THE YAMADA VILLAGE E-PROJECT, JAPAN

I. Abstract

Yamada village in southwest Japan faces problems related to depopulation due to migration and an aging community, with a third of village population being elderly and suffering from isolation. The Yamada village e-project started in mid-1990s with the objective of incorporating information technology (IT) in everyday lives of villagers. The community was included in the design as well as the implementation of the project. Subsequently, the community took interest in making the project sustainable after the initial support provided by the local and national administrations.

Within five years of its implementation the initiative was considered a best practice in IT implementation to benefit a rural community. The IT has now become a part of villagers’ routine. The growing popularity of the e-village initiative appears to have reduced the migration by opening new avenues of tourism and trade and thereby strengthening Yamada’s economy. Besides making available home healthcare facilities, the project has helped in overcoming the loneliness encountered by the elderly and has enhanced their interaction within and outside Yamada. However, the potential of the initiative still needs to be utilized with involvement of more and more community members, especially the elderly, as a number of them had been hesitant in using the new technology so far.

II. Background

Yamada is a small, remote village in southwest Toyama prefecture of Western Japan with a population of over 2,000. Almost half the village has mountainous terrain with extended periods of heavy snow. Agriculture and forestry are the major sources of income for the villagers. The village steadily depopulated after 1955, as the younger population kept migrating to cities for better education and employment. In 2001, over 40 percent of Yamada’s workforce of around 1,200 was employed outside the village, and out of 350 farmers just 4 percent were full-time village farmers. Besides agriculture, employment opportunities in the village were confined to small- and medium-size enterprises, such as small retail outlets, services, construction, manufacturing, and public offices. The migration of the younger generation from Yamada resulted in the elderly (over 65 years of age) accounting for almost a third of village’s population in 1995, surpassing the national average of 12 percent.

The Yamada village e-project was initiated to improve the overall presence of ICT (Information and communication technology) in the community—in households, in

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schools, for local business operations, and to serve the needs of the rapidly increasing elderly population, a key area of concern. The expected outcomes of the project included rapid information dissemination in the village, increased awareness of socioeconomic activities, regeneration of local industries, and improvements in local administration. In 1995, Yamada became one of the few Japanese villages to have its own Web site, created with the efforts of village officials and the support of Nippon Telephone and Telegraph west branch office at Toyoma. Yamada was among 12 local governments to receive funds under the Regional Program on the Establishment of Pilot Information Exchange Centers, launched by the National Land Agency in 1996. The villages were selected to establish “model” public regional information and communication technology information centers, and personal computer loans were arranged for interested households.

The project supplied and operated IT and network facilities for every interested household and by 1999 a majority of households in Yamada had Internet connectivity. Because of their user-friendly nature, Apple Macintosh computers were selected for installation in households. The initial funding for the project was around US$3 million, including subsidies of over US$1 million provided by the central and prefectural governments. Around 60 percent of the funding was raised from a local government bond and a development loan for depopulated areas. The village was supposed to bear the maintenance costs. No extra costs were incurred in terms of phone line installations, as all households already had phone lines.

The public information center is linked to the village offices and is equipped with a main server, computers for Internet surfing and training, multimedia equipment for video conferencing, training rooms, and a public library. Through the public information center, the Yamada village authorities planned to develop a network within the village to incorporate IT in routine lives of villagers. The information center was situated to perform multiple tasks so as to ensure better life for the villagers through IT diffusion. The project focused on the following objectives:

1. Provide easy access to information, and increase information exchange and sharing. The information center needed to provide villagers access to information as well as providing outsiders with village business information, such as tourism details, events information, and online sale of local products. Therefore, villagers developed a database of village life and industry information. Also, the residents could transmit personal tips such as recreational ideas and share information on the Internet using multimedia equipment at the information center.

2. Increase communication between villagers through the village bulletin, and between the elderly with their distant relatives through e-mail and TV phone facilities. Face-to-face communication through computer usage was expected to strengthen linkages between people. A virtual city was planned on the village Web site for increased interaction between villagers.
(3) Promote active usage of computers and improve IT skills through training at the information center. The center offered various forms of training using the latest multimedia equipment, provided new ideas for better communication, enabled villagers to improve their Web site content, and gave villagers a way to promote their businesses.

(4) Promote effective healthcare for the elderly at home with communication facilities and medical hardware such as blood-pressure and heart-rate monitors. Results, including body temperature and weight, could be instantly transmitted to the local public hospital. Close monitoring of health conditions of the elderly from a distant location could be possible utilizing such facilities.

III. Impact/Results

The Community

The project was successful in building community awareness of IT and its benefits for the community. A survey was carried out by Aichi Kyoiku University at the end of 2000 on the use of computers in Yamada. Out of the 391 households surveyed, nearly 90 percent owned personal computers; of which 66 percent were reported using them. The majority of households expressed their satisfaction in receiving computer support. The following table indicates computers were mainly used for maintaining personal homepages and browsing the Internet.

Table 1: Characteristics of Computer Usage

<table>
<thead>
<tr>
<th>Computer usage</th>
<th>Percentage</th>
<th>Number of residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>General computer use</td>
<td>25.5</td>
<td>406</td>
</tr>
<tr>
<td>Emailing</td>
<td>20</td>
<td>320</td>
</tr>
<tr>
<td>Internet browsing</td>
<td>23.5</td>
<td>376</td>
</tr>
<tr>
<td>Games</td>
<td>21.7</td>
<td>347</td>
</tr>
<tr>
<td>Work related</td>
<td>14.6</td>
<td>233</td>
</tr>
<tr>
<td>Maintaining own homepage</td>
<td>26</td>
<td>415</td>
</tr>
</tbody>
</table>

*Total respondents: 1,598 residents.*

*Source: Aichi Kyoiku University, Survey 2000.*

Due to the incorporation of ICT there has been an unexpected rise in national awareness of Yamada, which in turn has promoted tourism and the sale of local products. ICT is also contributing to a slowdown in depopulation through its impact on reviving confidence in village potential. Encouraged by increased communication links and activities as well as increased publicity and heightened village sentiments and morale, people are reported to have returned to the village in search of potential opportunities, partners, and to work at home. The students also show less interest in leaving their village now.
By increasing interest and awareness of the impacts of ICT, the e-village initiative led to other technological developments in Yamada. For instance, an “e-farm” project was started in 2000 to boost the local agricultural industry by attracting urban dwellers.

**The Elderly**

The elderly with access to ICTs, in terms of practical access to healthcare as well as maintaining contact with relatives and the community, showed improvements in their mental state and general well-being. They were found to feel less isolated, particularly due to increased communication with other elderly people through TV conferencing. Research suggests that now they have a more positive outlook and are less prone to loneliness.

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**Text Box 1: Improved Healthcare System**

The elderly maintain daily contact with local healthcare providers from their homes. A fair number of elderly patients are using the healthcare devices installed in their homes, obviating the need to visit their doctors. For instance, an elderly villager can check his or her blood-pressure levels and heart rate using electronic monitoring devices at home. A patient can answer health inquiries from local nurses, such as body temperature and weight, through a video-enabled computer. Over 20 residents use telemedicine facility everyday.  

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**The Young**

The results have been positive for the younger generation; they show increased interest in and use of computers, and students have demonstrated increased skills development and motivation. The 10–19 age group indicated the highest usage (almost 70 percent) of personal computers in Yamada. The younger generation is reportedly helping parents and the elderly in using computers at home, which has encouraged interaction among family members.

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**Text Box 2: Education Facilities**

The most successful development has been in the field of education. Yamada village runs an elementary and a junior high school located near each other. During 1994–96, the Ministry of Education selected these schools as models for its school renovation project and upgraded the computer facilities. The elementary students start using computers at the age of six and at junior high school level every course is taught using computers, besides classes on computer etiquette.

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or “netiquette.” The increase in e-mail exchanges has encouraged communication between the schools and students’ parents.

IV. Key Elements of Empowerment

Access to Information

The e-village project began with the primary objective of “jo ho ka” or “village informatization through computerization.” The village administration promoted ICT with the motto “Let’s improve our information environment for community development,” and focused on developing computer skills among the elderly and benefiting the community better through computer usage. The administration aimed to install computers and video-conferencing facilities across all households. The villagers are snow bound throughout winter and the elderly in particular are isolated at home without access to transport.

Text Box 3: The Public Information Center

The center is a crucial link between village administrators and households. The main functions of the information center are maintaining computer equipment, managing the communication network, dealing with computer problems, diffusing information, organizing lectures, and providing lecture manuals on computer usage. With the assistance of organizations like the education board, the center conducts lectures and seminars to promote computer literacy and IT skills (like creating homepages) among the young, the elderly, women, and the general public. In 2000, the center started an electronic bulletin board called “Your Voices” on the Yamada village Web site for villagers to place ideas and information. A village mailing list has been managed on the Web site since 1997 for announcements and to disseminate useful local information on products, computer usage, tips and suggestions, and so forth. The center also helps in computerizing local government offices such as village administrative services and local agricultural organizations. The center plays a pivotal role in ICT diffusion in Yamada village.

Understanding and using the technology proved a key tool in overcoming loneliness for the elderly. The project made visible improvements in information flows and social contact in the community and between neighbors, and raised overall community morale. For family members living apart and between villagers, frequent communication was promoted through email and face-to-face contact. A number of households have been encouraged to devise homepages containing personal information and various topics of interest.

The village recorded a significant increase in the use of the Internet as an essential tool to manage businesses, obtain information on village activities and events, acquire general knowledge and latest news, construct personal Web pages with information on family,

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work and hobbies, interact and chat online with villagers and outsiders, play games, and browse the Internet. The residents are exposed to a “virtual” or online community with the mailing lists and homepages. The Yamada village main mailing list focuses on communication between village residents, while another mailing list, “yamadamura-net,” is meant for information exchange between residents and outsiders. Mailing lists have enabled online exchange of ideas and opinions resulting in actual increase in communication flows in the “real” community.

Inclusion/Participation

In the design and implementation of the project, village participation was a major consideration. A key factor in the success of e-village project is that the system has developed as a result of strong collaboration among villagers. A computer engineer from Yamada designed the hardware; local teachers introduced the system and demonstrated using the Internet; local administrative staff obtained project funding and support. Several local volunteers provided guidance on household computer use. The central and prefectural governments, private computer firms, computer professionals, and university students also provided support and guidance.

Activities such as Web site building and lectures and seminars organized by the information center involve villagers of various age groups. The elderly in Yamada village have shown their interest in using computers by participating in lectures on computer usage and email exchange. The research done by Aichi Kyoiku University suggests that Yamada residents are now more active and sociable and the elderly are growing out of isolation due to ICTs in their routine. The mailing list participation still has a lot of growth potential. There is a high possibility of sustained participation due to apparent and continuous benefits. The project has also improved participation in village events.

Local Organizational Capacity

The local community promoted village development through the e-village initiative, which has established and is strengthening its community identity. These achievements have made Yamada renowned as an information-oriented community. The widespread media coverage and ministerial visits have portrayed Yamada as a highly advanced e-village in the mountains. Various articles describing Yamada’s advanced IT use and citing examples of its tech-savvy elderly residents have appeared in the past four years. The publicity helped promote tourism and sale of local products to outsiders. The Yamada community is considered so advanced that a host of visitors, including officials, students, teachers, and journalists, are keen to see the life in Yamada.

The village has used IT actively to organize community events in recent years. For instance, village officials, volunteer students, and local groups have organized the Fureai Sai (communication festival) annually since 1997 to promote understanding of benefits of

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IT through seminars and lectures, to familiarize villagers with new developments, and to increase interaction between villagers and visitors. This event has been successful in strengthening community morale. In 1998, the village was awarded the National Land Agency Award (Kokudocho Choukan Sho) for successfully incorporating IT in village life and enhancing the participation and interest of the elderly.

A Yamada village cyberschool was also set up by the villagers to provide IT training to locals, rather than depending too much on the administration. The school functions to increase awareness of the benefits of ICT and as a base to exchange ideas and knowledge through IT seminars.

V. Issues and Lessons

Challenges

- A major problem that villagers now face is bigger telephone bills. It is expensive for the villagers to pay regular calling rates for using the communication system. Plans are underway to introduce infrared modems as a cheaper system for connecting households.
- During the survey carried out by Aichi Kyoiku University, respondents from 244 households voiced the need to promote computer usage in their community. There was a desire among the respondents for advanced computer systems, financial support, improvement in IT seminars (its content, frequency, and scheduling), and motivating more villagers to utilize the technology. Nearly 50 percent of households were interested in purchasing new computers. Other comments demanded a more active village administrative body, advanced infrastructure, improved computer support groups, and so forth.
- The hesitation and anxiety in using technology among the elderly still stand as an obstacle. The technology is unfamiliar for them and the user instructions complicated. The survey done by Aichi Kyoiku University showed that around 5 percent of villager ages 60–69 often used computers to check e-mail, surf the Internet, and play games. Above this age, computer usage fell to 0.5–1.1 percent, indicating a need to raise awareness about the use of computers for reducing social isolation and improving healthcare.

The increasing information gap within Yamada village (between those actively using computers and those less familiar with its functions) is another concern that needs to be addressed.

Lessons Learned

- To keep up with the rapid advance of technology and communications in urban areas, it becomes increasingly necessary for rural areas caught in economic and social stagnation to develop their information network early. The Yamada village example shows how a village can establish an easily accessible information environment based on its specific community needs, and how a village can
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become technologically advanced and use IT to address its social problems such as depopulation and isolation of the elderly.

- Besides the funding provided by the central and prefectural governments, the ICT initiatives require strong cooperation between local governments, organizations, and members of the rural communities.

- The case of Yamada village illustrates how the adoption of personal computers and the Internet in daily life can transform a village community into an advanced society. Key areas where government can strengthen its role are building technology awareness, disseminating knowledge, and education and training of the user community.

- Constant monitoring of various aspects like affordability for end-users (phone line users in the given case) is vital for sustainability of an initiative. Consideration should be given to measures for containing costs, such as reducing phone charges. User support also needs to be provided, such as groups to help users set up computers and volunteers to introduce and assist in the operations of new and evolving technologies.

- Outside interest in Yamada has supported residents’ voices in the development process, which can influence the future progress and direction of similar projects.

- On the one hand the e-village initiative has successfully taken Yamada village far ahead of many cities in IT development; on the other hand, the information gap within the village (among the people who use the technology and those who do not) is increasing. One way to bridge this gap is to help nonusers, the elderly in particular, become computer literate and to learn how to use ICT to improve their quality of life.

- Encouraging citizens’ involvement in community initiatives is a challenging task, but it seems critical for the success of technology-led projects. Through sustained motivation, technology can be used to build skills and competence and produce community assets.

- The project shows the multiple benefits of Internet. It can be used as a tool to facilitate networking among community members as well as with the outside world, which in turn could benefit the community with unexpected results, such as increased tourism and trade in Yamada. The project demonstrates the contribution of Internet in promoting transparent discussions and information exchange, and in improving coordination between local administrative bodies. The use of ICT enables interactive information exchange that is prompt and efficient, and promotes collaboration and stronger community identity. The example shows how a community living in relative geographic isolation, especially its more vulnerable members like the elderly, can use the Internet to mitigate their loneliness.

- As a tool to facilitate communication and networking among community members and with the outside world, ICT can play a vital role in enabling community members to adopt a new lifestyle, create opportunities for community participation and collaboration, and develop alternative ways of trading.
VI. Further Information: References and World Wide Web Resources

