



Case Study

Digital Inclusion

Vital Villages

PCs and the Internet enhance rural economies and improve quality of life in the Republic of Korea

From Finland to Malaysia, nations that want to understand the impact of digital inclusion and other e-Government strategies have been flocking to the Republic of Korea. One of the world's most wired nations, Korea is also a leader in using information and communications technology (ICT) to make government more efficient, accountable and transparent. As part of a broad range of e-Government initiatives, Korea has instituted an innovative information village (INV) program that is bringing remote communities into the digital economy and enhancing the quality of life of rural residents.

“Rural areas must keep up with the information age. If our village did not have the INV project, what would happen to us? It is an unthinkable situation.”

Cho Kiok
Village Committee Head
Gwangyang Baekhakdong Village ¹

Challenge

- **Spread ICT benefits.** Like most nations, the Republic of Korea found that rural citizens in traditional industries of fishing and agriculture had less access to ICT than urban populations.
- **Enhance rural life.** Many of Korea's rural villages faced stagnant economies and rapidly aging populations as younger people move to the cities.

Solution

- **Inclusive access.** Working with local governments, citizens and private companies such as Intel Corporation, Korea's Ministry of Government Administration and Home Affairs (MOGAHA) has established over 250 information villages since 2001. The program provides subsidized home PCs, broadband infrastructure and village information centers, as well as extensive training that breaks down barriers to using the technology.

Benefits

- **Digital inclusion.** The PC penetration rate in the information villages is around 65 percent, comparable to that of Korea's cities.
 - **Economic competitiveness.** Using e-commerce, farmers are increasing their incomes, villages are expanding their tourist services and rural economies are becoming more diversified. In the two years Jan. 2003 to Jan. 2005, farm income rose by \$2.1 billion won (US\$2.036 million).
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¹ Korean Association for Regional Information Society, Analysis on the Formation and Operation of Information Network Villages, August, 2005.

Korea is not only fostering digital inclusion, but empowering rural communities to raise their standard of living.

Assessing the Situation

Occupying just 98,000 square kilometers, the Republic of Korea stands at 108 in the list of nations by size. But as the world's tenth largest economy, it is an economic powerhouse, and its economic growth in the past 30 years has been, in the words of the U.S. State Department, "spectacular."² In 1963, Korea's gross national product averaged just US\$100 (97,394 won) per capita. In 2004, it exceeded US\$14,100 (13,732,658 won).³

However, that wealth was concentrated in urban areas. Korea's rural areas also had much lower rates of computer literacy and Internet usage than cities. Farming and fishing villages were challenged by the price pressures of an increasingly competitive global marketplace.

ICT-Fueled Innovation

Korea has deployed a wide range of ICT-based initiatives to increase government's transparency and efficiency, so applying ICT to the problems of rural villages was a logical next step. "The more rapid the growth of the information society, the wider is the digital divide between urban and rural areas," writes MOGAHA in reporting on its efforts. "The digital divide between regions and classes has emerged as a new issue, and

Spotlight: Republic of Korea

- Tenth largest economy in the world based on gross domestic product (GDP)
- Gross national product has risen from US\$100 per capita in 1963 to over \$14,100 in 2004
- Population of 48 million, with 22.8 million in the workforce and 8.3% of the population engaged in agriculture and forestry
- Ranked the world's fifth leading e-Government in 2004 by the United Nations

there is a growing demand for an information support policy for underprivileged regions."⁴

In response, the government passed the Digital Divide Elimination Act, which went into effect in Nov. 2001. Since that time, Korea has created more than 250 Information Villages, turning remote mountain towns and agricultural and fishing communities into places where people not only send email and browse the Internet, but also receive training, content and tools to help them transform village life and improve their economic picture. Farmers and fishermen can find new markets for their products, and citizens can access educational and e-Government services.

Implementation

Each information village is implemented according to a roadmap of seven steps.

Deploy broadband infrastructure. Broadband communications over Digital Subscriber Lines (DSL) gives villagers high-speed access to the Internet, whether from home or from the village information center.

Establish a village information center. The village information center provides a community gathering place and a location for training and other services. Information centers are located in town halls, public buildings or vacant schools, and are equipped with networked PCs, printers and projection systems. To benefit from best practices, centers are operated according to a standardized guide that can be modified as needed to meet regional requirements.

Supply home PCs. The INV program set a goal of distributing home PCs to about 70 percent of households, to match the overall national rate of PC penetration. A local village operations committee oversees the distribution of home PCs.

Design custom content. Korean officials say the development of information content is the most important of the seven tasks.⁵ Content includes a central portal for the program (www.invil.org), under which villages and individuals can create their own home pages. The portal includes the framework for conducting e-commerce.



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² www.state.gov/r/pa/ei/bgn/2800.htm

³ www.state.gov/r/pa/ei/bgn/2800.htm

⁴ Initiatives for Government Innovation in Korea: Selected Successful Practices, published by the Republic of Korea Ministry of Government Administration and Home Affairs, 2005.

⁵ International Council for Information Technology in Government Administration (ICA) 36th Conference, Singapore, October 2002, Round Table Report.



Village residents can use the transaction-enabled website to offer online direct sales of their local produce, and many are using e-commerce to help them expand beyond their traditional crops such as rice and barley.

In many cases, villagers are increasing revenues by finding direct markets for value-added produce such as flowers and fruit. In Baekhakdong, for example, villagers found a broader market for their dried persimmons. In the summer, Baekhakdong is a busy tourist destination during the summer, but the economy dried up during the fall. Residents in the tiny town (population 881) grew chestnuts and persimmons, but had trouble selling them because of the village's remote location.

Now, the people of Baekhakdong are using the Internet to sell dried persimmons. In 2001, two families sold just 20 boxes. In 2004, after becoming an information village, 17 families sold 2,000 boxes of dried persimmons online, bringing revenues of 80 million won.

"No matter how good your products are, a rural economy cannot be improved without a good sales route," says Kiok Cho, village committee head for the mountain village of Baekhakdong. "Because of the Internet, we are full of hope. We are constructing a new building next to the information center, to help with order processing."⁶

INV portals also enable villages to increase their share of Korea's growing tourist trade. Korea has instituted a five-day work week, creating an expanding market for tourism that information villages such as Songi are seeking to meet. "This region's clean water and air provide a good place for hobby fishermen, and many people enjoy the services provided by lodging at a private residence," explains Songi's village committee chairman, Hyunkee Lee. "Before becoming an information village, we were anguished over how to attract tourists. Now, this problem is easily solved."⁷

Some 80 information villages offer "green tours" where city dwellers can experience farm life and purchase produce direct from the farm. The INV infrastructure facilitates the tours by providing online reservation and payment systems. In 2004, the first year of service, more than 84,000 visitors took a green tour, bringing average revenues of 71 million won to each participating village.

Provide education and training. Training has proved crucial in overcoming initial fear and reluctance, and helping people move beyond email and web browsing to full-fledged e-commerce. Villages have taken more initiative for training as the INV program has advanced. "At first, we were dependent on the programs and instructors provided by the information village center staff," says Lee. "Nowadays, we arrange our own education."⁸ Village leaders teach some classes, and students from nearby Dongyang University teach additional classes at Lee's village of Songi during the summer.

The training has clearly paid off. According to a MOGAHA survey, INV residents are more proficient than neighboring non-INV villagers at tasks such as sending email, searching the web for information and making online purchases. In the village of Chubu, residents not only use the Internet to sell sesame leaf kimchi and 13 other products, but also to research the competition and set prices.

Key Technologies and Collaborators

- Samsung SSD Consortium* served as project manager for the e-marketplace system.
- Korea Telecom*, Dacom* and other common carriers provided broadband network infrastructure for village centers and homes.
- Intel Corporation donated funding to pilot innovative concepts for education, e-commerce and training.

Create a system for independent operation. Each information village is managed by a committee of approximately 15 residents. This group manages the village home page and coordinates the village's e-commerce activities. A council of government officials and other organizations provides backup and advice as needed. A village information leader heads the committee and acts as an evangelist for the project.

Develop an information network village brand. The INV portals also enable villages to increase their share of Korea's growing tourist trade. Korea has instituted a five-day work week, creating an expanding market for tourism that information villages such as Songi are seeking to meet. "This region's clean water and air provide a good

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Develop an information network village brand. The INV project has benefited from aggressive PR efforts to raise awareness of the program. Each village increases awareness locally by sponsoring a contest to design a village logo.

Building on Success

The Republic of Korea plans to expand its INV program to more villages and regions, and to make additional services available. The government is developing online services for education, administration, health and welfare, culture, and economy and industry. It is also working with non governmental organizations (NGOs) and private sector companies such as Intel to build on the foundation that has been created.

"For Government innovation success, the public, the private and the third sector need to maximize synergy effect for the advancement of our society," writes Korea's Minister of Government Administration and Home Affairs Young-Kyo Oh. "I firmly believe government innovation will become a new driving force for national development in the 21st century."⁹

Find a solution that is right for your program. Contact your Intel representative or visit the Intel® Business/Government Web site at: intel.com/go/government or visit the industry solutions-specific sites at: intel.com/business/bss/industry/.

⁹ Initiatives for Government Innovation in Korea

¹⁰ Unless otherwise noted, data in this section is drawn from Initiatives for Government Innovation in Korea, 2005.

¹¹ Korean Association for Regional Information Society, Analysis on the Formation and Operation of Information Network Villages, 2005.

¹² Korean Association for Regional Information Society, Analysis on the Formation and Operation of Information Network Villages, August, 2005.

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Impact¹⁰

- The digital divide is being erased. The PC penetration rate for Information Villages has risen from 21 percent to 66 percent, roughly equal to that of Korea's cities.¹¹ The percentage of people using the Internet soared from 8.8 percent to 60 percent. In the INV villages, 23 percent of citizens used the Internet over three hours a day, and another 23 percent used it for one to two hours daily. In 2005, Korea as a whole has 30.67 million Internet users across its population of 48 million.
- Farm incomes are rising as farmers find new markets for value-added crops and villagers expand their tourist trade. Mail-order sales of locally produced goods have risen twenty fold.
- Villages are energized. "Many people in the area communicate with each other with online messages, and even a grandpa over 70 can send and receive email with his grandsons," says Lee Hyunkee. "Village people use a bulletin board for messages, and every citizen shares information."¹² As of April 2005, villagers had established more than 1,200 clubs and over 2,500 private home pages. The village information center also shows movies and holds meetings, bringing people together and creating a stronger sense of community.
- As a result of the INV program and other ICT-related innovations, the Republic of Korea says its government has become more open, efficient, accountable and customer-focused, inspiring increased customer satisfaction and trust. In the United Nations' Global E-Government Survey for 2004, Korea ranked fifth out of 191 nations, up from 13th in 2003 and the highest ranking of all Asian nations. INV residents can save time by accessing e-Government services online, including obtaining certificates of residence and applying for a wide range of information services.

