforce needs.
- Broadband-enabled job training and search platforms can scale training to reach the greatest possible number of people and do so at a lower cost and in a more flexible manner.

The current workforce development system is fragmented and relies heavily on bricks-and-mortar facilities to deliver services. This physical infrastructure makes it difficult to adjust to changes in demand, resulting in inconsistent supply, quality and information distribution.
- Delivering services online through a scalable platform would expand the reach of One-Stops to everyone who has access to the Internet. Additionally, adopting content and service standards would ensure every participant receives consistent high-quality service.
- Broadband-enabled solutions also address time, information and technology barriers faced by disadvantaged Americans seeking jobs and training.
- The "anytime, anywhere" nature of an online environment allows people who have daytime responsibilities to participate in programs during evenings and off-hours.

83% of African-Americans and 68% of Hispanics have used their broadband connection to search or apply for a job online, compared to a national average of 57%.
- Expanding free Internet access at community anchor institutions will help bolster the effectiveness of online workforce development tools.
- Encouraging workforce participation in online job training could also yield long-term cost savings and better outcomes.
- The National Skills Coalition estimates that an increase in any level of post-secondary education could increase output per capita, increase annual federal tax revenues and reduce use of public programs such as food stamps, Medicaid and Temporary Assistance for Needy Families.
- Department of Labor (DOL) should accelerate and expand efforts to create a robust online platform that delivers virtual employment assistance programs and facilitates individualized job training.

Research shows that unemployed workers who receive re-employment services land a job and exit unemployment insurance approximately one week sooner than those who do not receive such services.

Local and Regional Development

Broadband enables regions and industries to compete globally.
- Example: Rural farmers marketing their products nationwide to start-up companies along Massachusetts's Route 128 corridor are achieving dramatic breakthroughs in biotechnology that are attracting global attention.

Communities without broadband infrastructure will find it more difficult to attract investment and IT-intensive jobs, particularly because they face growing national and international competition.

- Example: A major airline expressed interest in developing a customer call center in rural Georgia but ultimately passed for one basic reason: The community lacked adequate broadband infrastructure.

- Local economic developers should view broadband as a part of local infrastructure development and should incorporate it into local economic development strategies

> How can your community incorporate broadband infrastructure into our local development strategies?

Broadband infrastructure and a digitally skilled workforce are essential for a region to attract new jobs and investment.
- Federal and local governments should create benchmarks to measure the utilization of broadband in their specific area.

- One way for communities to determine the level of broadband utilization in their local economy is to develop a set of broadband metrics that can be used to benchmark their performance against communities nationally. These benchmarks should include the following metrics:
    - **Access**: The share of community or region with access to broadband services
    - **Adoption**: Broadband adoption rates by local residents, businesses and institutions
    - **Usage:** Applications used by local residents, businesses and institutions

To help local economic developers in regions and localities support more competitive clusters, the EDA should build an online information center for regional economic development data. This information center would have three components:

> Has your community benchmarked broadband utilization recently? Should your community benchmark every 3 years?

- It would continuously update a distributed database containing key economic development indicators at the local, regional and state level, and it would allow users to custom-define regions (comprised of multiple localities or counties) for analysis.
- It would offer a searchable online database of federal funding programs that can be used by local developers and matched to their local conditions and industries. This tool would help address the fragmentation and complexities of the grant process.
- It would provide an interactive map of current and previous grantees across programs, which would include all completed impact assessments and grantee contact information.

Congress should consider providing public funding for the creation and operation of a Regional Information Center, as part of EDA's Regional Innovation Cluster Initiative.
- The information center will gather, analyze, and distribute regional economic data, as well as promote best practices in economic development.

National Science Foundation (NSF) should use its technology transfer grants to spur regional innovation and development as well as greater collaboration across universities
- To assist smaller universities in applying for these grants, NSF should encourage consortia of these universities to pool their R&D resources, technology transfer staff and mentoring and research networks into a single innovation center.

Does Broadband Boost Local Economic Development?

By Jed Kolko January 2010 with research support from Davin Reed
[Full Report]

This report assesses whether policies to raise broadband availability will contribute, as hoped, to local economic development. Below, are the main findings and conclusions.

Questions Addressed in This Report

The analysis answers four questions about broadband expansion and economic growth:

1. *Does employment grow faster in areas with greater broadband expansion?*

Broadband and other information and communications technologies lower the cost of sending and receiving many forms of data, including documents and audio and video content.

The first effect—raising output—would lead most businesses to hire more labor. But the second effect—shifting toward the inputs that just got cheaper—could cause businesses to use new technology in lieu of labor for some tasks.

Broadband and economic outcomes, 1999–2006 Percentage point change associated with increase in broadband availability	
Employment growth (ZCTA)	6.4*
Working age population (county)	2.4*
Employed residents / working age population rate (county)	-1.2
Average pay per employee (county)	1.1
Median household income (county)	-2.4*

2.   *Does the relationship between broadband and employment differ by industry or across places? For instance, is it stronger for industries that are more reliant on technology or that use workers who are more technically knowledgeable? Is it stronger in places that are more isolated or that have higher amenities?*

- The relationship between broadband and employment tends to be stronger in industries where information technology (IT) services (Internet publishing, telecommunications services, data processing, and related services) represent a larger share of an industry's inputs.

- the arts, entertainment, and recreation industry, which could see less local demand for live or on-site events if broadband makes online substitutes available.

TABLE 5 Summary of findings **Economic outcome**	**Relationship with broadband**	**Possible reason**

Employment	Positive and big	Broadband expansion causes existing businesses to expand or redistributes economic activity toward the area
Working-age population	Positive	People are mobile and move to where employment opportunities are expanding
Employment rate (employed residents / working-age population)	None	Because people are mobile or willing to commute, labor supply grows along with labor demand, and businesses need not pay a large premium for basic technology skills
Average pay per employee	None	
Median household income	Negative	
Telecommuting	None	Home-based work requires faster speeds than the minimum that qualifies as broadband, and many corporate cultures are not well-suited to telecommuting
Bringing work home	None	
Having home-based business	None	

From A Road Map for Accessible, Affordable and Adaptable Broadband Telecommunications in Portland

This report examines the accessibility, affordability and the level of adaptability of broadband in the city of Portland. Below are the main findings and conclusions. Some of these findings maybe applicable in your community.

Goal 2: Urban Development

- Wireless Hot Spots encourage diversity of activity, support nodal development patterns.
- Supports development in town centers; creates opportunities for businesses to locate there.
- Broadband enables teleworking, living closer to work, thus reducing the need for commute-related vehicle trips.

Goal 5: Economic Development

- Calls for the City to "Encourage investment in the development, redevelopment, rehabilitation and adaptive reuse of urban land and buildings for employment and housing opportunities."
- Broadband supports business development goals by providing valued service on competitive terms.
- Supports community economic development by making high-end technology available to community training centers and non-profits like the Oregon Association of Minority Entrepreneurs (OAME).
- Strengthens community planning by encouraging investment in town centers, opportunities for building social capital.
- Potential new users for obsolete industrial areas.

Goals require City to provide critical infrastructure – accessible, affordable and adaptable Broadband constitutes this type of infrastructure. Broadband should explicitly be incorporated into this category.

The City should explore land use based incentives such as floor area ratio (FAR) bonuses for developers who exceed basic requirements and provide additional broadband amenities, such as publicly accessible Wi-Fi hotspots in their developments.

- FAR bonuses have been used successfully to promote green building practices, and could serve as a good model for promoting more "wired" development.

The following are a few suggested policies PDC may wish research in order increase the development of broadband to meet URA goals.

- Leverage Tax Increment Financing (TIF) funds for investment in Broadband infrastructure in Urban Renewal Districts, putting a priority on deployment to encourage targeted uses such as high density residential and commercial.
- Examine all Bureaus planning projects and identify where the city's Integrated Regional Network Enterprise (IRNE) could be used to meet the specific employment needs and further land use goals in URAs.
- Examine incentives for FTTP and FTTH deployment in Portland.
- Develop a Request for Proposals for the deployment of Broadband infrastructure in Urban Renewal Districts that may have specific broadband needs.

Economic Development and Job Creation

Over the last decade, academicians have thoroughly documented the economic benefit of enhanced information technology infrastructure investment and usage. A synopsis of these studies demonstrates the consistency of these findings:

- *Roller and Waverman (2001)* — Found that about 1/3rd of the per capita GDP growth could be attributed to telecommunications infrastructure investments.

- *Yildmaz and Dinc (2002)* — Found that telecommunications infrastructure promotes productivity growth in service sectors, based on a state-level study of the United States.

- *Greenstein and Spiller (1995)* — Found that investments in advanced telecommunications infrastructure helps explain growth in consumer surplus and business revenue.

- *Koellinger (2006)* — Found evidence that that firms that use information communication technology more intensively innovate more, resulting in larger spillover benefits and productivity gains.

- *Jorgenson, Ho, and Stiroh (2007)* — Reported that information and communications technology contributed 59 percent of the growth in labor productivity from 1995 to 2000 and 33 percent from 2000 to 2005.

From: 2020 Forecast: The Future of Cities, Information and Inclusion, Technology Horizons Program, Institute for the Future, 2010

Over the next decade, cities will continue to grow larger at a rapid pace. At the same time, new technologies will unlock massive streams of data about cities and their residents. As these forces collide, they will turn every city into a unique civic laboratory – a place where technology is adapted in novel ways to meet local needs. This ten-year forecast map charts the important intersections between urbanization and digitalization that will shape this global urban experiment, and the key tensions that will arise. Some key uncertainties are coming into view:
- What economic opportunities will urban information provide to excluded groups?
- What new exclusions might arise from new kinds of data about the city and its citizens?
- How will communities leverage urban information to improve service delivery, transparency, and citizen engagement?

The next decade will be a period of rapid expansion in the supply of urban data and increasing sophistication in its use. The supply will expand as inexpensive sensors increase the kinds of indicators that can be measured, and the level of detail. Smart personal devices and embedded sensing in buildings and infrastructure will collect observations about human activity and urban habitats. Demand will be driven by urban management, planning and policy simulations, which take advantage of cheap computing power but require massive archives of fine-grained data. These sensory data streams and city simulations will increasingly be connected through open sharing standards and technologies.

Cloud Computing: from the personal computer to the network computer.
The next decade will see a dramatic centralization of the world's computing power, as cloud computing delivers new economies of scale. Development and deployment of software and

apps, multimedia content, and public data repositories to poor and excluded groups will be faster and less expensive. Cloud computing will also drive innovation in new services and experiences that leverage supercomputing capabilities. Data mining and analysis and intensely realistic simulations, for instance, will have widespread applicability in health, education, and business. While in the short-term cloud computing will be served by large, commercial clouds like Google and Amazon, the United Kingdom's national "G-cloud" initiative is a promising model for the cities. Government clouds will reduce IT costs for governments, and potentially provide a platform for small businesses to deploy services and applications.

Excerpted from the Mt. Hood Cable Regulatory Commission's Communications Needs Ascertainment Study, April 2010

♦ *Economic Development*

Communications technology capability and use have a significant impact on local, as well as national and global, economic development. Here it was important to explore: multimedia literacy skills; local workforce development; new IT business development; local economy and employment; and private sector contributions and partnerships.

Finding: The current insufficient level of skills to use communications technology effectively, commensurate with the level of need, is problematic for job seekers, employees and employers – This insufficiency relates to lack of technology literacy and access, and must be addressed or it will impede the ability of the community to stay competitive.

Finding: The Community Access Capital Grant program is helping to increase multimedia skills – The large majority of grantees indicated that the funds that they received have helped to develop multimedia skills for both clients and employees.

Finding: Multiple communities are utilizing communications technologies to contribute to workforce development – This includes classroom instruction at all levels of education, distance learning for health care training, increased training and associated bicultural and bilingual capability development by those representing diverse populations and access to on-line resources for businesses.

Finding: Communications technologies are very important to the operation of a home-based business – Residents that operate a home-based business indicate that communications technologies are very important.

Local Economy and Employment
- Communications technology has a significant impact on the local economic development of certain sectors, especially those that must compete in a global economy.
- MHCRC Community Access Capital Grants have contributed to local employment.

- Communications technologies are very important to the operation of a home-based business.
- More than half of Multnomah County residents (57%) with internet access use the internet for activities related to work or employment services.

Private Sector Contributions & Partnerships

- Service providers and businesses indicate that they can contribute to greater economic development with a fair, competitive communications technology marketplace.
- Partnerships with the private sector are seen as important to continue to advance the communications technology environment, adoption and utilization.

> What types of Partnerships with the private sector would advance the technology environment, adoption and utilization in your community?

Link to IBM's Smarter Cities: Promoting Economic Development

http://www.youtube.com/watch?v=AxWQC6jtFYQ&feature=related
Build a sustainable and smarter city that promotes business development and social growth.