# COMPARISON BETWEEN COMMUNITY NETWORKS IN U.S.A. AND IN SOUTH KOREA

J. H. Im
*Department of Management, Sacred Heart University, 5151 Park Ave. airfield, CT 06825, USA*

Jin-Wan Seo
*Department of Public Administration, University of Incheon, Nam-Ku, DoHwa-Dong 177, Incheon, South Korea*

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Abstract: In this paper, we will discuss (1) past, present, and future of the community network in the United States with an analytic framework of the community network lifecycle (2) planning and implementation of the INVIL project, a South Korean version of the community network; (3) similarities and dissimilarities between those two for comparison in terms of expected benefits, and (4) recommendations based on our analysis. Contributions of this paper are two folds: helping the South Korean government to improve the INVIL project and other governments to learn lessons on similar projects as part of their e-government programs.

## 1 INTRODUCTION

South Korea ranked first in the world in terms of broadband penetration with 21.3 subscriptions per 100 inhabitants (ITU, p.5). Thanks to the well-developed IT infrastructure, three quarters of South Korean households had access to the high-speed Internet services. However, the high-speed Internet network is concentrated in urban areas rather than agricultural/fishing villages in remote regions. These areas isolated from the benefits of the Internet and e-government services are not able to access the advanced network, but also have limited opportunity to have IT training. For this reason, the South Korean government has been implementing the Information Network Village (INVIL) project as part of its e-government program to bridge digital divide between regions and social classes. The main effort of the INVIL project is to lay the foundation for the information have-nots to have the equal access to government services as the information haves via e-Government.

## 2 COMMUNITY NETWORKS

As the Internet has become a more important element of everyday life, a number of communities have sought to go further, not only providing free access but also improving the network infrastructure within the community. The goals of such wired communities are to bring Internet access into the homes of all community residents, to provide various information and services through Internet, and to facilitate training/education in information technology and in some cases, the growth of computer-related industries within the community.

### 2.1 Cleveland Free-Net

With one phone line in 1984, the School of Medicine at Case Western Reserve University developed an online bulletin board where patients could contact doctors and get answers to medical questions (Cleveland Free-net). Since the experiment proved successful, it was expanded to serve the whole Cleveland area as a community information resource not only on medicine but also on law, education, arts, and government. In 1986 it was named the Cleveland Free-Net (CFN) to provide free e-mail accounts, access to community information, and access to the Internet through dialup modems. Subsequently, it had been stabilized successfully as witnessed in its steady growth to have over 36,000 active accounts in 1992. However, it faced a challenge of sustainability when new development in ICT made its system and services


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obsolete and outdated. Coping with changes in the ICT infrastructure, it failed to transform into a sustainable business model by neither securing reliable funding sources for free services nor turning into a profit-generating model. Lack of funding to upgrade and operate CFN eventually resulted in closure in 1999. CFN is considered the pioneer of Free-nets and community networks. 170 sites in the United States, 64 in Canada, 9 in the United Kingdom are listed at the Web site of http://www.lights.com/freenet.

### 2.2 Public Electronic Network

The Public Electronic Network (PEN) was begun by the city of Santa Monica, California in February 1989. One distinctive difference between CFN and PEN is that the former was initiated by a local university, but the latter by a municipal government. PEN's original purpose was to link residents to the city hall so that they could have access to public information like city schedule and events. Soon, it was evolved into one of the first community networks with online discussion forums where residents exchanged their opinions on social and political issues, thus increasing their awareness of and participation in local government affairs (Dutton, 1996). It has further transformed into a full-fledged e-government portal for the city by providing a broad range of civil services including online transactions such as payment of parking tickets and application for business licenses (Doctor & Dutton, 1998).

### 2.3 Blacksburg Electronic Village

In view of the Internet's potential to increase civic participation and improve the local economy, Blacksburg Electronic Village (BEV) was established in October 1993 with the involvement of all the major institutions in the community: Virginia Polytechnic Institute and State University, a local telephone company, and the municipal government. BEV was institutionalized as a community network where all activities in a normal community – from politics to business and social organizing – could be conducted online (Cohil & Kavanaugh, 1997). Now it has transformed to a community portal for residents and visitors and a local ISP by providing fee-based Internet services for email accounts, civic and personal web site hosting, website development and support, etc.

### 2.4 Seattle Community Network

The Seattle Community Network (SCN) was founded in May 1994 by volunteers as a free public-access computer network for information access and exchange among residents in Seattle. For community building and empowerment, it provides free services for email accounts and website hosting for personal and non-profit organizations (Schuler, 1996).. Its community pages list websites of local non-profit organizations by topic. Since it has been strictly financed with donations and staffed by volunteers, its services are relatively limited in comparison with BEV.

## 3 INVIL PROJECT IN SOUTH KOREA

### 3.1 Planning

South Korea's INVIL system is a government-sponsored community network system which consists of many locally-based community networks. The South Korean government initiated the INVIL system with three major objectives: reducing digital divide, empowering village residents, and boosting regional economy. Digital divide, discrepancy between the information haves and the have-nots, may occur by gender, race, age, generation, geographic location, education level, income level, and occupation. Agricultural and fishing villages are typically located in distant areas where Internet infrastructure is relatively underdeveloped than urban areas. As part of the e-government program by the South Korean government, the INVIL system is to address regional digital divide (Im & Seo, 2005) (Shin, 2006).

### 3.2 Implementation

The INVIL project has started from 2001. Since the launch in 2001, the INVIL project has produced 25 networked villages in the 1st phases (2001. 3 ~ 2002. 5), 78 in the 2nd phase (2002. 6 ~ 2003. 6), 88 in the 3rd phase (2004. 1 ~ 2004. 10), and 89 in the 4th phase (2005.6 – 2006. 2). As such, currently there are 191 INVILs nationwide. The budget spent on this project was about 67.5 billion won. The first phase was comprised of 19 villages aided by the central government and 6 villages aided by local governments. The third, in line with the 'Balanced Development' policy of the Noh Moo-Hyun government, further developed the model cases of the second phase on a mid- and long-term basis and promoted more diversified programs within the project. The third phase comprises 4 villages of an urban model and 80 villages of an agricultural and fishery model. The agricultural and fishery model can be divided into 34 villages using the small-scale

model and 46 villages using the mid- to large-scale model.

From the initial stage of INVIL project, the project has been approached strategically. First, 'Information Network Village Planning Group' was formulated consisting of related central government's ministries and organizations such as the Ministry of Agriculture and Forestry, the Ministry of Information and Communication, the Ministry of Education and Human Resources Development, the Agricultural Cooperatives, and the Fisheries Cooperatives to make sure of close cooperation among relevant organizations. Second, the central government organizations and local governments (Province/County, and City/District) divided their roles. The central government drew the blueprint for the project, secured budget and support, prepared the legal, policy foundation and established a collaboration system for related organizations. And local authorities worked on building information contents, pursuing the information utilization environment project by village and providing resident training/education. Third, from the very beginning of the project, local residents' active engagement was emphasized. 'INVIL Operation Committee' was formulated for each village with 15 or so resident representatives. The committee determined critical issues regarding the information village operation.

The creation of profit model was also encouraged, so that the committee is able to stand on its own foot as a self-sustainable body even after the government support for the project is over. And fourth, pilot INVIL sites were selected to evenly represent urban areas, agricultural/fishing villages and mountainous villages. In consideration of unique local characteristics, INVIL models were carefully designed in line with local needs and spread nationwide after evaluation. As a result, each information network village has had high-speed Internet network infrastructure and a village information center to have access to information and have chance to IT training/education for local residents. Three-tiered approach to the INVIL project is summarized in table 1.

# 4 COMPARISON & SUMMARY

Venkatesh (2003) proposed a lifecycle framework for research and action with three stages of origin, stabilization, and transformation. A community network comes to existence to meet certain networking and information needs of a local community. Once up and running, a community network has a tendency to "become institutionalized-stabilized, with formally defined functions, and governance structures-and resistant to change more readily than do applications" (Venkatesh, 2003, p.343). It is necessary for a community network to be transformed properly by adapting to changes either in community's needs or in its ICT infrastructure. Otherwise, a community network may lose its vitality and die out eventually. The lifecycle framework is applied to four major community networks in the United States and to the INVIL project in South Korea to see how they were originated, stabilized, and transformed for comparison purpose. Life cycles of INVIL and the four community networks are summarized in Table 2.

Both the community networks in U.S.A. and the INVIL project in Korea were initiated primarily to reduce digital divide. However they have more dissimilarities than similarities. First, community network was planned as a bottom-up approach by volunteer-based non-government organizations (NGO) while INVIL was as a top-down approach by the South Korean government. The central government is in charge of planning and provision of infrastructure of an INVIL while the INVIL's central council and a village operation committee take care of contents and daily operations and

Table 1: Three-Tiered Approach to the INVIL Project.

| | Central & Local Governments | Central Council | Village Operation Committee |
|---|---|---|---|
| Planning | -Setting goals<br>-Selection of candidate villages<br>-Funding for infrastructure | | |
| Implementation | -Development of infrastructure<br>-Setting up village info centers<br>-Provision of PCs and software<br>-Design of Web templates<br>-Development of contents | | -User education management |
| Operation | - Education<br>- Server operation and management | -Central contents<br>-E-commerce transaction processing | -Local operation<br>-Village contents<br>-Village e-commerce products |

maintenance. Thus, the central planning and implementation provides advantages such as reliable funding, consistency, and economy of scale that are not possible for those volunteer-based, independent community networks. Second, community networks focus on underprivileged residents in urban areas while INVIL on those in rural areas. Third, a community network is independent and autonomous though it may join a free network association for information sharing and cooperation. In contrast, an INVIL is not independent but part of the INVIL Federation under the auspices of the South Korean government. Comparison between INVIL and community networks are summarized in Table 3.

Both community networks and INVIL has the same challenge: how to develop a self-sustainable business model as an on-going concern. Securing reliable and consistent funding is the main challenge of community networks in view of its premise of providing free services as witnessed in those four networks discussed earlier. Though the INVIL project has been funded by the South Korean government, the operation of each INVIL is delegated, thus should be self-sustainable at a certain point by generating its own revenue. Otherwise, an INVIL will be vulnerable to any change in the government funding. Also, the South Korean government should consider an assessment system to evaluate regularly an existing INVIL as a self-sustainable business model. Otherwise, government funds may be wasted for some INVILs that may not be justifiable.

Table 2: Life Cycle of INVIL and Community Networks.

| | INVIL | CFN | PEN | BEV | SCN |
|---|---|---|---|---|---|
| Start year | 2001 | 1986 | 1989 | 1993 | 1994 |
| Initiator | Government | University | Volunteers | University | Volunteers |
| Community | Rural | Urban | Urban | Urban | Urban |
| Life Cycle<br>1. Origin | Community ISP | Free net | Free net | Free net | Free net |
| 2. Stabilization | Community portal | Community ISP | Community forum | Community ISP | Community ISP |
| 3. Transformation | Community portal & e-Commerce | (Phased out in 1994) | e-Government | Community ISP & portal | Community ISP |

Table 3: Comparison between INVIL and Community Networks.

| | INVIL | Community Networks |
|---|---|---|
| Initiator | Government | NGO |
| Planning | Top-down | Bottom-up |
| Focus | Rural community | Urban community |
| Organization | Federal | Independent |
| Operation | Hybrid | Community |
| Pros | -Central planning<br>-Nation-wide network<br>-Government funding<br>-Economy of scale | -Volunteer-based<br>-Local ownership<br>-Autonomous |
| Cons | -Government-regulated<br>-Dependency | -Lack of funding<br>-Regional<br>-No central planning |
| Challenges | -Sustainable business model | - Sustainable business model |

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