



INTELLIGENT COMMUNITY FORUM
www.intelligentcommunity.com

Creating the Intelligent Community

How to survive and prosper in the broadband economy

Presented by
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Intelligent Community Forum

Wireless Internet Forum
Waterloo, Ontario, Canada

March 30, 2006



Welcome to the broadband economy

Google Initial Public Offering

Silicon Valley Joins Offshoring Trend

Offshoring

“Product life-cycle management” software helps companies design, manufacture and manage their

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How the Internet killed the telephone business

September 23, 2005 – Even before Voice Over Internet Protocol (VOIP) makes 100% of telephone calls in the world free (which may take many years), it is utterly ruining the pricing models of the telecom industry. Factors such as the distance between callers or the duration of a call, the key determinants of cost today, are simply irrelevant with VOIP. Vonage already lets its customers choose telephone numbers in San Francisco, New York or London, no matter where they live...

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The broadband economy: just another technology-based revolution

- Fast sailing ships and railways expanded trade and shaped international politics in the 18th and 19th Centuries
- Steam and electricity revolutionized the organization of work in the 19th and 20th Centuries
- Automotive technology and highway construction changed customs, lifestyles, careers, population distribution and labor-management relations
- The airplane and electronic media have shrunk the globe, internationalized business and deepened international understanding

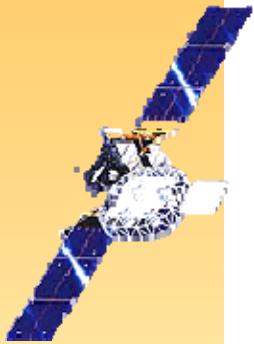


The broadband economy: just another technology-based revolution?

■ The broadband revolution



- Global fiber and satellite networks link old and new business centers from New York to Mumbai, Dayton to Dubai
 - Collaboration and trade across time zones and borders with low or no transaction cost
 - Melding of financial markets
 - Portability of capital investment on unprecedented scale





The broadband economy: just another technology-based revolution?

■ The broadband revolution



- “Retail” broadband via DSL, cable and wireless links a global community and worldwide information (and mis-information) resources to

- Individuals
- Schools and institutions
- Small-to-midsize businesses
- Local, state and national government



Local economic impacts in the broadband economy

- Every community now competes with every other community in the world
- Every community has new opportunities to trade and collaborate with every other community in the world
- Every worker is exposed to wage and skill competition from workers in similar industries worldwide
- An increasing number of organizations take advantage of access to a worldwide pool of skilled labor
- The remaining “safe” industries do not provide a ladder to affluence





In the broadband economy...

- Being connected is a necessary (but not sufficient) condition for prosperity
- Adaptability outweighs legacy
- Skills, not resources, are the key to success
- Innovation, not location, creates a competitive advantage
- Branding matters – your competitive edge

Broadband Economy Forecasts (*The Economist*)

- World Internet population will hit 1.07bn in 2005, up 15%
- Europe's B2C and B2B online commerce will total \$2.75tr in 2005
- By 2008, China's \$1.29tr in B2B e-commerce will account for half of Asia-Pacific spending (excluding Japan), growing 81%/year
- US e-commerce will grow 14%/year, 3-4x average economic growth, through 2010; \$316bn in B2C e-commerce alone will be 12% of retail sales, up from 7% in 2004



Self-inflicted wounds in the broadband economy

- **Not being connected** to the global economy
- **Not adapting** (individuals, businesses and institutions) to take advantage of changing economic opportunities
- Relying on **natural resources** to produce economic growth
- Believing that **geographic location** is either an opportunity or an obstacle
- **Leaving it to others** to market themselves
- **And not taking action!**

... it's your destiny, don't wait for others to create it for you...

“Future-Proof” your community



Tales from the front

Sunderland, United Kingdom



- Former shipbuilding and coal-mining center on North Sea, hard-hit by industrial decline
 - 1980s: unemployment rate exceeds 30%, higher than in the Great Depression
 - In top 10% of UK “distressed districts”
 - Low-skilled workforce, heavy concentration of elderly, disabled workers
- 2003 unemployment rate of 4%
- Ranked as one of top five most competitive business locations in the UK





Tales from the front, continued

Sunderland, United Kingdom

- Starting in 1995, created Sunderland Partnership
 - Public-private leadership forum of “the great and the good” to develop and **sell** the vision
- Created and publicized a “Telematics Strategy” to ensure that all citizens benefited from new economy
 - Call-center and computer training for the unemployed
 - Public access Internet terminals and publicly-funded high-speed local network
 - Business incubation programs
- Lobbied successfully for British and EC funding available to distressed communities
 - Rebuilt waterfront & created new campus for Sunderland University



Tales from the front, continued

Sunderland, United Kingdom



■ Doxford International

- European HQ for Nike, home to Barclays, London Electric, VeriSign Europe and EDS data center
- Teleport House opened in 1999 at multi-partner, public-private venture to jumpstart broadband

■ Business and science parks in development

- Rainton Bridge, where PSInet provides broadband, hosting and other services via European IP network
- Northeast Business & Innovation Center, established 1995 and home to 165 businesses

■ Sunderland Host

- Publicly-owned ISP and e-government hub
- Operator of high-speed network to businesses & community centers



Tales from the front, continued

Sunderland, United Kingdom

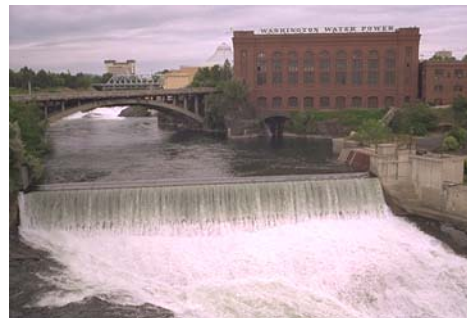
- E-Government Team implementing “peoplefirst”
 - Equipping front-line staff with wireless PDAs to check records and order services while engaged with citizens
 - Identifying and training “Community e-Champions”
- By 2003, unrelenting commitment to control over Sunderland’s economic and social destiny led to –
 - Over 12,000 new jobs in technology-driven businesses
 - Reduction of unemployment rate to 4%
 - +50% reduction of long-term unemployed since 2000
 - “Beacon Status for Social Inclusion” award from UK’s Local Government Association
 - Ranked one of top five most competitive business locations in UK by KPMG



Tales from the front

Spokane, Washington, USA

- 19th Century prosperity built on natural resources (silver, timber) and geography (as railroad hub)
- By 1980s, an economic backwater compared with Seattle region to the west
- By 2003, home to the “Terrabyte Triangle,” 30-block region of downtown offering one of densest concentrations of broadband in the USA
- Now a **city of 177,000** - Attracted \$1 billion in private and public investment



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Tales from the front

LaGrange, Georgia, USA

- **Rural city of 26,000** - 60 miles southwest of Atlanta
- Lost much of its industrial base in late 1980s as Raytheon and other manufacturers closed plants
- Bypassed by carriers for deployment of advanced telecom services
- By 1998, city operated +200-mile fiber in alliance with cable TV provider; by 2000, launched first free Internet & email service on TV, VOIP for voice service
- Generating +\$1m annually from service delivery
- Gained 5,000 new jobs due to telecom infrastructure



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Size doesn't matter!

■ Nevada, Missouri (2003 Top Seven Finalist)

- Nevada Telecommunity project aiming to create new economic opportunities in **city of 8,600**, stop population decline and reduce '91 unemployment rate of 10%.
- Telecenter for skills training and technology consulting, Televillage providing broadband for home-based and small businesses
- By 2000, unemployment rate fell to 2%.

■ Pirai, Brazil (2005 Top Seven)

- **City of 23,000** - 44 miles from Rio de Janeiro completely lacking Internet access
- **Locally-funded public-private wireless network switched on Feb. 2004. Public universities providing training to build broadband culture of use.**



Common factors

- Big or small – all have a “sense of urgency”
- Decision to actively adapt to new market and technology forces
- Defined clear vision of the challenge and how it could be met
- Built public understanding of the challenge and communicated urgent need for action
- Spirit of collaboration manifested in forums and programs involving government, business, nonprofits and educators
- Embraced Intelligent Communities approach and not shy to globally market their successes



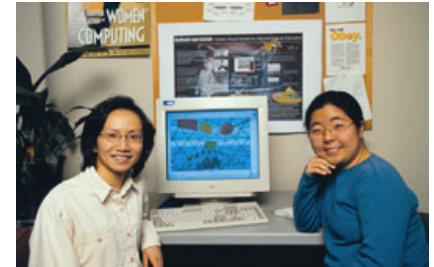
Named one of the Top Seven Intelligent Communities of the Year by ICF





What is an Intelligent Community?

- Communities responding to the challenge of local economic development in the broadband economy
- Working to maintain a high quality of life - as places where the next generation can find a good job, make a home and raise their children
- Leveraging their unique qualities and traditional strengths in a new economic environment





What is an Intelligent Community?

■ Intelligent Communities –

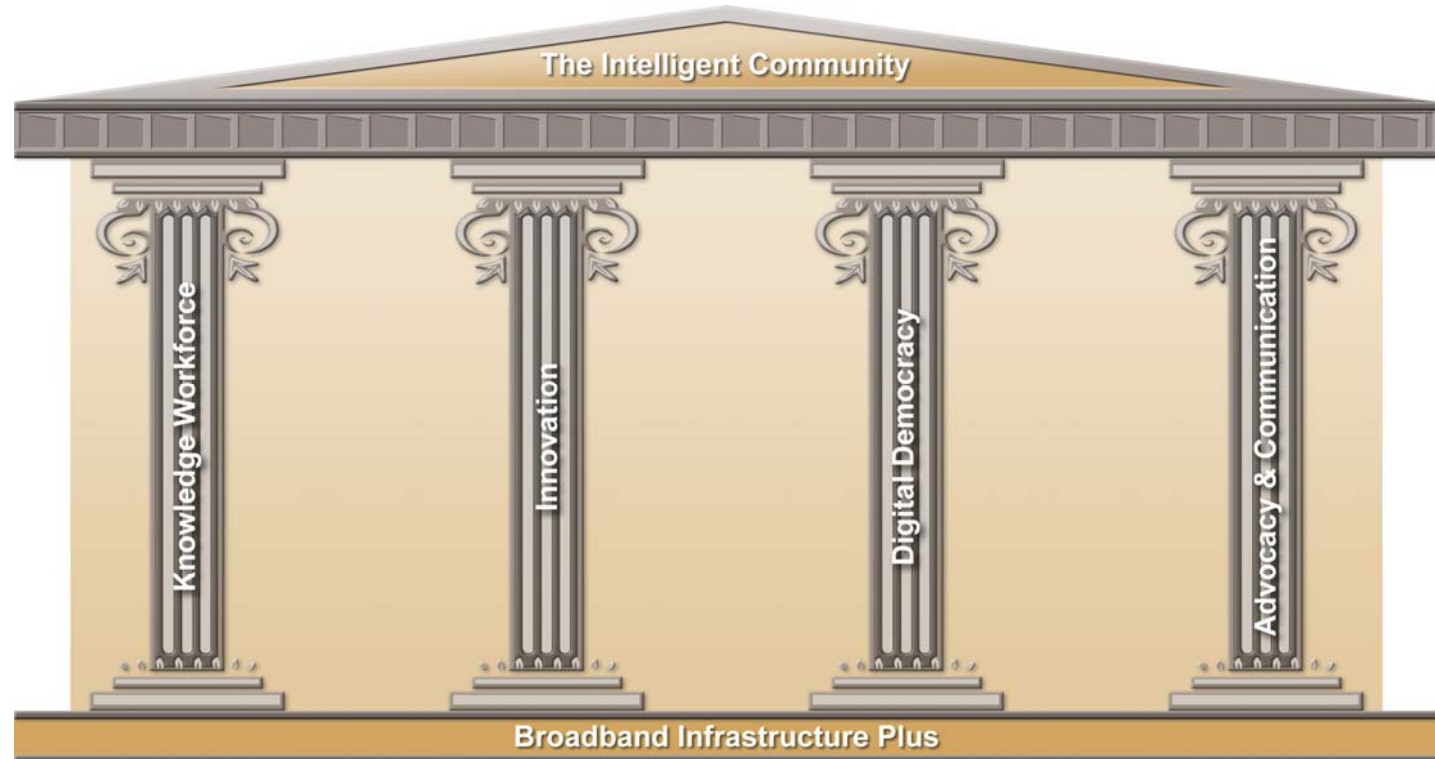
- Recognize the **impact of broadband** and its role as an essential utility for job creation and economic growth
- Work to create a **culture of use** among citizens, businesses and government to stimulate economic development and political participation
- Ensure that low-income and at-risk populations can **participate** in the broadband economy

■ Being “wired” isn’t enough

- Without non-technology efforts, the broadband revolution risks –
 - Worsening social inequality
 - Reducing economic opportunity
 - Constricting political participation



What is an Intelligent Community?



Pillars of the Intelligent Community



Intelligent Community Indicators

- Broadband infrastructure
- Knowledge-based workforce
- Innovation
- Digital democracy
- Marketing and Advocacy



Intelligent Community Indicator #1

- **Broadband infrastructure**
- Knowledge-based workforce
- Innovation
- Digital democracy
- Marketing and Advocacy



Intelligent Community Indicator #1

■ Broadband infrastructure

- Developing a clear vision and realistic policies to encourage deployment
- Identifying and striving to fill “broadband gaps”
- Collaborating with - and when necessary competing with - the private sector

■ Knowledge-based workforce

■ Innovation

■ Digital democracy

■ Marketing and Advocacy





Intelligent Community Indicator #2

- Broadband infrastructure
- **Knowledge-based workforce**
- Innovation
- Digital democracy
- Marketing and Advocacy



Intelligent Community Indicator #2

- Broadband infrastructure
- **Knowledge-based workforce**
 - Intelligent Communities show the determination and ability to create a workforce that can perform “knowledge work”
 - Not just universities cranking out post-graduates with science & engineering degrees
 - Effective education extends from the elementary school to university, the factory floor to the research laboratory
- Innovation
- Digital democracy
- Marketing and Advocacy



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Intelligent Community Indicator #3

- Broadband infrastructure
- Knowledge-based workforce
- **Innovation**
- Digital democracy
- Marketing and Advocacy



Intelligent Community Indicator #3

- Broadband infrastructure
- Knowledge-based workforce
- **Innovation**
 - Innovation is not about technology – it's about changing people's lives
 - Intelligent Communities seek to foster and attract innovative businesses and deliver services more efficiently –
 - With e-government programs
 - By creating a community culture that attracts innovators
 - By promoting access to risk capital
- Digital democracy
- Marketing and Advocacy





Intelligent Community Indicator #4

- Broadband infrastructure
- Knowledge-based workforce
- Innovation
- **Digital democracy**
- Marketing and Advocacy



Intelligent Community Indicator #4

- Broadband infrastructure
- Knowledge-based workforce
- Innovation
- **Digital democracy**
 - Intelligent Communities work to ensure that the benefits of the new economy reach all rungs of the economic ladder by -
 - Creating and selling a compelling vision of the benefits to all citizens of public investment in equitable access
 - Providing school-based and neighborhood-based access to and training in literacy and technology use
- Marketing and Advocacy





Intelligent Community Indicator #5

- Broadband infrastructure
- Knowledge-based workforce
- Innovation
- Digital democracy
- **Marketing and Advocacy**



Intelligent Community Indicator #5

- Broadband infrastructure
- Knowledge-based workforce
- Innovation
- Digital democracy
- **Marketing and Advocacy**
 - Globalization of markets, capital and business operations puts a premium on ability of communities to market their “intelligence”
 - Intelligent Communities market themselves effectively, based on needs of growth industries and competitive offerings of other communities
 - Opportunity for “Communications and Advocacy” as well as “BRANDING”





Framework for action

- Indicators are key areas of focus in effort to build prosperous communities in the broadband economy
- Gap analysis can reveal opportunities for action
- Foundation-building approach: each layer depends on strength of supporting layers
- Other Considerations:
 - **Leadership and Public Policy**
 - **Applications / Content Development**
 - **Investment and Risk**
 - **Sustainability**
 - **Collaboration**
 - **Culture of Use**



Top 7 Intelligent Communities

- **Top Seven Intelligent Communities of 2006**
- Nomination deadline: **Oct. 14, 2005**
- Finalists to be named **Nov. 18, 2005**
- Top Seven were named on **Jan. 17, 2006** in Honolulu, Hawaii
- One of Top Seven to be selected as ICF's Intelligent Community of the Year **June 8-9, 2006**, New York City

Since 2002, the Top Seven List has included large, midsize and small communities from the developed and developing worlds.

Nomination forms at:

www.intelligentcommunity.org/html/award_criteria.html

7
TOP
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The Top Seven of 2004





The Top Seven of 2005





The Top Seven of 2006





TOP 7 INTELLIGENT COMMUNITIES (2006)

Cleveland, Ohio, USA



Population

4,100,000

Labor Force

1,800,000

Top Industries

Government, healthcare and social assistance, metalworking; plastic products and chemicals; motor vehicles & equipment; insurance; biomedical, instruments, controls and electronics.

- Former steel and Rockefeller oil processing centre; **Industrial decline, rising unemployment**
 - Traditional economic development strategies had limited impact : By year 2000: one of the highest poverty rates among large American cities
 - Strong government and non-profit institutions, including Case Western Reserve University
 - **Collaboration formed OneCleveland (www.onecleveland.org).**
 - **Mission: deployment of community-based ultra-broadband network in metro area; and to build a new knowledge economy on its foundation** (switched on in 2003)
 - Today institutional subscribers range from the city and the regional MetroHealth System to the Cleveland Institute of Art and the Cleveland Orchestra, among others.
 - Applications include high-definition videoconferencing connecting Clinic doctors to city schools for the delivery of healthcare
 - Cleveland Museum of Art programs delivered to branch libraries
- In 2005, Intel named the greater Cleveland area as one of three Worldwide Digital Communities deploying wireless broadband applications to improve government and other services.***



TOP 7 INTELLIGENT COMMUNITIES (2006)

Cleveland, Ohio, USA

Focus on Human Factors:

- OneCleveland has focused as much on human factors as technology.
- It raised hundreds of thousands of dollars to invest in technology training and network expansion.
- Computer Learning in My Backyard (CLIMB) tech and financial literacy training for low-income
- Funding subsidizes PC and Internet access purchases.

Collaboration among 66 regional foundations, engaging 50,000 area leaders in Internet-enabled "town meetings" and smaller-scale discussions in order to educate people about the realities facing the regional economy and create an action plan for fostering growth.

- OneCleveland became the Web services provider for this public dialogue.

Marketing:

- Wide coverage in *Computer World* to *The New York Times*.
- High profile played role in decision by IBM to select Cleveland as the first region to benefit from a grid-computing initiative called the Economic Development Grid, which allows government, institutions and businesses to leverage computing power.
- Northeast Ohio has also become home to Cisco's wireless technology operations and research center, Agilysys, Progressive Insurance and other companies.

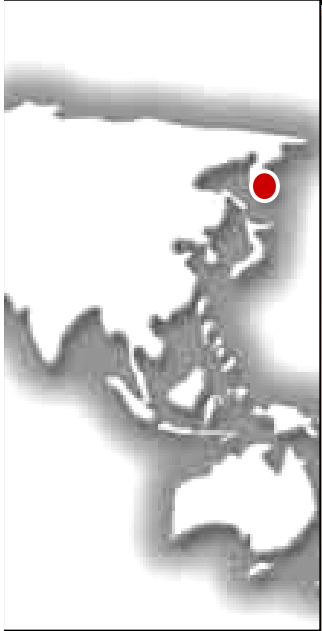
•Still a work in progress, OneCleveland is recognized by the ICF for the breadth of its vision – encompassing technology, education, digital democracy, innovation and marketing – and the very real progress it has achieved in a relatively short time.





TOP 7 INTELLIGENT COMMUNITIES (2006)

Gangnam District, Seoul, South Korea



Population
550,000

SE Seoul; Silicon
Valley of Korea.

Focus on digital
government

- **1960's:** South Korea's economy was on a par with the poorer nations of Africa
- **2004:** part of "trillion dollar club" of world economies comparable to countries in the E. U.
- **Leads world in broadband penetration**
 - 12 million broadband subscribers (25% of entire population)
 - Speeds of 10 Mbps a standard offering in urban areas.
- **Policy Leads:**
 - **strong government-business cooperation**, is the secret behind South Korea's explosive growth (government setting objectives, determining policy and directing credit and investment).
 - This tradition is on display in the success of the Gangnam District of Seoul
 - Gangnam = new South Korea,
 - **technology used to make powerful government more accessible to the people it serves.**
 - Significant number of government-supported applications aimed at serving its citizens
 - Computer and IT literacy training for its citizens, etc.
 - U-SMART will increase demand for "ubiquitous computing" technologies anywhere

• ICF recognizes the Gangnam District for its world-leading application of broadband and IT in the public sector, and its unique application of technology to increase transparency and accountability in government.

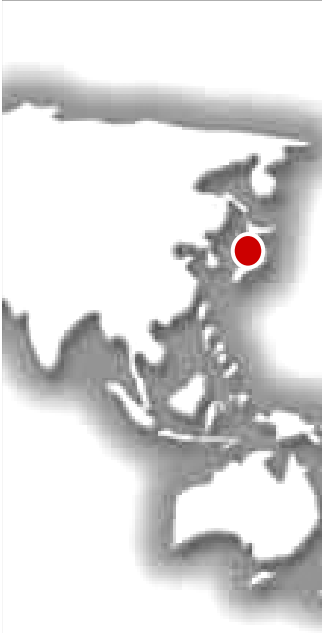
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TOP 7 INTELLIGENT COMMUNITIES (2006)

Ichikawa, Japan



Population

466,430

Labor Force

239,322

Top Industries

Wholesale trade,
retail trade, other
service industries

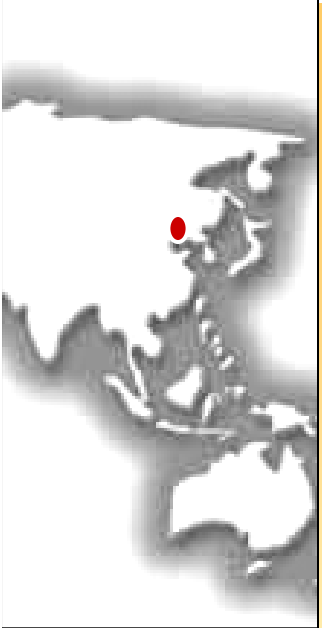
- **1990s: decade-long recession and deflation forced innovation and adaption to survive.**
- **2002: Collaboration:** group of institutions led by city
 - **Culture of Use:** Incubator became core of expanding programs designed to create a culture of use for broadband and information technology, creating demand among citizens for applications emerging from both the public and private sectors.
 - **Broadband Penetration:** 2005 -exceeds 46%, compared with national average of 39%.
 - Chiba University's Faculty of Policy Informatics focuses on the **use of IT in solving social problems**, created distance education programs over the Internet.
 - System connecting public and school libraries to open up research resources to citizens.
 - **360+5:** e-government project and Internet-access kiosks at 600 public locations
 - Training classes for 30,000 people to-date.
 - Ichikawa Safety e-Net program in cooperation with neighborhood associations.
 - Media City Ichikawa visited by 100,000 people each month, this facility aims to create a culture of use for broadband and the IT services it delivers.
 - These efforts at **continuous improvement** have attracted both public and private organizations to locate in Ichikawa with total workforce in ICT has grown 7x faster than overall population growth.

• *ICF recognizes Ichikawa for applying the principles of Intelligent Community development to charting a new course for its citizens and local businesses.*



TOP 7 INTELLIGENT COMMUNITIES (2006)

Tianjin, China



Functions as Beijing's gateway to the sea.

- With major industry clusters in traditional manufacturing industries, **Tianjin recognized the importance of building powerful information technology and service industries**
- Eagerly embraced broadband and IT for efficiency and responsiveness
- Encouraged business to be more productive, lean and agile.

Northern China - late to the IT revolution; Tianjin has a sense of urgency to catch up.

- focused on broadband deployment for citizens, business and government;
- e-government applications to make government more responsive and efficient;
- development of new high-tech industrial zones.
- goal to provide broadband access to 100% of the 12 km² (4.6 sq. mile) city,
- to have 80% of households own a PC and 55% of residents become Internet users,
- total broadband penetration to reach 60%.

Collaborating with telecom businesses, the city deployed **20,000 km (12,500 miles) of optical fiber**

2002: only 20,000 people used the Internet

2004: 2.7 million Internet subscribers

Online government services; healthcare, education

Tianjin was among the Top Seven in 2005, and for the second year in a row, ICF recognizes Tianjin for its aggressive application of the principles of Intelligent Community development in the unique political and economic environment of China.

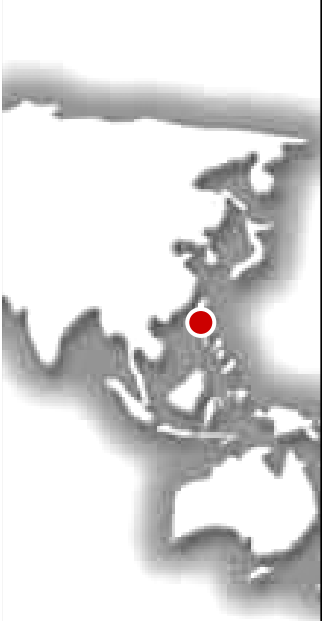
Population

11,000,000

Labor Force

5,500,000

Sectors: automobiles, pharmaceuticals, metallurgy, petrochemicals, environmental services



Population

2,622,472

Labor Force

1,183,000

Top Industries

Service industries (80% of total), manufacturing, (19%), agriculture

TOP 7 INTELLIGENT COMMUNITIES (2006)

Taipei, Taiwan

Taipei is a **major global technology leader**:

- world's largest producer of laptop, notebook computers and computer motherboards.
- Taipei Technology Corridor - two major science and technology parks; third in development
- Employs 85,000 knowledge workers in 2,200 companies (annual revenues US\$53 billion).
- One of the world's top three cities for broadband deployment
- PCs in 88% of homes and 77% of households connected to ADSL service.
- **Challenge: to run faster in a fast world** - to maintain/increase its competitive edge
- **Leadership:** in 1998 **Mayor Ma** challenged Taipei to become a **CyberCity**.
- ***For its efforts, Taipei was named one of ICF's Top Seven Intelligent Communities of 2003:***
 - The city invested in building broadband infrastructure and using the Internet to improve public services.
 - **e-schools** - PCs with broadband connectivity in every classroom & computer labs
 - **e-communities** -free PC / Internet training to 240,000 people & 800 public Internet kiosks
 - Online Intelligent Transportation System monitors traffic flow & guides drivers
 - 5.7 million smart cards issued on Taipei's Mass Rapid Transit System
- ***In 2006, ICF recognizes Taipei for taking its CyberCity program to the next level by making broadband connectivity an essential component of life for its citizens and businesses, and using it to transform the economy of the city.***
- **Integrated broadband and online services into citizens' lives**
- Cisco is implementing its Network Academy in Taiwan
- Microsoft selected Taipei as the world's first location for its **Future School Program**.
- IT-based platform for innovation including **wireless plans to 90% of city**
- **Digital equality:** 220,000 people trained
- 300 medical facilities linked in **e-healthcare** initiative, etc..



Population

(East Manchester)

56,474

Greater Manchester urban area = 2.6 million people

Top Industries

Public sector, education, manufacturing

TOP 7 INTELLIGENT COMMUNITIES (2006)

Manchester, United Kingdom

- The **district of East Manchester** – once hub of Britain's cotton industry –**decimated by recessions**, suffering a 60% employment loss between 1975 and 1985
 - 52% of households were receiving state benefits.
 - among the Top 20 on the UK government's **National Index of Deprivation**.
 - failure of East Manchester has become more glaring compared to success of rest of the Manchester area - planted the seeds of hope for regeneration.
- **Partnership** among Manchester City Council, national government agencies and the local community is developing and implementing a **strategy** to revitalize East Manchester's economy, increase employment, improve education and create more and higher-quality housing.
- One of its projects, **Eastserve, deploys an IT-based solution** that addresses these goals while strengthening the social bonds of the community.
 - 2000: **surveyed residents on their needs for information and their ability to access it.**
 - only 19% of residents had access to a computer
 - portal design and applications reflected priorities identified by community including policing issues, employment and training, access to affordable housing, and street issues.
 - developed program of subsidizing computers with access to high-speed broadband
 - qualifying residents required to take training courses
 - residents learned to work with government and financial institution for first time
- ***This project has helped Manchester's City Council to understand both the potential of technology-based economic development and the need to invest in creating demand for e-government programs.***



Population
110,800

Labor Force
55,551

Top Industries
Education,
insurance,
financial
services,
information and
telecom
technology

TOP 7 INTELLIGENT COMMUNITIES (2006)

Waterloo, Ontario, Canada

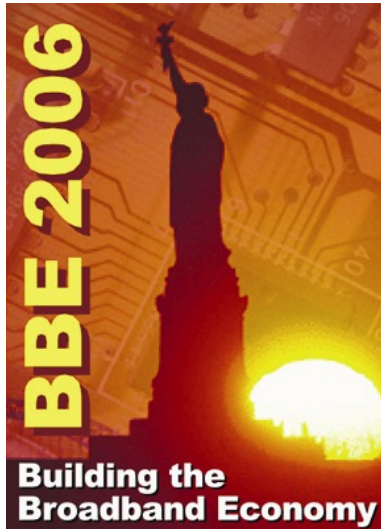
- **Canada's Technology Triangle** is home to 334 technology companies employing 10% of the labor force in the region, but accounts for **45% of job growth**.
- **Well-endowed with entrepreneurs:** Research in Motion; Sybase and Open Text.
- University of Waterloo, largest post-secondary co-op education program (10,000 coop students)
- **Waterloo is a Broadband Economy success story**, with diverse mix of manufacturing and service companies, a well-educated population (more than 25% of residents are post-secondary students) and effective economic development collaboration among academia, business and government.
- **University of Waterloo** allows students and faculty members to own rights in intellectual property they developed at the University, producing a **wave of entrepreneurship that pushed technology innovation out of the academic environment and into the community**.
- Today, the University **spins off 22%** of all new technology start-ups in Canada
- Waterloo Region Education and Public Network - **high-speed connections to 247 schools**
- Waterloo's 3 post-secondary institutions participate in **ORION** (Ontario Research and Innovation Optical Network), high-speed fiber **network connecting 100 educational & research institutions**
- Government and business have created more than **150 research institutes in the region:**
 - Perimeter Institute for Theoretical Physics
 - Center for Wireless Communications
 - Leitch-UW Multimedia Laboratory
 - Nortel Networks Institute for Advanced Information Technology.
 - 120-acre Research and Technology Park
- ***ICF recognizes Waterloo, not for efforts to transform a failing economy, but for its commitment to fostering institutions that drive technology innovation and share its benefits with the community at large.***

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Building the Broadband Economy 2006



- June 8-9, Polytechnic University, New York City
- Meeting place and idea exchange for:
 - Local, county, state and national government officials
 - Telecom, IT, consulting, real estate and finance professionals
- Multi-national audience from the Americas, Europe and Asia
- www.intelligentcommunity.org



Creating the Intelligent Community

THANK YOU!



INTELLIGENT COMMUNITY FORUM
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**ICF's Annual Conference
June 8-9, 2006, NYC**

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