

**Local-Area Intranets and
Community Solutions:
The CTTH Ryokuen Toshi Experiment**

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The CTTH Ryokuen Toshi Experiment was a social experiment conducted in a housing development in Yokohama's Izumi ward between August 1998 and March 2000. It entailed constructing a local-area network linking residents, schools and the local post office, and involved 441 households (just over 10% of those living in the area), 960 residents and three schools. Over the course of 18 months, the experiment achieved the following results and demonstrated the potential of local-area intranets.

First, the ability of such networks to combine both real and virtual aspects enables them to attract a wide range of people. This is helped by the entertainment element inherent in networks. Second, such networks make people more aware of others living in their neighborhood as well as of local groups. By enabling people to network, they help local communities to be more active and to deal with local issues. Third, the "community solutions" approach, which involves forming communities as a way for people to associate with others and to deal with local issues, can serve as a model for dealing with issues that will face all communities in the 21st century (such as how to improve local education facilities and how to share information with local authorities as they prepare for electronic government).

I The Next Stage Is Cyber to the Home

This cyber-to-the-home project was one of a series of social experiments conducted by the Center for Cyber Communities Initiative (CCCI). The aim of the project was to simulate on a small scale the fully networked society that is expected to come about in Japan and other countries at the beginning of the 21st century and to investigate a variety of topics related to the home and daily life. These included such questions as “how lifestyles are changing,” “what these new communities will be like,” and “what kind of infrastructure these new lifestyles and communities will have.”

Most attention up to now has focused on the cyberization of business, and considerable progress has been made in this area. In terms of the cyberization of society, however, this is only the beginning. More attention needs to be paid to the next stage: cyberization of the home and daily life. Cyberization of the home means that homes will be linked to other homes, companies and administrative agencies by digital networks—what we have called cyber to the home (CTTH). The emergence of information appliances will probably accelerate this process.

Individual values and family lifestyles will become increasingly diverse, and individual family members can be expected to insist on pursuing their own lifestyles and consumption preferences. Markets and public services will come to regard fulfilling the needs of individual consumers and citizens as increasingly important, and people will come to expect services anywhere, any time. Even in Japan, society and markets are becoming increasingly oriented towards the individual.

Reflecting this, the aim of the CTTH project was to examine—both holistically and empirically as well as from a variety of perspectives—how computers and the Internet are changing people’s lives and to identify the main developments and needs in this area at the beginning of the 21st century. As part of this larger project, the Ryokuen Toshi project took a real local community as its object of investigation and built an information network (or community intranet) for use by local residents and the local community to see just how it would affect their lives and that of the community.

II The Object and Aims of the Experiment

1 The Experiment Location and Those Taking Part

The location of the experiment was the Ryokuen Toshi district of Yokohama’s Izumi ward, a new residential development that was started about 10 years ago. (See

Figure 1.) Covering some 100 hectares, the district has a population of about 10,000 and is a relatively new town.

The experiment, which lasted for 18 months, began in August 1998 and ended in March 2000. When it was completed, 433 households and 949 citizens had an ID and password, which means that roughly 10 percent of the local population (of some 4,000 households took part.

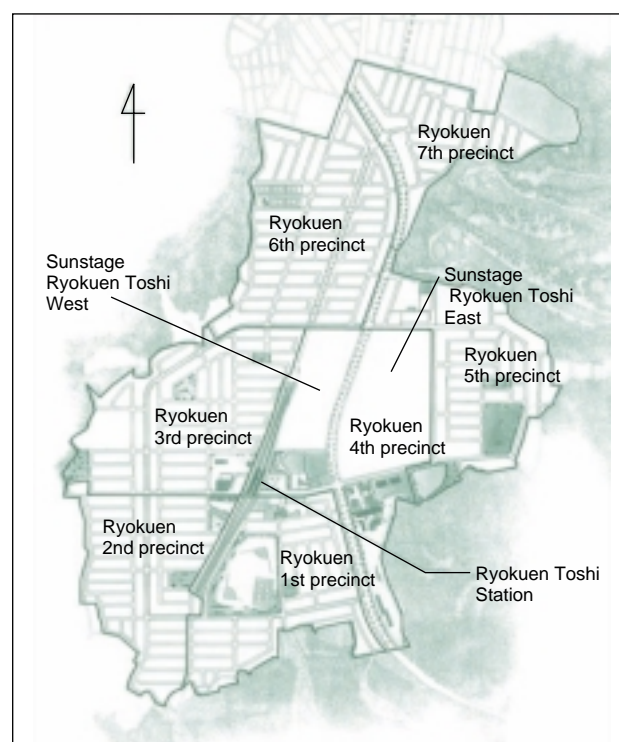
When it comes to forming a community, it is very important that responsibility be divided among different members of the local community and that they help and cooperate with one another. Fortunately, as can be seen in Table 1, we were able to secure the cooperation of a large number of local groups and organizations.

2 The Experiment’s Three Aims

The experiment had three aims:

- (1) To build a real community intranet (i.e., a network which only people in a certain area can use) as a model for a new network and to demonstrate how it can be used and with what effect.
- (2) To use this as a means to show that local communities, which have tended to be neglected, are one way in which citizens, companies and local government can work together to revitalize society at a local level.

Figure 1. Location of Experiment: Ryokuen Toshi



Source: Ryokuen Toshi Community Association

Table 1. Groups and Organizations Supporting or Involved in the Experiment

Groups and organizations supporting or involved in the experiment		Description
Local government organizations (support)	Yokohama City Council's Department for the Promotion of Advanced Information Technology	Responsible for promoting the local use of information technology
	Izumi Ward Policy Department	Responsible for liaising and arbitrating between local authorities and the local community
	Yokohama City Council Education Committee's Department for Information Technology Education	Responsible for promoting Internet usage in local schools Supported project by facilitating collaboration between schools and community
Local public facilities	Municipal primary and junior high schools	Okadu Junior High School, Ryokuen East and West Primary Schools About 2,000 primary and junior high school children received IDs and passwords, and participated in the experiment
	Welfare facilities	A support center for mentally handicapped, an in-home care delivery center and its adjacent special nursing home for the elderly; all helped to post information on the community intranet site
Local groups	Ryokuen District Neighborhood Association	Umbrella association for the district's seven neighborhood associations
	Ryokuen Toshi Community Association	Non-profit-making local group organized mainly by local residents for the promotion of community activities and social activities
	Local retailers' association	Helped by posting information about local shops on the community intranet site

(3) To establish a real-life basis for the concept of community solutions (i.e., how local communities can work together to solve problems).

In the following we report on how far the experiment managed to achieve these three aims.

III Capabilities Needed by a Local Network

The main features of the community intranet used in the project (known locally as the Ryokuen Net) are shown in Figure 2. The network connected diverse users, including the ward office, the post office and community facilities such as the neighborhood association office, welfare facilities and the local primary and junior high schools, as well as the local residents, who were, of course, the key users.

The aim of the project was to find out what capabilities a web network that was similar to the kind of local-area network (LAN) used in offices (i.e., a community LAN) would need if it were to be used by individual citizens. As is normal in social experiments, we adopted a process of trial and error whereby we would ask people what they wanted and then try to improve the existing set-up or add a new capability. By repeating this process, we came to four main conclusions. (See Figure 3.)

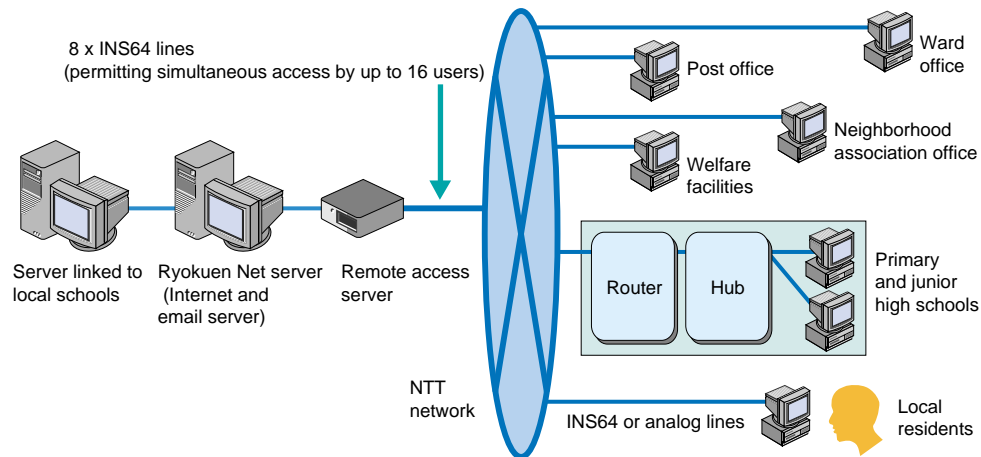
First, such a network has to be user-friendly enough to attract a wide range of users (from the elderly to small children) who will continue to use it as numbers grow.

Second, people have to be able to use the network as individuals. Employees are given an ID and password that enable them to use various network services for their work. When they leave (e.g., on retirement), however, the network ceases to recognize them as individuals. Therefore a community intranet has to enable people to use such services even if they do not belong to any organization.

Third, such a network has to allow people to use it to communicate in a variety of ways, depending on what they are using it for. People living in towns and cities do not necessarily communicate with each other actively, even if they live nearby. The absence of suitable means of communication has meant that local communities have not been able to perform all of their functions. A community network has to have the capabilities needed to solve this problem.

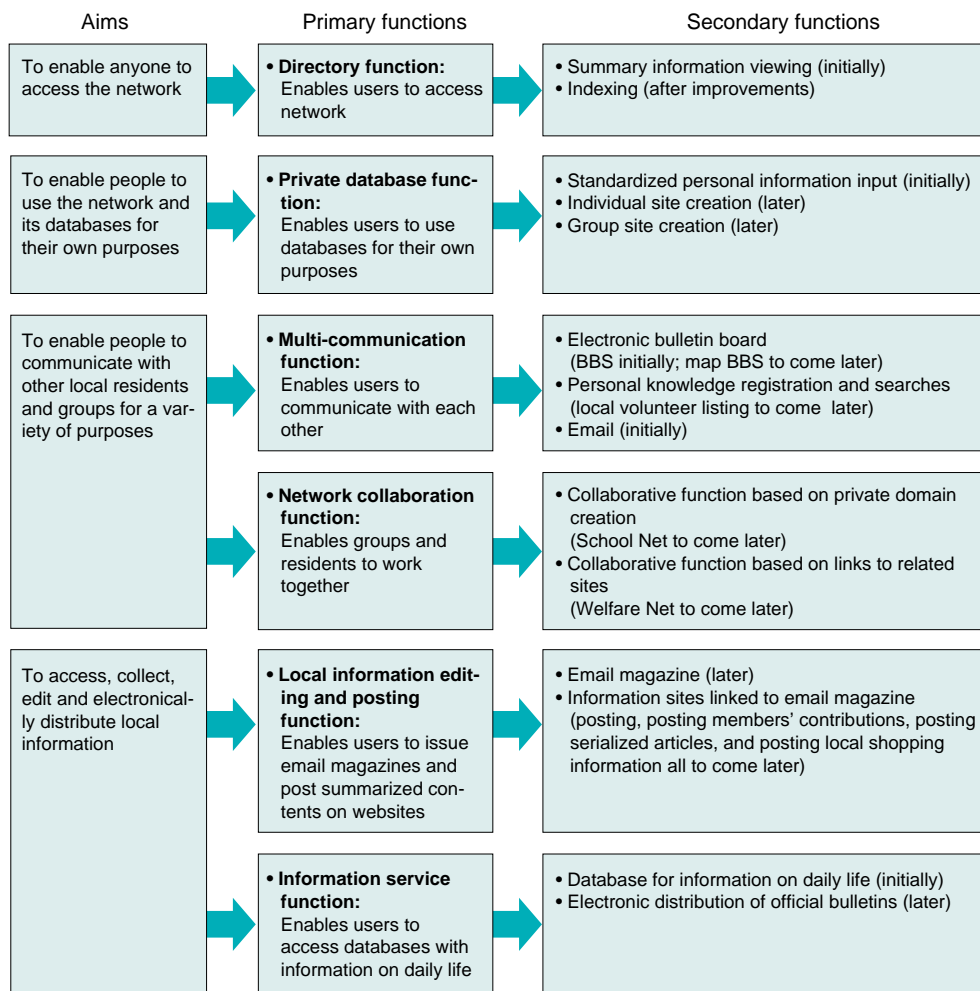
To make the top page of the Ryokuen Net as user-friendly as possible, we placed icons (linked to different communication capabilities and representing different parts of the community) at different locations on the page. For example, we put the "Anything You Like" notice board, which connects users to the electronic bulletin board system (BBS), in one location. This is where resi-

Figure 2. Configuration of Community Intranet



Note: INS64 (64Kbps ISDN line).

Figure 3. Capabilities of Community Intranet



Note: BBS (bulletin board system).

dents can contact each other. Similarly, we set up links to the neighborhood association office, the local schools and the welfare facilities, all of which could be accessed via the Office Zone icon.

Fourth, a community intranet needs to assemble, select and electronically distribute local information. This means, for example, that it has to be capable of assembling

as much information as possible (e.g., about local shops) that is likely to be needed by and of common interest to the local community. Nowadays, the Internet is an unlimited source of information, but this has made it all the more difficult for individual users to find the information they need. This is where a Website that assembles only essential information about the local com-

munity can be a valuable aid to people in their daily lives.

IV The Network as a Stimulus to Community Involvement

How, then, does such a community network lead to members of the community working together to revitalize the community? The answer essentially is that it stimulates involvement. The Ryokuen Toshi experiment enabled us to draw two conclusions about this.

The first conclusion was that combining both real and virtual aspects was an important stimulus to involvement. The fact that people were encouraged to take part in real community activities was both vital and effective. When the experiment started, we were actually working on the exceedingly optimistic assumption that networks encourage communication—in other words, that people would first communicate on the network and then meet face to face. In fact, however, it worked the other way round: they would first meet face to face and then use the network as a means of becoming better acquainted.

One example of this is what happened when we set up three computers in the neighborhood association office and then ran courses on how to use them. Once they had actually met, people started to communicate actively with one another over the network. Another example was some of the events we organized—whether a panel discussion for local residents in the gymnasium of one of the local schools or a demonstration where local residents had an opportunity to try out some computers themselves. These events had the effect of encouraging more people to use the network, thereby boosting access.

The second conclusion we drew about stimulating involvement was the importance of making full use of the entertainment aspect of webs or networks. There is no

such thing as a community free of disputes. However, the entertainment aspect of networks is an effective way of encouraging large numbers of local people to be involved in spite of that. It is therefore important to organize events where people can enjoy themselves and experience things—as well as to provide attractions and virtual events on the network itself.

In addition to such real events, we found in the experiment that creating opportunities for people to enjoy themselves and experience things on a daily basis (e.g., by organizing monthly study sessions and setting up terminals that anyone could use in the local schools and post office) was an effective way of stimulating involvement in the local network.

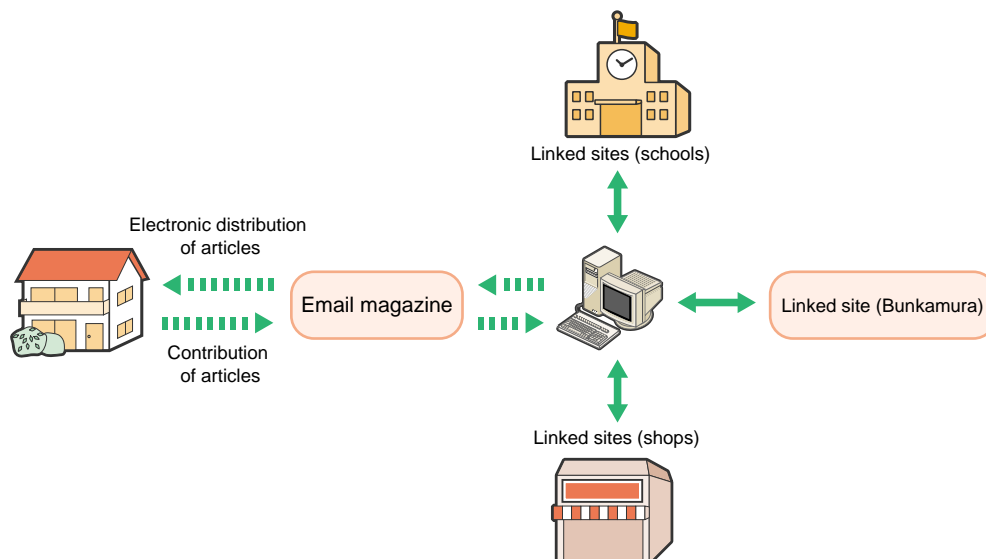
V Impact on the Local Community

However, the question remains whether the network we built had enough of an impact to actually change the life of the community. The experiment indicated (1) that using a network and servers as part of people's lives can help to develop a new community lifestyle and (2) that sharing local information can help a community to solve local problems.

1 Examples of How the Network and the Servers Were Used

One of the most successful uses of the network by the local community was to produce a weekly email magazine which they distributed over the network to all the members and which they edited from material they collected themselves. (See Figure 4.) While we had expected that distributing new information to members would encourage them to use the network more, in actuality members began to use the network in unexpected ways.

Figure 4. Email Magazine and Linked Sites



For example, some members created a new site on which every week they posted contributions that were sent in via the weekly email magazine. This site could be accessed via the “Bunkamura”(Culture Village) icon in Figure 4 and proved very popular. This is an example of how editing and collating contributions from individual network users can help a community to share information.

Another example of how individual users can use a network is to produce their own album, which other users can then view. Similarly, there were cases where creating a Website like this enabled individual residents to initiate activity at a community level.

Many of these sites were quite sophisticated in terms of both design and capabilities. Some of these could have been described as community magazines. For example, one site created by a housewife contained a gallery of pictures painted by primary school children at the local children’s club and also a collection of photographs of nightscapes and interesting local objects that would normally have gone unnoticed.

2 A Means of Linking Distant Neighbors

Networks and servers are also an effective means of communication among local residents and groups. People often do not know other people who live in the same area. Similarly, many people are unaware of the various groups active in the local community. This was particularly true of male office workers, who were generally absent from neighborhood and community groups.

Setting up a Website, however, can make even such people more aware of their neighbors. This is extremely important, as it can be a first step towards reinvigorating all the activities that go on in a community.

(1) Getting to know your neighbor on the net

The commonest means of communication was the BBS. The system was designed so that all those posting to it had to use their real names. In other words, everyone who wanted to express an opinion had to reveal their identity. Although this requirement deterred some users, we believe that it was more important for the local community that everyone knew who they were communicating with on the network.

We took this one step further in a special page where residents could introduce themselves by giving personal information such as their name, address, date of birth, blood group, hobbies and any particular talents they felt they had as well as being free to add any self-promotion. There was also a space for a photograph. Although only the 900 users with IDs could access the page, the fact that it contained this amount of personal information meant that it could also be used for one-to-one marketing—a subject that has attracted considerable attention recently. Moreover, the way in which those users who opted to introduce themselves by disclosing personal in-

formation offered an extremely important perspective as they themselves decided just how much information should be revealed.

These users were also able to contact each other. A group of residents who organized a drawing competition on the Ryokuen Net site were able to search this special page for residents who indicated that they could draw illustrations, pictures or cartoons. If they found anyone, they would send them an e-mail asking them to take part. This, in fact, is a kind of “opt-in email”—an example of the kind of communication that can take place when users of a network allow other users to access their personal information.

Opt-in email works on the principle that those who access an e-commerce Website and indicate the kind of information they would like to receive by email is giving permission to be sent relevant—and only relevant—information. Far from considering such emails a nuisance, they generally welcome them.

(2) Using the network to promote group activities

In the course of the experiment, residents formed a number of groups and circles based on the network. As one of features of the system was that it should basically be run by the residents, the residents themselves formed a number of groups to deal with content and some operating issues.

One of these was the Ryokuen Net Circle—a group of volunteers who set up a help desk to support other users. The group created their own site with lists of FAQs, some suggestions about “netiquette”(i.e., how to behave on the network), and some recommended software (see Figure 5). As some users were unable to access such sites, we visited them at home and made the connection for them.

Similarly, we tried to encourage existing local groups (e.g., neighborhood and tenant associations) to use the network. For example, we created sites that only the members of a neighborhood association or the tenants of a particular apartment building could access to enable them to exchange the kind of detailed information they needed for their community activities.

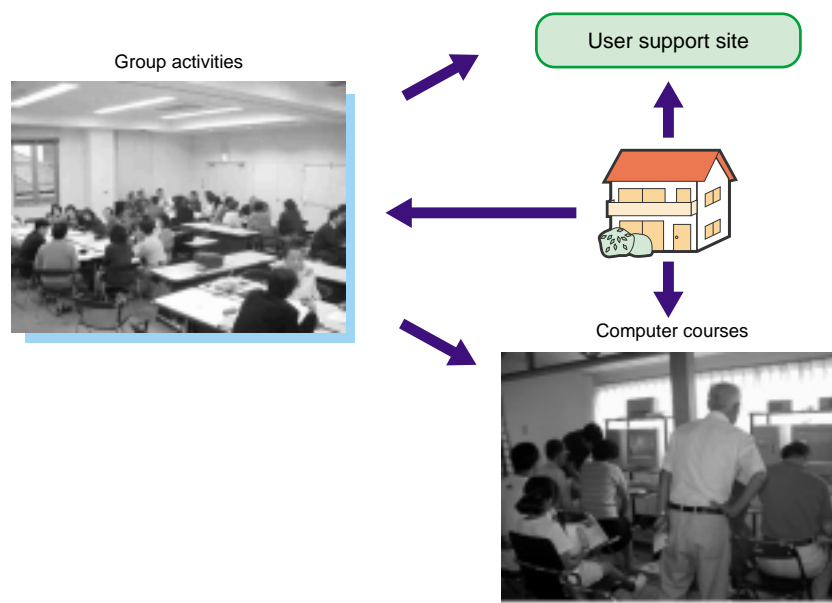
VI Helping to Solve Local Problems

1 Three Experiments

In order to see whether these efforts actually helped the community to solve some of its problems, we carried out three sub-experiments.

The first of these was to use the network as a means of trying to encourage local institutions (e.g., schools) and those involved with local issues (e.g., local residents) to work together. Here it was important not only to use the sites of local groups to raise their profile in

Figure 5. Self-Help Among Residents



the community, but also to use the network to impose a certain degree of order on communication among users. This depended on being able to identify individual users.

Local schoolchildren and local residents were able to communicate on the network, but this was only on condition that individuals were identified. This was achieved by having the education committee issue the schoolchildren with IDs and passwords, while the project secretariat was responsible for issuing them to local residents. This enabled a line to be drawn between the schools and the community, and encouraged a strong sense of identification on either side of this boundary.

The second sub-experiment was to encourage the development of a local e-commerce zone based on the kind of consumer communication that is only possible between local residents and local shops. Given the normal implications of e-commerce, it was clearly not going to be easy to limit such a market to the neighborhood. Nevertheless, the emergence of business models combining local shops (e.g., convenience stores) and e-commerce has shown just how important local consumer communication is.

The third sub-experiment was to try to link local government and local residents using the network as a new means of distributing information on local government electronically. There have recently been moves towards electronic government, and this was intended as a first step in that direction. A further aim was to improve communication between the local authorities and the local community. By creating a database in the form of a public relations bulletin that users could view at any time, we tried to make it easier for local residents and the local authorities to share information. These three sub-experiments are explained in more detail in the following.

2 Interaction Between Local Schools and the Local Community

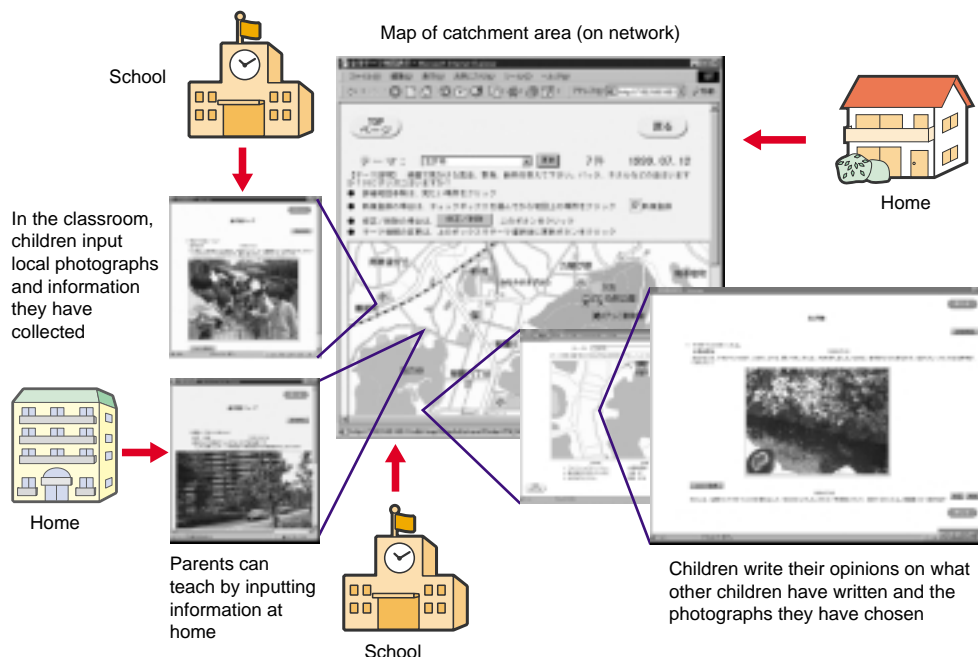
Without the community intranet it would not have been possible for the local schools and community to interact. The following is a description of how this worked.

Although the Ryokuen Net was a community intranet that used a dedicated server, this server had two domains—one for the local community, and one for the local schools. The network that used this domain for communications both within and between schools was called the School Interaction Net. By having two separate domains and linking them by a bridge, we were able to construct a community and a school network.

Each domain had its own user administration system. The project secretariat was responsible for issuing IDs and passwords to local residents, and the education committee was responsible for issuing similar credentials to pupils and teachers. In other words, there were two authentication systems linked by a bridge.

One of the applications used for this interaction was the local BBS. (See Figure 6.) This was a kind of notice board with coordinates attached. The location of any contributions would be marked on the map with a specific cord. The BBS could be used to create a map based on a particular topic (e.g., community facilities, local history, trees and plants, routes to school and places to play), and users could input information from both local schools and local homes.

For those topics that could not appear on such a map we devised a system whereby residents could register any particular skills, knowledge or interests they had and have an opportunity to discuss them with the children. For example, some residents suggested topics such as com-

Figure 6. Interaction Between Schools and Community via BBS with Local Map

puters or helping with holiday homework while others registered as being willing to help with a particular skill or with any subject.

In one case where a group of primary school children were reading about war in their Japanese-language class, their homework was to ask anyone in their family who was old enough to remember the Second World War to talk about it. As it happened, a local resident had registered that he was willing to talk about his experiences during the war, and the children were apparently able to put questions to him via the network and to hear what he had to say.

As with the self-introduction page mentioned above, anyone registering to communicate with the local schools had to provide personal information (e.g., what they could do as volunteers and when they could visit the school). However, as the information required was quite detailed and registering involved disclosing more personal information than on the self-introduction page, the number of users that actually registered was only a quarter as many (i.e., about 50). Nevertheless, we feel that the community educational resources database we created was a valuable source of information.

3 E-Commerce in the Local Community

Our second sub-experiment was to assess the potential of services such as community commerce (i.e., the kind of e-commerce that is only possible in a local community, where residents and shopkeepers know each other by sight). Here a network should be able to facilitate a rather special kind of e-commerce.

One example is the communication of product knowledge or consumer expertise. In this project we constructed a site where the owner of a local electrical goods shop

could offer some of his product knowledge in the form of practical advice for local residents. Another example was the use of email to enable a more direct and personal kind of communication between shopkeepers and customers.

One important aspect of e-commerce is being able to assess customer satisfaction or, as the case may be, dissatisfaction. However, customers living locally are likely to have qualms about voicing complaints. Our solution was to ask customers to send any complaints to the email magazine's editors, who would then forward them in their name to the shopkeeper concerned. Our aim in using an intermediary was to make it easier to express customer dissatisfaction. Hopefully, this method of assessing customer satisfaction can serve as a model.

4 Bringing Local Government and Local Communities Closer Together

Our third sub-experiment was to use the network to link the local authorities and the local community.

First, we posted some information from the ward office (e.g., a leaflet with trash collection guidelines) on the network's site. While all households receive such information in the form of periodic circulars, most people cannot be bothered to file them away so that they can retrieve the information if they ever need it. However, if the information is posted on the network's site, users can retrieve it at any time and use it as a kind of database.

Similarly, we posted an official description of the work of the ward office together with a list of contact addresses and telephone numbers, and arranged for the email address of the community intranet to be given to some of the ward office departments. In other words, all members of the local community and local govern-

ment staff needed to do to contact each other was simply to click on an address on their list. In fact, however, we were unable to publish the email addresses of the ward office because their systems were still being upgraded.

We also posted the local ward edition of the official bulletin that Yokohama publishes every month. This was sent to us as a PDF file, which we could store on the network server, and local residents could download any back numbers they wanted to refer to. As a form of electronic distribution the network therefore enabled one out of every 10 households in the area to be reached.

VII Working Together to Achieve Community Solutions

As it involves the local community, we have given the name community solutions to this approach of linking such things as schools, markets and local authorities by means of a network so that they can work together to solve problems. However, simply having a network is not enough. Even more important is how the network is used by those involved. Let us therefore take another look at the Ryokuen Toshi project—this time focusing on how the local authorities, local residents and local companies worked together in the local community.

1 The Role of the Neighborhood Association

As was mentioned above, the experiment was conducted by the CCCI—non-profit organization. However, local residents had no way of knowing anything about the organization's activities. That they were nevertheless prepared to cooperate came about through the support of the neighborhood association—a group that they already officially recognized.

It was the local authorities (i.e., the Yokohama City Council) that provided the introduction. They were only willing to do this because the experiment accorded with the council's policy of promoting the use of information technology at the local level. Moreover, the fact that the CCCI was a non-profit organization was also important in gaining the trust of residents.

Without this combination of factors (i.e., the support of the local authorities, the support of the neighborhood association and the fact that the CCCI was a non-profit organization) the project would not have been able to go ahead.

2 Management of Personal Data

Recently there has been renewed interest in how securely personal data is managed. This was a concern shared by all of those who took part in the various local community activities connected with the experiment.

To address this concern and to allay any fears that might inhibit people from working together, the CCCI drew up a set of basic rules on how personal data should be managed and obtained the agreement of those taking part. For example, one of the conditions for issuing an ID and password was that the person concerned should live in the Ryokuen Toshi district. This enabled us to restrict access to the network to approved users only.

Also, by making it a rule that users entrust the CCCI with personal data such as IDs and passwords, we were able to obtain their agreement that they would only use their real names when accessing the network's electronic conference room. By observing this rule, users were able to contact each other easily, thus enabling a broad range of communication such as between local schoolchildren and local residents.

Other rules included a requirement that all the experiment's activities had to be neutral and non-profit-making, and a rule that the CCCI could not assume liability in the event of any problems. When the experiment started, our main concern was that disputes might arise over the use of the network, so we were very aware of the need to manage it carefully. These three principles (restricting access to the network, ensuring that the experiment was neutral and non-profit-making, and not assuming any liability for possible problems) were also a vital aspect of the experiment's risk management protocols.

3 Involving Local Residents in the Management of the Network

Another thing we tried to do was devise a system for involving local residents in the management of the network. Every month we organized study groups in which local residents would produce content. The group leaders were then invited to represent residents on a Managerial Committee that was set up to liaise with the project secretariat on a range of issues concerning how the network was managed and to act as a link with the CCCI.

Involvement of this kind by local residents formed the basis of the Ryokuen Toshi Community Association—the local group selected to manage the network infrastructure when the experiment was concluded—and enabled the handover to take place sooner than would otherwise have been possible.

VIII Devising a Community Solutions Model

The above was a description of the capabilities that the community intranet gave local residents and of how they used them to revitalize their community. The channels of communication which we tried to establish with the local residents and the system for enabling the local com-

munity to work together to solve its problems can be seen as forming a community solutions model.

1 A Virtual Forum for Realizing Individual Potential

If social and economic problems are to be solved, ultimately it is up to individuals to make the most of their abilities and to work at creating solutions by undertaking all sorts of experiments. This paper has described various aspects of this experiment. However, the most important elements are the individual residents themselves and the process of creating a forum in which they can realize their potential. In other words, by becoming aware of and communicating with each other, neighbors can create a forum in which individuals can form a community. The central aim of community solutions is to establish just such a venue where individuals can realize their potential to the full.

Communication networks have the ability to create such forums. One reason for this is their ability to overcome a reluctance to open channels of communication. This, of course, is what they are intended to do. But by offering both a virtual aspect and an entertainment element, they are able to achieve this even when confronted with deep social conflict and serious communication difficulties.

Another reason is their ability to forge links between individuals. A good example is mailing lists. This is because they help to delineate more clearly the boundaries of groups and organizations consisting of individuals. In a society that is becoming ever more diverse—thus making communication increasingly difficult—this ability of communication networks to delineate the edges of society more clearly deserves greater note.

2 Community Intranets as a Means of Solving Community Problems

Because they clearly define their members and their rules of membership, and take pains not to favor particular groups, intranets are an effective means of exploiting this ability. As in the case of the Ryokuen Net project, however, this can only be done if the virtual aspect of communication networks can be applied in a real-life situation.

While new Websites seem to make headlines almost every day, most of them disappear just as quickly. This suggests that virtual forums divorced from reality lack continuity. Without a real location and real events, virtual forums will not spring to life. The hyperlinks that are a feature of the Web are used to link one virtual space to another, but there is also a need for links to real spaces.

Given the synergies that can be achieved by linking the real and the virtual, establishing networks in com-

munities—where people, spaces, and facilities are linked organically—surely has the potential to solve problems in a way that has not been realized until now.

For example, people often talk about making better use of local educational resources. The kind of community intranet that was set up in Ryokuen Toshi served as a forum where local families, the local community and local schools could pool their resources in order to achieve that very end. Although we did not encounter any of the more serious types of behavior problems (such as bullying and the breakdown of classroom discipline) that are reported in schools nowadays, the ability of community networks to pool community resources in this way surely has the potential to provide solutions even for such problems.

Although initial preparations for electronic government are now under way, with the exception of counter services (such as registrations and applications) almost nothing has been done to link the providers of administrative services to the recipients—the general public. For example, how many people are even aware of the fact that individuals appointed by local government are playing an important role in liaising between their local communities and administrative services in more than 10 different fields (e.g., road safety, fire and crime prevention, welfare for the young and elderly, and elections)?

Relations between communities and authorities have reached the state they are in now because of the burden placed on those whose job it is to try to bridge this gap—especially the communication gap. Following the changes that have occurred in people's lifestyles, however, this system has ceased to work properly. So far, little has been written about the gaps that are appearing in important areas of our administrative services.

The electronic distribution of official bulletins by local authorities and the creation of a site for the neighborhood association on the Ryokuen Net project were only trials. Nevertheless, they showed the potential of community intranets for enabling local government and communities to work together in a way that is appropriate to modern lifestyles and for improving communication between the two.

The above is just an indication of how community intranets can be used to deal with the whole range of problems faced by local communities. Hopefully, this use will be extended on a much broader front.

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