Can E-Government Make Communities More Competitive?

"Economic success is the lifeblood of communities. The most efficient, productive and accountable government is helpless to improve the lives of its citizens if the employers in that community are not creating and sustaining jobs."

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In a democratic society, people agree to pay taxes because there are some goals - military defense, disaster prevention, transportation and public health, to name a few - which can be achieved only by pooling the resources of all for the good of all. For all their noble purpose, however, taxes are compulsory; that is, they are the only fees in civilized nations that are legally collected at the point of a gun.

The fact that taxes are compulsory should, in an ideal world, make government squeeze from each euro or dollar or peso or yen the greatest public benefit. That it so seldom does is not the fault of government but of human nature. So long as governing must be done by human beings, it will be subject to greed and sloth, not to mention pride, envy and the other deadly sins.

But this is no reason for us to abandon the fight to make government more efficient, productive and accountable. In fact, it is a reason for us to try all the harder.

In essence, this is the motivation behind e-government. At the Intelligent Community Forum, we have the opportunity to study e-government projects in every region of the world, and we find that they all aim to serve one or more of the following goals:

- Making government more efficient in order to make tax dollars go farther
- Delivering information and services to constituents more conveniently, allowing more to be done for more people
- Increasing the accountability and transparency of government
- Increasing citizen participation in governance


Seoul, South Korea

They are worthy goals, and communities around the globe have found ingenious ways to meet them. One outstanding example is the OPEN System, developed by my colleague Kyoung Y. Bae, now Dean of Academic Affairs at Seoul's Sangmyung University, when he was that city's Assistant Mayor for Information Technology. The OPEN System was designed to make the workings of municipal government completely transparent. All routine applications for regulatory approval - from business registrations to construction permits - are processed in a paperless, online environment. A Web site allows users to monitor in real time the status of their application as it goes through the required stages of approval. Each stage must be completed in a specific amount of

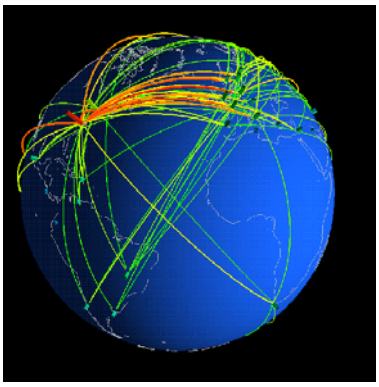
time; if there are delays, the OPEN System allows users to escalate the issue to higher authorities until it gets moving again. According to Dr. Bae, the visibility provided by OPEN has improved productivity, but its most important contribution has been to make government cleaner. Bureaucrats can no longer profit from charging "express fees" to process applications - in order words, for doing their jobs - rather than leaving work stacked on their desks. OPEN brings to basic governmental procedure the kind of performance pressure that markets impose on business, as well as pressure to resist using the civil servant's power to steal from citizens.

The Broadband Economy

Worthy goals, indeed - but are they enough? Is e-government as it is usually conceived enough? The most efficient, productive and accountable government is helpless to improve the lives of its citizens if the employers in that community are not creating and sustaining jobs. Economic success is the lifeblood of communities. To focus on e-government and ignore economic progress is to build a ship without bothering to learn what waters it will sail in.

Today, those waters can be choppy indeed. Whether we know it or not, we live in the Broadband Economy. It is the new global economy emerging from the deployment of long-distance and local broadband around the world.

Long-distance broadband is largely carried on the global fiber optic network that links the major cities of the industrialized and developing nations, from Tokyo to New York, Rio de Janeiro to Berlin, London to Mumbai. Vastly expanded during the 1985-2000 telecom boom, the global fiber network was heavily overbuilt by zealous competitors, many of whom went bankrupt in the "bust" that followed. From January 2001 through June 2002, the telecom industry racked up $110 billion in bankruptcies, according to *BusinessWeek*. The glut of fiber capacity led to plummeting prices – just at the time when developing nations like India and China opened their economies to global competition and the nations of Eastern Europe moved into the orbit of the European Community.



The near-term result was the explosion of offshoring, as companies in industrialized nations found they could find highly qualified suppliers of services in countries where prevailing wages were a fraction of those in their home markets. According to 2006-2010 forecast by research firm IDC, the global and US markets for offshore IT services will continue to grow at 15% per year. The long-term impact of wholesale broadband, however, has been far more profound. For business, broadband has unleashed collaboration and cooperation across time zones and cultures that has opened markets, boosted

productivity, created employment, and improved living standards. In the Broadband Economy, companies naturally look for opportunities to locate their facilities where they can gain the greatest advantage in terms of cost, skills and access to markets. The deployment of broadband worldwide has also made capital investment in businesses, factories and facilities highly mobile. In 2005, the global flow of capital across borders in pursuit of a competitive return on investment topped US$6 billion, according to the OECD. When trouble strikes a nation's economy, that mobile capital can flee at devastating speed.

But while global business may be mobile, communities are not. Communities everywhere have the same goal: to be a place where people can raise their children and give those young people enough economic opportunity to allow them to stay and raise children of their own. In the Broadband Economy, that task is more challenging than ever. The success factors that built communities - strategic location, natural resources, transportation - are no longer the factors that will sustain them. The only jobs that are immune to the pressures of the Broadband Economy - local retailing and services, from plumbing and heating to real estate - do not bring new money into a community; they merely move it around from pocket to pocket within the municipal boundary. A sustainable community must have inputs and outputs, which means external markets for the skills, services and products it provides. Where geographic location and natural resources were once the key determiners of a community's economic potential, it is increasingly the skills of the labor force, and the ability of business and government to adapt and innovate, that power job creation.

E-Government and Competitiveness

The Broadband Economy may challenge communities, but it also hands them powerful new tools to build competitive and inclusive economies. Local broadband offers smaller communities in remote locations the opportunity to move from the periphery to the center in economic terms. It enables small companies to be global exporters - including the export of skills and knowledge which were never before transportable across time zones or national borders. It can ensure that schools in remote regions have access to the latest information tools and reference sources. It can link rural healthcare providers to leading medical centers and local law enforcement

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to national information grids. By boosting the economic and social well-being of communities, it can reduce the incentives for their young people to move away in search of opportunity and a better quality of life. Paradoxically, it can play a key role in giving communities a sustainable future in our ever-more-connected world.

What can e-government do to help communities turn broadband to their advantage? Plenty, as it turns out. Even better, e-government can receive a substantial boost by allying itself with efforts to improve the local economy. When your city's IT director helps to attract new employers to the community, the value of public investment in information and communications technology becomes obvious to all.

The first step is for decision-makers to see the bigger picture; that in addition to the four standard goals of e-government, there is a fifth: to make the community a more attractive and productive place for employers to start and grow businesses that will prosper in the Broadband Economy. Some may doubt that this is possible, but the track record of communities like Issy-les-Moulineaux, a suburb of Paris with a population of 62,000 people, suggests the opposite.

In 1980, Andre Santini was elected Mayor of Issy-les-Moulineaux. Under his administration, Issy-les-Moulineaux was the first French city to introduce outdoor electronic information displays and the first to deploy a cable network. In 1993, schools introduced a smart card allowing pupils to pay for lunch electronically, while the City Council rebuilt its meeting room in 1994 as a multimedia center. That year, Mayor Santini also asked city departments to study the development of the Internet in the US and created a steering committee to develop Issy's "Local Information Plan."

Issy-les-Moulineaux, France

To grasp how forward-looking this was, remember that 1994 was the year when Netscape, the company that would introduce the first widely-used Web browser, was founded. There were only 10,000 Web sites worldwide then, compared with 80.6 million in 2006, and the first e-commerce sites were just coming online.

The Local Information Plan was completed at the beginning of 1996 - and just one year later, Issy decided to outsource its entire IT infrastructure to Euriware, a 10-year-old Paris company that was one of France's first outsourcing firms.

In January 1998, the French government ended the monopoly of France Telecom - and Issy once again seized the opportunity. Foreseeing the change, the city had already negotiated deals with competitive carriers that led to the construction of new fiber networks. When the monopoly officially ended, the new carriers switched on service and local companies were able to take immediate advantage of price competition.

By 2006, local government's IT and communications infrastructure had undergone vast changes. Government, school, library, and health care buildings were fully wired with broadband, and there was one PC for every 11 students in the primary schools. The multimedia City Council room began broadcasting deliberations via cable TV and the Web and accepting citizen input in real time. A robust e-government portal provided online public procurement, online training, access to a "citizen relationship management" system called IRIS, and even online voting. And the outsourcing contract allowed Issy to substantially reduce costs. In a 2005 survey, the city ranked among the lowest (96th out of 110) French cities of more than 50,000 inhabitants for operating costs. The population has grown 35% since 1990, swelling tax revenues, without any increase in the government payroll.

The impact on economic development has been profound. Today, 60% of the companies based in Issy-les-Moulineaux are in information and communications technology, including Cisco Systems Europe, France Telecom, Hewlet Packard, Orange Internet, Sybase, Canal+, Canal Satellite, Eurosport, France 5 and France 24. A partnership between the city and France Telecom's R&D facility has made Issy a test bed for new applications like fiber-to-the-home, which is currently deployed to a test group of 4,000 households. Business attraction and growth have been so robust that Issy-les-Moulineaux currently has more jobs than residents - a claim that few cities in the world can make.

E-Government and Broadband

If e-government can contribute to transforming an economy, what is the best way to go about it? At the Intelligent Community Forum, we take lessons from the experience of our Smart21 and Top Seven Intelligent Communities, two prestigious groups identified each year as models for economic development in the Broadband Economy. Issy-les-Moulineaux was a Top Seven community in 2005 and 2007. From analyzing other Top Seven communities, it is possible to distill best practices in deploying e-government projects that contribute to economic growth as well.

One effective strategy is to bring broadband to the community, if the private sector has failed to deliver a cost-effective solution. All other factors aside, broadband has been shown to make a net contribution to economic growth at the community level. In 2005, faculty from

the Massachusetts Institute of Technology and Carnegie Mellon University published a study funded by the Economic Development Administration of the US Department of Commerce. It found that, between 1998 and 2002, communities in which mass-market broadband became available by December 1999 experienced more rapid growth in employment, number of businesses overall, and businesses in IT-intensive sectors. While the available data did not demonstrate statistically significant impacts on wages, the effects of broadband availability by 1999 were also observed in higher market rates for rental housing (a proxy for property values) in 2000. ("Measuring Broadband's Economic Impact," published in *Broadband Properties*, December 2005.)

Many Top Seven communities have integrated broadband deployment successfully into their e-government programs. Back in 1996, when its only telecom infrastructure was the telephone, the City of Sunderland in northeast England published a "Telematics Strategy" that led to the deployment of public-access Internet kiosks and "electronic village halls" with Internet access, plus a high-speed network for government buildings. This was the beginning of unrelenting activism in providing broadband, which included the formation of several joint ventures with private companies to reduce investment risk, and which ultimately convinced carriers to provide broadband at competitive costs for speeds up to 10 Mbps. Broadband penetration has leaped from 25% two years ago to 75% today. The City Council has taken advantage of this connectivity to create an e-government portal that delivers a wide range of services to about 30,000 visitors per month. Broadband is also the medium for a Virtual Learning Environment created by the City of Sunderland College that is used by more than 20,000 students for training in information technology.

Sunderland, United Kingdom

Broadband Lifestyle

When government is involved in broadband deployment -whether by setting policies or actually deploying network infrastructure - it can bring more to the community than Web browsing. Many communities consciously work to create a "digital commons" - a virtual environment that overlays the physical environment of the community and

Cleveland, Ohio, USA

encourages residents to adopt what the government of Singapore calls a "broadband lifestyle."

Cleveland, Ohio, USA is among them. There, local universities, city government and the regional transit authority teamed up to form a nonprofit called OneCommunity. Its mission: to foster economic and civic progress through the innovative and collaborative application of information technologies. The project was the brainchild of Lev Gonick, CIO at Case Western Reserve University. The network was switched on in 2003 and today has more than 50 institutional subscribers ranging from the city and the regional MetroHealth System to the Cleveland Institute of Art and the Cleveland Orchestra. Applications running on the network include high-definition videoconferencing connecting Cleveland Clinic doctors to city schools (delete " for the delivery of health care"), best-in-class programs from the Cleveland Museum of Art delivered to branch libraries, and a wireless network covering 5 square miles (delete "pilot wireless project with Intel to enable city and county inspectors to file and exchange data on building permits in the field."). OneCommunity has also provided the backbone for an 18-month program funded by regional foundations called Voices & Choices. The program engaged 50,000 area leaders in Internet-enabled "town meetings" and smaller-scale discussions in order to educate residents about the realities facing the regional economy and create an action plan for fostering growth.

Singapore

The island nation of Singapore was named as ICF's first Intelligent Community of the Year in 1999 for its ambitious plan for the Singapore One project. The aim was to provide every citizen and business with a high-speed Internet connection, and to foster the development of an online economy benefiting all of its citizens. In April 2002, the Infocomm Development Authority (IDA) of Singapore's government announced that broadband was available via ADSL or cable modem to 98% of homes, and that one in three residents was a subscriber. An annual survey of Internet activities revealed that Singapore's B2B e-commerce revenues grew from US$23 billion in 1998 to US$51 billion in 2000. Online procurement by business alone rose from US$3 billion in 1998 to US$10 billion in 2000. Not content with this level of growth, Singapore's government began announcing a series of programs and incentives starting in January 2002 to promote applications development and greater usage. By 2003, PC ownership had risen to 74%, Internet connectivity to 65% and broadband subscribers to 40% of the total population. About 600 wireless hotspots have been deployed across the island (125 at McDonald's restaurants), providing one wireless hub per square kilometer, and a standards-based integrated roaming and billing service gives

users access to the entire wireless network. The World Economic Forum has ranked Singapore as one of the world's most network-ready nations, and a 2004 report by Accenture ranked the country as second in the world for e-government leadership.

E-Government and Education

Manufacturing still makes an enormous contribution to the economy of the world - but the increase in efficiency caused by automation has sapped its power to create jobs. According to the Organization for Economic Cooperation and Development, most OECD countries experienced a steady decrease of manufacturing's share of total employment from 1995 to 2005. When it comes to producing good-paying jobs, manufacturing's place in job creation has been taken by knowledge-based work, which demands a much higher level of educational achievement across the population. If governments are investing tax funding in e-government, it is imperative for at least some of that money to meet the goal of lifelong education and training.

In Cleveland, an academic medical center called Cleveland Clinic has just granted OneCommunity $2 million to provide tools and training to help teachers incorporate digital learning materials and interactive video experiences directly into their daily classroom curricula. The initiative, called OneClassroom, aims to enhance educational outcomes for children across Northeast Ohio. The Clinic's commitment extends the OneCommunity network to 1,500 public and private schools across 18 countries, and builds on a prior $8 million expansion of the educational network in 2006.

In Tallinn, Estonia, a commitment to improve education through IT led to a nationwide broadband revolution. After 51 years as part of the Soviet empire, the economy of Tallinn and the nation was in ruins. In 1995, Estonia's ambassador to the US and Canada (now president) Toomas Hendrik Ilves publicized the idea of connecting all schools to the Internet. Estonia's then President Lennart Meri supported the idea and the government created a program called "Tiger Leap" to provide all schools with PCs and Internet connections by 1999. This was at a time when school buildings were falling apart and teacher pay was only US$100 per month.

Tallin, Estonia

Even before Tiger Leap could prove its educational value, the concept began to spread. A "Tiger Tours" program funded by an NGO put computers into vehicles to introduce ICT to the rural population. Banks in Tallinn talked about their own Tiger Leaps while introduce e-banking, and newspapers going to press for the

first time added online editions. Lack of purchasing power, however, posed a clear obstacle to ICT adoption. In response, the National Library in Tallinn introduced the first public access Internet services with funding from UNDP. The Soros Foundation began a program that invited enthusiasts to create public access points all over the country, and in 2000, a private foundation called Look@World, funded by telecom, banking and computer companies, spread public access Internet even farther. That same year, Parliament passed a Public Information Act that required all public libraries to provide Internet access. When a chain of gas stations began offering free WiFi for all customers in 2003, it was a sign that the nation's IT revolution was well underway.

As part of Tiger Leap, the government made wholesale purchases of computers and persuaded banks to support leasing programs that included Internet access. State funding also went to building a backbone network linking Tallinn to other municipalities, which now supports a WiMax network covering 90% of Estonia. It encouraged the Look@World foundation to execute an educational program that delivered computer literacy training to 100,000 adults. Today, Internet penetration stands at 58%, with all schools and public buildings connected via broadband. Business Internet connectivity is over 90%. A 2006 survey of the online availability of public services in Europe by CapGemini put Estonia into third place, and the country ranked among the top 22 countries in the UN's Global E-Government Readiness Report.

The same commitment to education has had powerful effects in the very different cultures of east Asia. Mitaka is a suburb of Tokyo, Japan, home to 173,000 people. As early as 1989, Mitaka had introduced computer literacy classes for teachers and students. By the late Nineties, the city had connected its schools to broadband and the cable TV system and begun introducing digital materials and computers as learning tools. One example was a 2003 school project involving 1,400 students that experimented with a wireless network running at 52 Mbps. And the city has not neglected its post-school population. It has created a series of classes and activity groups to introduce senior citizens and parents to life on the Internet.

Mitaka, Japan

In the Gangnam District of Seoul, South Korea, the district government launched in 2006 a project called TV GOV. This is an interactive digital broadcast system provided via the world's most widely accepted display platform: the television. TV GOV has two goals: to encourage older residents to use the district's e-government systems through the familiar interface of the television, and to deliver educational services to students. Through TV GOV, users can gain access to the full range of online e-government services through their television. The system also provides government news channels, cultural and

arts channels, and specialized information for senior citizens, women and children. To further support the use of technology, adults of all ages have access to technology training at 35 sites throughout Gangnam, which serve over 400,000 citizens per year.

Gaining admission to university is highly competitive in South Korea, and parents who can afford it spend a great deal on private tutoring for their children. Low-income families are at a substantial disadvantage in this educational race. Through TV GOV, students can gain access to over 100 distance education courses, as well as an online library of school books, designed to prepare them for college entrance exams. Over 330,000 students have already used the program.

E-Government and Partnerships

The third way in which e-government projects can make communities more competitive occurs in partnership between government and other organizations. Partnerships, when they work, are a mighty engine of transformation. Compared with projects that take place entirely within the walls of government, partnerships can:

- Increase the expertise, influence and funding available to the project, by tapping business and institutional leaders and the budgets they command
- Tie government's IT and telecom agenda to social and commercial priorities that have strong emotional appeal, building support among residents, businesses and institutions in the community
- Transform "IT functionaries" into "community champions" with a demonstrated commitment to improving the lives of citizens

Waterloo, in the province of Ontario, Canada, was ICF's Intelligent Community of the Year in 2007. It offers a prime example of partnership in action. Small in size and population (about 115,000 people), it is home to 40% of the high-tech firms in its region, which is known as Canada's Technology Triangle. A history of partnerships among government, universities and business has made it one of the nation's economic engines.

Waterloo, Ontario, Canada

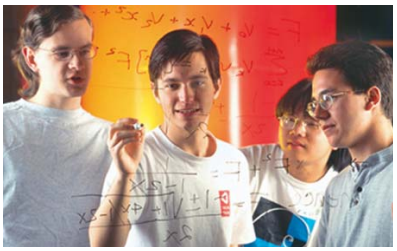
For decades, local government has engaged actively with business and citizens in planning for a prosperous future. A Strategic Resource Information Plan developed in 1990 set the pattern for data-sharing and integration among agencies and pointed the way toward the 1998 introduction of the award-winning, Internet-based Waterloo

Information Network. Today, Waterloo offers a wide range of online services, from the minutes of council meetings and city program registration to tax assessment tools, interactive GIS maps and marriage license registration.

In 2000, the city undertook a year-long project called Imagine!Waterloo. This city-wide public consultation aimed to determine the best possible future for the city. Its recommendations ranged from environmental protection to transportation, culture to city communications. An Intelligent Waterloo Steering Committee formed in 2006 - led by Jim Balsilie, co-founder of Research in Motion (creator of the BlackBerry), Waterloo's Mayor and University of Waterloo President David Johnston - stages events to educate business leaders, academics and citizens about the challenges Waterloo faces and engage them in setting goals for educational achievement, access to services, investment in infrastructure and social inclusion.

Waterloo's government-business-university partnerships have unleashed a chain reaction of collaboration in the community. A group of local business leaders has recently launched Infusion Angels to find and fund ideas from University of Waterloo students and alumni. The University of Waterloo and Wilfrid Laurier University jointly run a Launchpad $50K Venture Creation Competition for students, researchers and community members who develop business plans and start successful businesses. Successful entrepreneurs have also reached into their pockets to fund or contributed their time to the founding of the Center for International Governance Innovation (CIGI), the Perimeter Institute for Theoretical Physics, Institute for Quantum Computing, Center for Wireless Communications, the Waterloo Technology StartUp Network, and Communitech, a capacity-building association focusing on technology in the region.

Like other Canadian communities, Waterloo participates in the Federal Community Access Program that places Internet workstations in public access locations. Waterloo's public libraries have become ICT learning centers that, thanks to company donations, lend laptops as well as books. Through Wilfred Laurier's Center for Community Service-Learning, nearly 1,000 students a year engage with 200 local partner organizations in programs that connect community service to classroom learning. Business and nonprofit organizations have joined forces to create the Waterloo Region Immigrant Employment network to help match recent immigrants to job opportunities, while the Waterloo Public Library has developed an online portal, ProjectNOW, to provide settlement and labor information to newcomers.



E-Government and the Future

Local, county, state and provincial governments everywhere are struggling to find the best way to integrate e-government programs into their day-to-day

operations. Is e-government the responsibility of the IT and telecom department? The finance department? Should public safety be involved? What about social services and schools? If the more expansive view of e-government proposed here is correct, the answer to all these questions is "yes." In fact, the circle needs to expand to include outsiders from business, higher education and nonprofit institutions, because e-government is no longer just about efficiency or better governance, but also about economic competitiveness, education, partnerships and the creation of a broadband culture.

While governments are "working the problem," to borrow a bit of NASA jargon, things will be messy. It is always this way when new technologies, demographic changes or political shifts force us to re-prioritize how we govern ourselves.

But the old rules still apply. Communities will succeed wherever these issues receive the prolonged attention of their most senior elected and administrative leaders. Where the issues are relegated to mid-level staff, busy defending their budgets and prerogatives, communities will languish.

In his 1998 book, The Lexus and the Olive Tree, the *New York Times* columnist Thomas Friedman wrote:

> *The barriers to entry into virtually any business today have been dramatically lowered, and this means that the speed by which a product goes from being an innovation to being a commodity has become turbocharged…It is not for nothing that Bill Gates likes to say at Microsoft they know only one thing: In four years, every product they make will be obsolete. The only question is whether Microsoft will make it obsolete or one of its competitors will. If Microsoft makes it obsolete, the company will thrive. If one of its competitors makes it obsolete, Microsoft will be in trouble. Bill Gates almost made Microsoft obsolete by initially suggesting that the Internet was not the future of computing. Lucky for him, he came around before his four years were up.*

What was true for global business in 1998 is true for communities and local government in today's Broadband Economy. As we think through e-government and the many issues it raise, it would not hurt for all of us to put up a sign beside our desks that reads: "Four years and counting."

About the White Paper

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