

**From Timber to Technology:  
A Community's Efforts to Bridge the Digital  
Divide**

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# **SECTION 1**

## **Introduction and Project Overview**

## Chapter 1 Introduction

In 1995, the U.S. government issued the first of four reports, under the title *Falling Through the Net*, documenting the existence of a “digital divide” – that certain segments of the American population have access to ICT (information and communication technologies) while other segments do not<sup>1</sup>. Findings from the 1995 report showed that households in rural areas had among the lowest access to computers and modems. In 1998, the second report of the series documented how Americans in rural areas continued to lag behind in Internet access and that the urban poor were more than twice as likely to have Internet access than those earning the same in rural areas.

By 2002, after nearly a decade of growing disparity between rural and urban access to telecommunications, the latest *Falling Through the Net* report shows that rural usage of the Internet is closely approaching the national average. These findings are important because rural communities, already lagging behind urban areas in economic growth, educational opportunities, and other social issues, are anxious to avoid falling further behind in accessing the opportunities promised by the new technologies.

While this latest report is encouraging, rural usage at the household and individual level is not necessarily equated with economic and social development at the community level. The assumption that that merely getting connected to the information superhighway will inevitably lead to increased economic and social opportunities at the community level is misguided and technologically deterministic. Rather, if rural communities are to

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<sup>1</sup> Information and communication technologies and its acronym “ICT” refer to the transmission, emission, and reception of voice, data, and video. This includes products such as computers, the Internet, satellites, and videoconferencing equipment. This term also refers to the physical infrastructure including fiber optics, the wires, the cables, and electromagnetic systems that make voice, data, and video communication possible.

realize the potential offered by the information superhighway, they must actively work to ensure that the different dimensions of the digital divide that exist within their own community get addressed.

This report examines three primary dimensions of the digital divide on a community level. Unless these three facets of the digital divide are addressed, the opportunities promised by being connected to the information superhighway are severely limited.

- The first dimension is a community's broadband access to the information superhighway. Obtaining the necessary physical infrastructure, whether it is cable, fiber-optic, or wireless, often presents a serious challenge to many rural communities. Once obtained, the infrastructure must be maintained and upgraded.
- The second dimension addresses the issue of broadband access on a more micro level. Once a rural community has broadband access, it is critical local businesses, educational institutions, and households have access to computers with a broadband Internet connection and other ICT devices.
- The third dimension involves computer literacy. Although a rural community has access to ICT and its hardware, a digital divide can still exist in terms of computer literacy. For example, local residents may have the knowledge to send emails and engage in other recreational activities, but they may lack knowledge in how to use the technology for a variety of more practical endeavors such as access to education, employment opportunities, and realizing entrepreneurial aspirations.

This report examines one rural community's efforts – Forks, Washington – to overcome these three dimensions of digital divide as it works to increase its economic and social viability. The impetus behind Forks' efforts – the struggle to survive and be relevant in today's global information age – is shared by numerous rural communities. Rural communities, particularly those traditionally dependent upon natural resources, continue to have the highest rates of poverty in the United States. Forks provides a useful model for these communities because it is actively working to overcome these disadvantages. This report was therefore designed to be a field guide for other rural communities seeking to utilize ICT to improve their communities both economically and socially. By presenting a framework that identifies the most effective strategies to bridge the digital divide, it is hoped that other rural communities will find Forks' experience informative.

### **Purpose of Project**

This report was designed in response to understand how one rural community is actively working to bridge the digital divide in order to realize the opportunities offered by today's global information age. This study documents how community members within Forks are working to implement ICT through a variety of activities ranging from economic development to education to historical preservation. Three principle products result from documenting these various activities.

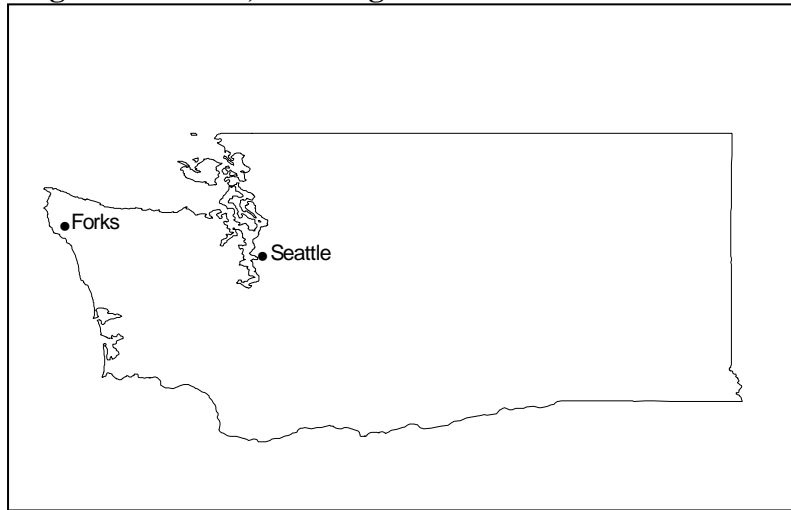
- First is the documentation of the various activities using ICT within the community. The key characteristics of each program are described as well as important lessons learned.

- Second is the identification of essential ingredients to the development strategy used by Forks. This development strategy, as conceptualized in this study, utilizes local and extralocal social networks.
- Third is a “to-do” list of technological needs that community members in Forks hope to address over the next several years.

Data for this report was collected through participation observation techniques and 31 interviews that occurred over a two-year period, from 2002 to 2004. The focus of this study is on the activities initiated by members of the community group promoting the use of ICT. This group is known as the ICN Committee. Many of the activities documented here have been running for several years, some are just being implemented, and some have yet to show any substantial outcomes. Documenting these activities serves as a reminder that that community development efforts typically involve a lot of planning and process before outcomes are readily experienced. As a field guide, this report is not meant to be an exhaustive review of the academic literature. Rather, this research is based upon the practical experience of one community and is intended to assist potential practitioners in other communities.

## Forks, Washington

**Figure 1.1 Forks, Washington**



Located on the western edge of the Olympic Peninsula approximately a 4 ½ hour drive west from Seattle lays the small town of Forks. With a population of approximately 3,120<sup>2</sup> persons it is the largest town along a 233 mile stretch of U.S. Highway 101 between Grays Harbor and Port Angeles. For decades its economy has been reliant upon logging and producing finished boards in local mills. By the mid-1990's, however, Forks' economy suffered a tremendous blow as timber jobs were drastically reduced due to a restructuring of the timber industry and the designation of millions of acres of old-growth forest as protected areas under the endangered species act to protect the Northwest Spotted Owl.

A decade later, Forks continues to struggle to regain its economic footing. In an effort to diversify the local economy from its historical economic dependence upon timber, many local citizens are focused upon harnessing the potential of the Information Age by becoming a high-tech community in the global village.

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<sup>2</sup> According to U.S. Census 2000

*People in Forks know how to pull themselves up by their bootstraps. They are not afraid to change. They see [telecommunications] as not being a tremendous change, but merely along the direction the community must go as it removes itself from reliance upon timber.*

While the economic potential of ICT is of paramount concern ensuring Forks' survival, proponents of the technology are also acutely aware of the other social benefits it can potentially bring to the community. With a growing Hispanic population (6.9% in 1990 and 15.5% in 2000)<sup>3</sup>, and a substantial Native American population (6.5% in 2000)<sup>4</sup> the community is seeking ways to involve these populations. In addition, the community continues to seek ways to provide a world-class education to its students and to provide first-rate healthcare rivaling that found in more prosperous and urban areas.

Rather than viewing ICT as inevitably providing economic and social relief to the community's needs, the ICN Committee recognizes it is a tool which must be actively integrated into the community:

*Technology is just a tool. Tell me what the issue is, and we'll see if technology can help solve that issue.*

Efforts to bring ICT into the community began in the 1990's with the local hospital, the local school district, and the City of Forks separately pursuing a variety of efforts to integrate it within the community. By 1999 these efforts coalesced around a common theme of integrating technology and community. The City of Forks was working with the local telecommunications provider, CenturyTel, to acquire CenturyTel's former building in Forks and use the building to benefit the community in some manner. The school district was leading the creation of the Washington Virtual Classroom Consortium and working on an "smart community" proposal based upon San

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<sup>3</sup> According to 2000 U.S. Census data

<sup>4</sup> According to 2000 U.S. Census data

Diego's model in which cities, schools and health care providers exploit ICT to benefit citizens, students, and patients. The hospital was examining ways to use ICT to facilitate linkages between various government entities. And, the corporate office of CenturyTel was exploring the idea of using the NorTel ICN process (a program promoting community-based use of telecommunications similar to the "smart community" process) in four communities in its 22 state coverage area.

A chance meeting of school district personnel and city staff members prior to meetings with congressional leaders to seek support for the individual projects resulted in the realization that the various community entities needed to work together. This new collaborative approach gained the attention of CenturyTel and resulted in the designation of Forks as the first community to undertake an ICN approach (Integrated Community Network) with CenturyTel's assistance. This collaborative approach is an economic development strategy centered upon a shared-use telecommunications infrastructure which both makes more technological resources available to more institutions, and also allows telecommunications users to share costs by linking businesses and community institutions into one network.

In 1999 CenturyTel selected the town for the ICN pilot project. On a Saturday in April of 2000, the City of Forks held a community visioning workshop with the objective of identifying the community's technological needs and defining goals associated with ICT. Approximately 130 community members participated in this event. The top five community issues identified at this meeting were as follows:

- 1) Business enhancement and recruitment;
- 2) Increased educational opportunities for all citizens from K-99;

- 3) Educate the community on the uses and benefits of ICT;
- 4) Increase opportunities to do business with the government; and
- 5) Convince the community and the world that rural healthcare is world class healthcare.

A group of community members was formed from this event and have met regularly to realize the community's goals as articulated in the April 2000 meeting. This group, called the "ICN Committee," continues to drive the process of using ICT as a development tool. Participation in the ICN Committee is a fluid, open process open to any community member. Participants includes representatives from the City of Forks, the local school district, the hospital, business, the local community college, and community members with no affiliation with any entity.

Soon after the ICN Committee began working to address the community's technological issues NorTel's support for the ICN process faded as a result of business decisions. Despite this loss of formal guidance, the ICN Committee continued to develop specific projects and applications that best suited the goals and needs of Forks rather than following the strict guidelines of any given process. One member of the ICN Committee articulates the community's strategy:

*For us, it's that adaptability. If we hear a better idea that's less costly and less time consuming, you can bet your bottom dollar I'm going to drop what I'm doing, grab that and move.*

For its mission statement the ICN Committee borrowed a saying from the Kenai Peninsula School District in Alaska: that one's educational opportunities should not be limited by one's zip code. This saying was modified to encapsulate the goal of the ICN Committee: community residents will not have their zip code limit their educational

opportunities, their medical treatment, and their recreational opportunities, and their business endeavors.

Nearly five years later the ICN Committee persists and continues to pursue activities utilizing ICT to address a variety of community needs. The activities profiled in this report offer constructive lessons for bridging the various facets of the digital divide in order to acquire the diverse benefits offered by connecting onto the information superhighway.

### **Organization of the Report**

This report is structured so that the reader can focus upon the topic most relevant to his or her interest. The three facets of the digital divide are used to organize the various activities profiled in this report. In turn, each of these activities is used to inform the conclusion of this report that identifies and discusses the key points resulting in Forks' success in implementing ICT. The conclusion of this report also identifies issues that community members hope the ICN Committee will address in the next several years. The report is organized as follows:

- ***Section One: Introduction and Project Overview.*** This section contains the first two chapters. In these chapters this project is defined and various concepts related to economic and community development are discussed.
- ***Section Two: Bridging the Digital Divide.*** This section, composed of chapters 3, 4, 5, and 6 documents the various activities occurring within Forks that use ICT. Chapter 3 focuses upon obtaining the physical infrastructure of broadband technologies. Chapter 4 examines how the ICN Committee is working to provide access to community households and business. Chapter 5 describes programs

seeking to build computer literacy for both school children and for community members. Chapter 6 discusses Forks' efforts to use ICT as an economic development tool. While economic development is not properly a component of the digital divide, it is an underlying cause of concern directly related to the digital divide.

- ***Section Three: Conclusion.*** This section contains chapter 7 in which the keys to success, as experienced by Forks, are identified and discussed. In addition, technological needs community members believe the ICN Committee should address in the next several years is presented.

## **Conclusion**

Connection to the information superhighway does not automatically lead to increased social and economic well-being of a rural community. Rather, the digital divide has three primary dimensions which must be addressed if the potential of ICT is to be realized. Obtaining the advanced telecommunications infrastructure is but one hurdle confronting rural communities. Once obtained, communities must work to ensure that community members and local businesses have access to the computers with a high-speed Internet connection and other telecommunication devices. In addition, local residents and businesses must be technologically literate so they can utilize ICT to advance their various endeavors. This study examines how one rural community is working to address these different dimensions of the digital divide.

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([www.ntia.doc.gov/ntiahome/digitaldivide](http://www.ntia.doc.gov/ntiahome/digitaldivide))

## **Chapter 2**

### **Project Overview and Theoretical Conceptualization**

The assumption under which rural communities and others involved in bridging the digital divide often operate is that access to ICT will provide new social and economic opportunities to individuals and communities. However, understanding the potential of ICT as a mechanism for community development requires an examination of the different definitions of development and the attendant strategies.

There are two broad types of community development: *development of community*, which emphasizes improving the social well-being of community members and *development in community*, which focuses upon improving the economic well-being of the community and its members. For the purposes of this project, development of community, which emphasizes social well-being, will be referred to as *community development* while development in community will be referred to as *economic development*. Figure 1 displays the key attributes and provides examples of each of these types of development.

**Figure 2.1 Types of Development Strategies**

	Community Development	Economic Development
Key characteristic:	Improves social well-being of community members	Improves economic well-being of community.
Examples:	<ul style="list-style-type: none"><li>• Involve diverse local social groups in various community activities</li><li>• Promote democratic participation in community matters</li><li>• Improve educational opportunities</li><li>• Improve local healthcare</li><li>• Distribute socioeconomic benefits and resources more equitably</li></ul>	<ul style="list-style-type: none"><li>• Improve community's ability to capture dollars</li><li>• Attract outside employers into the community</li><li>• Improve efficiency of local business</li><li>• Encourage local entrepreneurial activities</li></ul>

### **Community Development**

This development strategy defines community as social relationships. This strategy seeks to improve the social well-being of a community by opening and maintaining channels of communication and cooperation among different groups within the community. Development efforts that include different social groups and members within the community will be more effective at achieving goals that benefit the collective for numerous reasons: it creates a social structure that more effectively identifies and solves problems that affect all social groups within the community; fosters an appreciation for alternative solutions; builds trust among community members; resolves conflict; and creates greater access to both local and extralocal resources.

Efforts that emphasize community development focus upon collaborative behavior and processes that build social networks inside the community. These local social networks are, in turn, critical in pursuing goals that benefit the collective. Goals of

community development include fostering attitudes of collective responsibility, improving democratic citizen participation, increasing community cohesion among the diverse groups living within the community, and distributing socioeconomic benefits and resources more equitably.

### **Economic Development**

This development strategy defines community as a territorial setting in which economic activities occur. Economic development strategies seek to bring economic growth, jobs and raise the incomes of local residents. Economic development strategies include efforts to 1) improve the efficiency of existing firms within the community; 2) improve the community's ability to capture dollars, such as through generating more purchases by nonlocal people and by engaging in a variety of activities to encourage local industry, government, and residents to buy locally; 3) attract new employers into the community; and 4) encourage local entrepreneurial activities.

Economic development is the dominant development strategy among rural communities. However, research indicates that rural areas continue to lack the capacity to undertake economic development and as a result, are slipping further behind more prosperous and urban areas both in terms of quantity and quality of economic development strategies. This is due to several factors. Many rural communities have insufficient personnel, have inadequate administrative capacity, and are staffed by part time or volunteer leaders with little professional training. Yet if local economic development efforts are to be successful professional staff is critical, particularly grant writers and economic development specialists. Rural areas, traditionally destinations for low wage jobs, now compete globally for these jobs as seen by global economic

restructuring and trends in outsourcing jobs to foreign countries. The innovations in ICT exacerbate this problem by enabling businesses to become more mobile.

### **Social Capital and Development**

Communities typically emphasize economic development over community development. Given the difficulties rural communities continue to face in pursuing economic development, this is an important oversight. By crafting development strategies that incorporate both economic development and community development, a rural locale may be more successful at improving both its economy and the social well-being of residents. This is because the social networks and collaborative approaches promoted in community development can be leveraged to pursue the resources necessary for successful economic development.

The concept of “social capital” enables a greater understanding of the mechanisms facilitating such holistic development strategies. Social capital can be broadly defined as social relationships and networks that facilitate working together for common purposes. Two critical components of social capital are local integration, which focuses upon inclusive community social ties; and extralocal linkage, which emphasizes the role of extralocal social ties. Figure 1 displays the key characteristics of development strategies associated with both local integration and extralocal linkage.

**Figure 2.1 The role of local integration and linkage in developmental outcomes**

	Local Integration	Extralocal Linkage
Key characteristics:	<ul style="list-style-type: none"> <li>• Involves and links diverse groups inside the community.</li> <li>• Focus of community development</li> </ul>	<ul style="list-style-type: none"> <li>• Links community to diverse groups outside community.</li> <li>• Critical to successful rural economic development</li> </ul>
Outcome:	<ul style="list-style-type: none"> <li>• Raises problem awareness; local needs are conceived, defined, and communicated</li> <li>• Creates a group or utilizes an existing group to address identified problem</li> <li>• Formulates goals that benefit public interest rather than private interest</li> <li>• Accesses local and extralocal resources</li> <li>• Provides alternative solutions</li> <li>• Builds trust between diverse community groups</li> </ul>	<ul style="list-style-type: none"> <li>• Access resources not available at local level</li> <li>• Promotes inter-city and inter-county coordination and cooperation</li> <li>• Connections with political leaders and leaders of industry</li> <li>• Community becomes part of a larger base of issues</li> <li>• Community becomes part of larger structures of power</li> </ul>

**Local Integration.** A community effort fosters local integration by involving different local social groups and linking diverse sectors of the community. This is a central focus of community development strategies. Principal actors are local residents and groups. Goals or interests of the development effort are clearly identified based upon the community's needs. These goals tend to serve public rather than private interest. Development efforts stressing local integration are more successful because they create a social structure that facilitates more effective resource mobilization, community awareness, and identifying and solving problems that affect all social groups within the locale. In addition, an inclusive social structure is more successful at collective efforts

because it incorporates different epistemologies which fosters an appreciation for alternative solutions, builds trust between community groups, and creates greater access to local and extralocal resources.

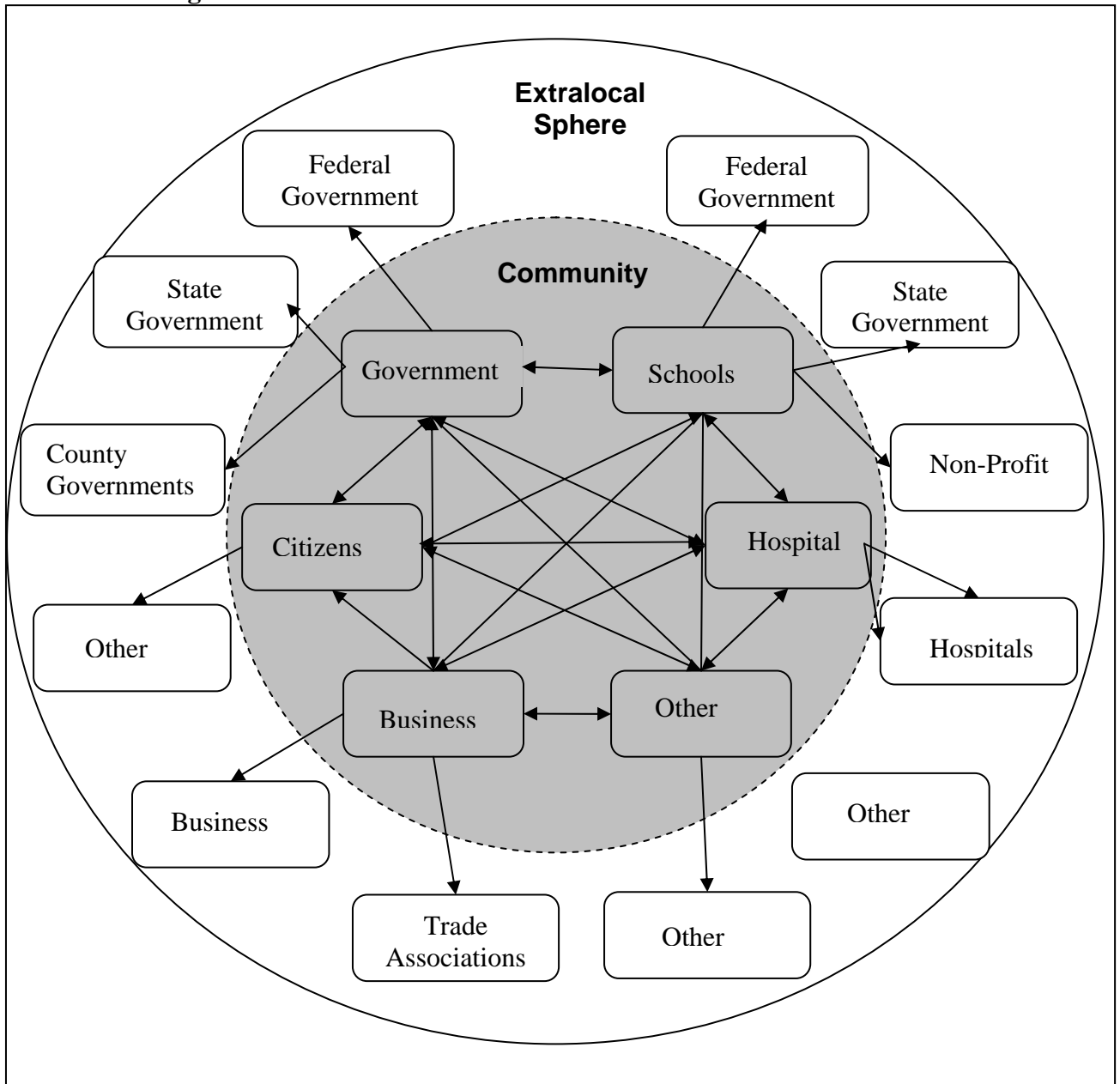
Research indicates task accomplishment in a community development effort consists of five phases, each addressing a specific problem. *Initiation and spread of interest* addresses the problem of awareness. In this phase activities addressing local needs are conceived, defined, and communicated. *Organization sponsorship* addresses the problem of organization. A new group is created or an existing group is utilized to deal with the identified problem. In the *goal-setting and strategy formulation* phase actors select specific goals and strategies to pursue those goals. *Recruitment* addresses the problem of resource mobilization. In this phase the actors seek to secure the resources that are needed to achieve the defined goals. Lastly, the mobilized resources are applied during the *implementation* phase to achieve the defined goals.

***Extralocal Linkages.*** Communities in themselves are not able to access all the necessary resources and expertise needed to accomplish their goals. This is a hurdle rural communities must address if economic development efforts are to be successful. Thus, a community's extralocal linkages are necessary to access resources that are not available at the local level and to craft more sophisticated economic development strategies.

Extralocal linkages include inter-city and inter-county coordination and cooperation; access to economic development professionals and other professional staff; and connections with political leaders and leaders of industry. The community also becomes part of a larger set of issues, and associated with a larger structure of power that is useful in attaining their goals.

**Relationship between local integration and extralocal linkages.** Figure 3 shows how the relationship between local integration and extralocal linkages operate to the benefit of a community's efforts to improve both the economic and social well-being of its residents.

**Figure 2.2. Ideal-type representation of relationship between local integration and extralocal linkages**



This figure presents an ideal-type conceptualization of how a development strategy that pursues community development can in turn leverage these local networks to gain greater access to more diverse groups outside the community. Obtaining access to extralocal resources and expertise is critical for both community and economic development. For community development, extralocal linkages of one community entity may provide useful resources in terms of funding, knowledge, or alternate solutions that are necessary to successfully attain development goals. For example, the local city government may be the entity to administer funding obtained from extralocal sources to purchase a community technology center which in turn can be used to provide computer and Internet access to local citizens and businesses. The local hospital's extralocal linkages may be useful for implementing health services that create new jobs. The extralocal ties of businesses within the community may be useful for providing knowledge and real-world work opportunities to the local school district. This investment in local youth is likely to eventually lead to economic development outcomes including entrepreneurial activities and increased extralocal linkages that can also be leveraged.

### **Conclusion**

The community of Forks provides a useful case study illustrating how a holistic development strategy that emphasizes both local integration and extralocal linkage can improve the social and economic well-being of community residents through ICT. To discern how Forks utilizes its local and extralocal social networks the following questions were asked:

- **Purpose of Project.** What local need is the project using ICT addressing?

- **Development Strategy.** What types of local social networks and extralocal linkages were important to achieve the goals of the project? What did these persons or entities contribute to the project?
- **Lessons Learned.** What lessons were learned in implementing the project? What efforts are necessary to ensure success?

This report highlights the most useful characteristics and lessons learned from each activity. Knowing these characteristics and lessons, and how local integration and extralocal linkages complement each other in development efforts will help other communities craft the most effective approach for bridging the digital divide.

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## **SECTION 2**

### **Bridging the Digital Divide**

### **Chapter 3**

#### **Bridging the Digital Divide: Obtaining the broadband telecommunications infrastructure**

Obtaining the physical infrastructure that enables a community to get connected to the information superhighway presents a substantial challenge to rural communities. Telecommunications providers are often unwilling to make the investment because the low population density does not justify the costs involved. One solution is to work with the local public utilities district in financing the infrastructure and pass the costs onto the consumer. Such a solution can be highly contentious because local residents are often unwilling to pay additional costs for something from which they feel they may or may not benefit – if they understand the purpose of installing the technology at all. In addition, there are future costs to be considered in terms of maintaining and upgrading the infrastructure over time so that the community can remain connected in a competitive manner. Another solution is for a community to work with their local telecommunications provider in making a business case. This is the strategy employed by Forks to obtain a fiber optic backbone.

As discussed in chapter 1, by the mid-1990's several local entities began working separately on various projects to integrate ICT into the community. By 1999, the City of Forks was working with the local telecommunications provider, CenturyTel, to acquire CenturyTel's former building in Forks; the school district was creating the Washington Virtual Classroom Consortium and working on a "smart community" proposal to use ICT to benefit citizens, students, and medical patients; and the hospital was working to facilitate ICT linkages between the different local healthcare entities and government agencies.

A chance meeting of school district personnel and city staff members resulted in the realization that the various community entities needed to work together to gain a more powerful voice to obtain their related goals. The community's new collaborative approach gained the attention of CenturyTel, whose corporate office was exploring the idea of using the NorTel ICN (Integrated Community Network) process in four communities in its 22 state coverage area. This process was an economic development strategy centered upon collaboration in which the telecommunications infrastructure links community institutions and businesses who share the costs of the infrastructure.

In January 1999, CenturyTel selected the town for the ICN pilot project. Forks was the first community to undertake the ICN approach with CenturyTel's assistance. NorTel's support for the ICN program discontinued shortly after Forks' selection due to NorTel's decision to eliminate that division within their company. However, CenturyTel continued to provide support in various capacities and ultimately moved one of their staff to Forks. As a result of being selected by CenturyTel for the NorTel ICN process, Forks was able to work with the provider to obtain a fiber optic backbone. Ultimately CenturyTel invested nearly six million dollars to provide fiber optics to Forks.

### **Redundant Broadband Connection**

Having broadband redundancy is critical if a community is to recruit outside business. Redundancy is, simply put, a diverse and redundant digital backbone so that if one connection goes down, the other is still functioning. For Forks, the goal is to have a fiber optic "loop" that encircles the peninsula. In order to accomplish this goal the ICN Committee worked with both their local telecommunications provider, CenturyTel, that

services the western edge of the peninsula, in addition to Qwest, the telecommunications provider that services the remaining portions of the peninsula.

To obtain redundancy, a rugged gap of over 30 miles with very little population between the two telecommunication providers needed to be addressed. This gap, referred to as the “Sappho Gap,” was centered around the small hamlet of Sappho. Community members worked with public and private entities to join the Qwest and CenturyTel systems in the Sappho Gap.

The project began as a side conversation in one of the halls during a meeting in which the ICN community visioning process was being discussed. The concept was sketched out on a white board and by the end of the day not only was the ICN community vision defined, but an extensive collaborative team was created to work on the problem of route diversity and route redundancy. Over time that team consisted of both Qwest and CenturyTel; City of Forks; City of Port Angeles; Clallam County; Clallam County Economic Development Council; Clallam County Public Utilities District; Washington State Office of Trade and Economic Development; Science, Technology, and Manufacturing Association; and supported by Senator Patty Murray and Congressman Dicks and other state officials. In less than one year, the “Sappho Gap Project” was funded with a \$1.7 million award by the Washington Community Economic Revitalization Board (CERB) for the installation of a fiber optic backbone connecting the CenturyTel and Qwest systems. It is scheduled for completion by summer 2004.

### **Development Strategy**

Forks’ ability to acquire a redundant broadband connection began with the community’s recognition that local integration, or collaboration between local entities,

was critical to attract the attention of outside resources offered by CenturyTel. The resources offered by CenturyTel included expertise, funding for the installation of a fiber optic backbone at a private cost of approximately \$6 million.

*We realized we could not do it [install telecommunications infrastructure] alone. That's extremely costly. There's a huge risk. And there's no guarantee.*

*What impressed CenturyTel the most was that it wasn't me calling them which I had been doing for a year, and it wasn't the schools calling them, which they had been doing for a year. It wasn't the City calling them. It was all of us calling them to the table. And they said, these guys are serious!*

CenturyTel began paying attention once the hospital, the City and school district began working together. This was critical for Forks to acquire a fiber optic backbone that ran through the community without the expenditure of public funds. Forks' experience is consistent with research that suggests communities who work with their local telecommunications provider are more likely to acquire innovative services.

It is important to note that Forks' relationship with CenturyTel was mutually beneficial. CenturyTel provided the community with the expertise and the infrastructure. In return, Forks helped CenturyTel make their business case and continues to advocate the importance of working with one's provider:

*I have yet to see some of these government proposals from smaller governments explain to me how they're going to maintain and upgrade these [telecommunications] systems. We didn't have anybody who understood this world well enough to know how, who, what, when, where, and why. So we really felt there was an advantage of courting our [telecommunications] provider and seeing if we could help them make their business case.*

*We formed a partnership – unwritten – with [CenturyTel] that we would like to see our community be on the forefront of this. And in exchange we’ve been a pretty big advocate for working with your provider.*

*A true partnership is that you have this goal and objective and the partners of the partnership work for the mutual gain of each other in reaching that objective, not at any time to the detriment of that partner.*

Extralocal linkages were equally necessary to obtain redundancy. The involvement of CenturyTel and Qwest was critical for Forks to obtain broadband access because the systems of the two telecommunications providers are to be joined. In addition, Forks’ other extralocal linkages to political entities helped secure the \$1.7 million awarded by CERB necessary to finance the Sappho Gap project. Political connections were also necessary to work through the numerous laws and regulations required to install the fiber optic cable across several bureaucratic jurisdictions.

*What you have to go through for a permitting process to lay fiber along a road! We’re not talking about running through virgin pristine wilderness. It takes four or five jurisdictions and entities two to three years to work through...Imagine trying to build the continental railroad today. We would never have got it done!*

Between 2001 and 2003 Forks was able to secure sufficient funding, CenturyTel was able to obtain all the necessary permits and easements, and the Qwest portion of the redundant connection was completed. By the summer of 2004 CenturyTel’s portion of the build will be finished, completing Forks’ redundant connection.

### **Lessons Learned**

Make personal contact with the corporate office yourself through known parties. Do not assume your local contact can answer whether or not the corporate office is willing to work with you.

- Understand the motivations of each player.
- Recognize the important value of public relations for both corporate and political entities.
- Working with your local telecommunications provider is critical.
- Recognize these efforts are time intensive
- Maintain focus on the goal while being creative and flexible on the means of attaining that goal.
- A team consists of a group of individuals who work cooperatively for their benefit by utilizing each member's unique talents, skills, and visions. A team is *not* one person delegating tasks to other individuals.
- Do not talk processing speeds and bytes. Talk about the applications and rely upon the expertise of others to implement those applications.

## **Conclusion**

Obtaining the advanced telecommunications infrastructure poses a daunting hurdle to many rural communities who lack the funding, the expertise, and other necessary resources. Forks' solution was to collaborate with their local telecommunications provider, CenturyTel. This collaboration occurred only after local entities within the community collaborated among themselves to pursue a common goal rather than work individually. The creation of the ICN Committee and the extralocal linkages different participants brought to this organization allowed Forks to access a variety of resources necessary to obtain a redundant broadband connection funded entirely by outside entities.

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**Chapter 4**  
**Bridging the Digital Divide:**  
**Providing technology access to community households and businesses**

Obtaining the broadband telecommunications infrastructure is a necessary first step in bridging the digital divide. However, communities may assume a technologically deterministic vision, or a “build it and they will come” approach. This is the assumption that once the physical capability of broadband exists within a community, economic and community development will automatically follow. Such an approach is naïve. Once a community has redundant broadband connectivity the work in bridging the digital divide has, in many ways, just begun. Local businesses and residents with entrepreneurial aspirations may lack access to a computer with an Internet connection or other information technologies (such as scanners and video conferencing equipment) that is necessary for them to realize the potential of ICT. This is particularly a problem in rural communities where poverty is rampant. A community member in Forks describes this problem:

*What I fear is these rural communities get on board and try to narrow the [rural/urban digital divide] but are now creating a [local] digital divide. When the choice is a new computer or dinner on the table [a computer] is not a priority.*

For a community to bridge the rural/urban digital divide and also the more localized digital divide that engulfs the poor, community access to computers with an Internet connection is critical. The economic and social benefits associated with connecting to the information superhighway can only be realized if local households and local businesses have access to computers and other telecommunications equipment. Without access, local businesses cannot expand to take advantage of larger markets; local

entrepreneurial efforts using the Internet are likely to be stymied; school children without home computers are potentially left behind in their school work; and households are unable to access the vast amounts of information available on the Internet including more efficient governmental access and involvement.

Forks' solution was to acquire a building that offers community access to computers with an Internet connection and video-conferencing. This building is the locus of the ICN Committee's strategy to use ICT as a tool to improve both the economic and social well-being of the community. This building, named the "West End Business and Technology Center" (hereafter referred to as the "ICN Building") is a 6,000 square foot facility initially owned by CenturyTel. After being vacant for several years the City of Forks in the late 1990's began working on ways to use the building in a manner that would be of greatest benefit to the community.

As a result of the ICN process, established in 1999, it was decided the building would become a community technology center. CenturyTel leased the building to the City for \$1/year for three years. The City was able to purchase the building in 2002 and remodel in 2004 at the cost of approximately \$285,000 (includes complete remodeling costs for roof replacement, HAVC upgrade, and other internal improvements) through funding obtained from outside sources. Senator Patty Murray secured \$89,400 for the Forks Telecommunications Initiative which was part of the Veterans Affairs, Housing and Urban Development (VA-HUD) Appropriations bill to match a \$200,000 grant made available through the county resulting from collaboration with the county economic development council<sup>5</sup>.

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<sup>5</sup> The county grant was the Clallam County Opportunity Fund, a fund for public facilities and infrastructure to support economic development efforts.

The ICN Building functions as a multipurpose building. Details of the various programs occurring within the building are discussed in chapters 5 and 6. This building serves as a technology center for the west end region of the Olympic Peninsula. Programs include the following:

- A business incubator for local businesses seeking to expand
- A place to house new businesses interested in Forks
- After-hours learning facility
- Community technology center

At the time of this study, remodeling of the building was nearing completion. The building has approximately 30 computers in the building with high-speed Internet access<sup>6</sup>. It has video conferencing capabilities although the building lacks equipment at the time of this study (when needed, equipment is borrowed from the City, the school district, or the hospital). Once the remodeling is finished plans are to work towards staffing it on a part-time basis to allow better access to the facility and its services.

To furnish the ICN Building a local businessman donated computers and furniture. Software was acquired through a grant of \$12,500 from Microsoft. Network wiring and computer maintenance is done by local youth in exchange for using the building every Friday night to play computer games (see discussion of Rainy Day Gamers in chapter 5). At the time of this study plans were to have the local youth upgrade the computers with used parts obtained from a neighboring county.<sup>7</sup>

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<sup>6</sup> DSL

<sup>7</sup> Kitsap County

## Development Strategy

Because the building was being remodeling during the course of this study the ability of the ICN Building in providing technology access to community members has yet to be fully exploited and assessed. However, the expectations community members have concerning the potential of the ICN Building suggest that it will provide different types of technological access to various groups within the community depending upon their needs.

*How can we more fully utilize these publicly funded facilities? That is a significant mindset.*

*I see [the ICN Building] as an incubator...a stepping stone. If a person has an idea, they have a dream so to speak, they know that they can do something. They need a place to work from. They need the resources, they need the interaction of other people who can help them to get started. I see [the ICN Building] as kind of a daycare for businesses, a pre-school for business. +*

*The [ICN Building] is one of the things I get really excited about. To have it be this tech center as a business incubator. That's the sort of thing that somebody with an idea...needs. A place to get started and that kind of supportive "we really want you to do this so go for it."*

*We wanted a community learning center...for the before and after-school kids, adults, different kinds of programs, all of that. It creates an environment of a learning community that's not just in school during school hours and school-age kids, but it's for Forks - all ages, all groups, all ethnicities. It's where you go for technology access, Internet access, and support for that.*

*Daycare in the evening is a problem in Forks. Could this building help us facilitate something like that? Absolutely!*

*Offering free classes will be a great asset - especially business training topics. At [the local community college] it costs \$300 per class.*

*I love that they really foster this relationship with a younger group of techie kids. The Rainy Day Gamers meeting [at the ICN Building] on Friday night – these are our future hot shots! I've got to believe that among those kids there's an entrepreneurial opportunity there that may materialize.*

The ICN Committee's extralocal linkages were critical for acquiring the funds to purchase and remodel the building. In particular, collaboration with the county economic development council and with federal political representatives was necessary to secure sufficient funds. And, ongoing collaboration with CenturyTel, the local telecommunications provider and initial owner of the building, was important in leasing and ultimately purchasing the building.

Local social ties were critical in acquiring and furnishing the ICN Building. The City's ongoing participation in the ICN Committee was important in facilitating the process to purchase a vacant building and transform it into a community technology center. The donations of equipment and furniture by a local businessperson involved in liquidating businesses throughout the Western U.S. provided an important resource necessary to obtain the goal of transforming the building into a place providing public access to computers.

*One day somebody [asked the businessman] if next time...we could do some shopping...some tables, some chairs, some computers, that kind of stuff would be great. Then one Friday night I got a call and [the businessman] said, "how many guys can you round up?...I've got two semi's coming up to the tech center tomorrow at 1:00. So [the businessman] stocked the building for us by...donating a couple truckloads of furniture on a moment's notice.*

The Rainy Day Gamers (see chapter 5), local youth who use the building on Friday nights to play computer games, installed and continue to maintain the network

system and computer equipment. A community member describes how this arrangement occurred and how its positive impacts:

*[Their chaperones said] you can come in and play games [in the ICN Building]. Or you can do this right and get something out of it...so [the Rainy Day Gamers] were coming in and setting up networks and solving problems and doing the stuff they learned about in class...in the real world...the most exciting part of it all is to see kids be kids, getting them off the streets and going somewhere and having fun and...learning stuff along the way.*

The efforts of the ICN Committee to fully utilize the ICN Building as a community technology center in order to provide access to ICT for all segments of its population is likely to be an effective solution. Research indicates that establishing a community technology center is typically a successful means to provide access to low-income residents and others who otherwise have little or no access to computers and information technologies such as scanners, video-conferencing, and other hardware.

While libraries continue to be an important means of providing free, public access to computers and the Internet, the multipurpose environment of a community technology provides a greater capacity to serve local needs ultimately enhancing community and economic development efforts. Community technology centers are valuable resources for obtaining job skills and learning about employment opportunities, foster a sense of community, provide social interaction, and a learner-centered atmosphere. In addition, many individuals acquire or improve English language skills, get homework help, and carry out their own self-directed projects. Community technology centers also promote the creation of social ties between acquaintances, ultimately contributing to local integration and extralocal linkages. Even access to email appears to reduce the costs of

maintaining new acquaintances beyond the community, extralocal linkages which may ultimately be leveraged to obtain a variety of resources.

### **Lessons Learned:**

- Have a goal
- Determine how to pay for it and follow up on this
- Focus upon true partnerships that are mutually beneficial. This relates to local collaborative efforts and extralocal linkages.
- You must have a local team. One person cannot do this alone.
- This is a continual, slow-moving process and therefore requires continual commitment to improve and maintain the facility.
- There must be buy-in by community leaders, community members, and county, state, and federal officials and agencies.

### **Conclusion**

Providing technological access to local residents is critical if ICT is to improve the economic and social well-being of a community. This is particularly a problem in rural communities where substantial portions of the population often live in poverty and are therefore unable to purchase a computer. The ICN Committee's solution was to utilize its extralocal linkages to purchase a vacant building and transform it into a community technology center. This building has been undergoing remodeling during the course of this study so any evaluation of its success in providing public access to computers is limited. However, community members expect the building to provide a wide variety of services, most of which are technology-dependent.

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## **Chapter 5**

### **Bridging the Digital Divide: Providing Computer Literacy**

Two dimensions of the digital divide – obtaining the physical infrastructure and providing public access to computer hardware and software – are necessary though not sufficient actions to bridge the digital divide. The social and economic benefits associated with the information superhighway can only be acquired if local residents and business are literate in using telecommunications. Computer literacy extends far beyond using the computer for emails, games, and other recreational purposes. Community members and local businesses must have not only basic computer skills, but also know how to find and take advantage of information, use a variety of applications depending upon the need, and have support if they need assistance in pursuing various endeavors such as starting a new business or obtaining an educational degree online.

At the Community Visioning Workshop in 2000 top community needs related to ICT were identified and goals addressing these issues defined. These issues included the following:

- *Increase K-99 educational opportunities* by creating new educational opportunities for K-20 students and providing individuals of all ages the opportunity to pursue personal and professional development. Strategies to achieve this goal include increasing access to federal, state, and local institutions; and developing tech-based training that would provide training opportunities for students in a real world setting.

- *Educate community members on the uses and benefits of technology.* This goal includes opening the ICN Building (see chapter 4) to the public and providing a variety of free classes.
- *Convince community members and the world that rural healthcare is world class healthcare.* Strategies supporting this goal include increasing efficiencies by networking providers associated with the local hospital together, and creating opportunities to use video-conferencing as a means of providing additional health care services to local residents.
- *Increase opportunities to do business with the government.* This goal includes establishing a means to enable citizens to be active participants in the governmental sphere by attending public governmental meetings without having to travel long distances, and obtaining various permit-related material on-line with all governments.

The ICN Committee continues to pursue numerous projects promoting computer literacy based upon these objectives. The organization of this section is based upon the sponsoring entity of specific programs.

#### **West End Business and Technology Center (ICN Building)**

The ICN Building, as described in the previous chapter, is a public facility that provides an array of programs benefiting community members. This building provides free public access to computers and other technologies (discussed in chapter 4), business support (discussed in chapter 6), as well as free public programs to improve computer literacy. Figure 5.1 lists the various programs offered at the time of this study by the ICN Building.

**Figure 5.1 ICN Building Activities\***

Activity	Description
Tech Tuesdays	Free public classes discussing a variety of computer-related topics.
Rainy Day Gamers	Local youth play computer games every Friday night

\*Note: While the primary purpose of the building is for technology-related activities, the building is also used for other activities not related to technology. These activities include English as a Second Language classes for the community's growing Hispanic population.

### **Tech Tuesdays**

The ICN Committee is very concerned about using the technology to provide education to all community members of all ages. This is realized in the idea of K-99 educational opportunities.

*It's all K-99. K-12 doesn't exist anymore. In fact, K-20 doesn't exist. It's been K-99 for years. We've got to think about this in terms of lifetime learners.*

To support this idea several local volunteers take turns teaching free computer classes at the ICN Building on Tuesday nights, an informal program called "Tech Tuesdays." Classes include basic instruction such as how to buy a computer and digital photography.

### ***Development Strategy***

This program depends upon local volunteers with the expertise to teach different topics. The creation of this program is described by an ICN Committee Member:

*We were up [at the ICN Building] one day for a meeting and I said [to a fellow ICN Committee member]...we've got 25 computers sitting in here, for a year, barely used. And at the same time there's a huge need for them. The whole issue is staffing. I'll volunteer one night a week if you'll volunteer one night a week. So [we] started volunteering a night a week teaching classes.*

While Tech Tuesdays are driven by local volunteers, it is also important in fostering extralocal social ties with the area's community college. The Tech Tuesday classes do not compete with those offered by the local branch of the college, such as Beginning Word or Beginning Excel. If Tech Tuesday participants want to learn more about computers or a topic, they are urged to visit the college.

### ***Lessons Learned***

- Utilize the expertise within the community to teach classes
- Offer basic topics which appeal to a variety of people

### **Rainy Day Gamers**

An unintended consequence of Tech Tuesdays was the creation of the Rainy Day Gamers. The Rainy Day Gamers is a group of chaperoned high school students that use the building every Friday night to play computer games after about an hour of computer instruction by adult volunteers. Mostly male high school students are involved although more female students are participating. The Rainy Day Gamers have grown from approximately 15 youth to between 25 and 50 every week. One community member describes the events surrounding Tech Tuesdays leading to the creation of the Rainy Day Gamers:

*All of a sudden some high school kids started showing up. Well, they knew more than I did about all this stuff that I was trying to teach so they'd butt in there a little bit. It was great, I was trying to figure out how to get them more involved...They were bored...they wanted to play computer games...Finally [it was decided] that on Tuesday nights we're doing these classes, another night we'll open up and [the high school kids] can come and play games to their hearts' content. And that was the start of the Rainy Day Gamers!*

The first hour of the Rainy Day Gamers is an “instructional” hour where adult mentors talk about technology-related issues. On occasion they will have a guest speaker, typically a business client visiting Forks to meet a local web-page design company. In exchange for using the ICN Building the Rainy Day Gamers networked the building and continue to maintain and upgrade the computers.

*[Their mentor told the youth] we'll open up the doors and chaperone and babysit you. And you can come in and play computer games. Or you can do this right and get something out of it...They were coming in and setting up networks and solving problems and doing the stuff they learned about in [computer] class.*

The Rainy Day Gamers have also evolved into a non-profit organization run by the youth. The entire community is proud of the Rainy Day Gamers and of the potential these students offer.

*[The youth] started wanting all this stuff. [They were told] “you need a business plan...nobody’s going to hand it to you. Go get it!” They grabbed it and ran with it. They organized a [non-profit]. Membership and dues to join because that money goes towards funding some of the things they want. They got a refrigerator put in [the ICN Building] for their soda pop... They got new equipment coming in, they got a sponsor, they got a president and vice president and secretary and treasurer.*

*I love that they really foster this relationship with a younger group of techie kids. So the Rainy Day Gamers meeting there on Friday night – these are our future hot shots! I’ve got to believe that among those kids there’s an entrepreneurial opportunity there that may materialize.*

### ***Development Strategy***

The success of the Rainy Day Gamers is primarily due to the strong local social ties within the community. Local residents are willing to volunteer their time to

chaperone and mentor the youth. Local businesses are willing to sponsor the Rainy Day Gamers and donate money, food, and other items the youth may need.

*People gave them ideas, such as “Hey, you guys want food? Go talk to the deli guy, they’re probably throwing stuff out.” So they went to talk to him, sure enough! Not only would he give them the stuff they would throw out, but he’d give them a donation.*

Extralocal ties are useful in that there are occasional out-of-town guest speakers, made available by a local business. This is important in teaching the Rainy Day Gamers technology-related issues and in exposing them to new ideas to which they may not otherwise access.

### ***Lessons Learned***

- Utilize the knowledge of local youth by having them install and maintain equipment. This, in turn, provides them with real-world applications for skills they are learning in school.
- Rather than having youth play computer games, take advantage of the opportunity to teach them real world skills and responsibilities. In the case of the Rainy Day Gamers, the hour of instruction is useful for furthering their skills, and urging them to organize into a non-profit has taught them invaluable lessons about responsibility and achieving goals.

### **Quillayute Valley School District**

The local school district has been, from the beginning, an important participant in Forks’ efforts to use ICT. It has long had an interest in creating bridges between the educational system and the economic development system. This focus has led to a wide array of activities that benefit both the school and the larger community. Figure 5.2

displays the various technology-related activities sponsored by the school district. These activities are discussed in detail below.

**Figure 5.2 Quillayute Valley School District Programs**

Program	Description
Washington Virtual Classroom Consortium	Use K-20 telecommunications network to share staff and curriculum.
High Tech High	The Bill and Melinda Gates Foundation provided funding for three years to reinvent teaching and learning at Forks High School.
Virtual High School	A national on-line school providing 121 elective courses on the Internet to schools in the United States and in eight foreign countries.
Washington Digital Commons	Forks High School is participating in a pilot project for a new state program to be extended statewide by 2005.
North Olympic Peninsula Skill Center	A collaboration between county school districts and the area's community college. Provides vocational training to students between the ages 16-21.

**General Development Strategy of the Quillayute Valley School District**

One-quarter of Forks High School Students are currently taking some type of online course. Each classroom has an Internet connection and video conferencing capabilities, and every teacher has a computer on his or her desk. Forks High School has been repeatedly named as one of PC Family Magazine's Top 100 Wired high schools in the United States.

To obtain this level of technological integration in addition to the programs detailed below, the school district has used both its local social ties and extralocal linkages. Extralocal linkages have been critical sources of funding for the various

programs detailed below. Local social ties have been important to obtain community support to pass school levys that have substantial funding for technology. School children are an invaluable asset in this process because they share with their parents what they are learning. In addition, much of this success in passing these levys is the ability of school administrators to demonstrate the benefits of ICT in relation to the wide interests of community members.

*We pass our levys, we get positive feedback from folks because we're small and remote and we're kind of the only game in town. Different segments of the community value different things. There's a techie part, but there's also the football fan – all those different things. And so we really need to be able to hit the different needs of different people.*

A community member describes yet another, somewhat humorous, demonstration of video-conferencing to the public:

*In the common area [of the high school] there's auditorium seating that folds down from the wall and there's about a 20x20 foot screen that comes down on that stage. And we discussed when we built it is that...we want to open it up for a town hall, open it up for a community meeting. When we did the ribbon cutting for that we did a virtual ribbon cutting with the Assistant Secretary of Education in Washington D.C. We lowered the screen down and there is this guy sitting in this desk and he's looking around and he comes on and he starts talking and the people in the audience were kind of talking...All of a sudden everybody looks up – this is live! This isn't a video or something! This guy is here and he's responding to questions!*

### **General Lessons the Quillayute Valley School District has Learned**

- Collaborate tirelessly.
- Educate your public to obtain support for school levys by demonstrating what technology can do.
- Seek out grant support and federal funding

- Get tools in the hands of students. In turn, the students go home to their parents and this is how support is obtained. Parents learn why it is important and experience through their children what their children are doing with the technology.
- Utilize the K-20 network for both students and faculty. This builds the school district's reputation.
- Technology should not be an end in itself at the detriment of curriculum development. Rather, it should be used as a tool towards the goal of learning.

### **Washington Virtual Classroom Consortium (WAVCC)**

The Quillayute Valley School District initiated the development of this program 1997. The program has since increased from nine participating school districts to 12<sup>8</sup>. In addition, this program is now being replicated as part of a larger statewide educational program, the Washington Digital Learning Commons.

The primary focus of the WAVCC is to more fully utilize the K-20 telecommunications network so that resources such as staff and curriculum can be shared via video conferencing and web-based learning modules. The participating school districts share similar demographic profiles. Each district is rural, has significant levels of poverty, is ethnically diverse, and is small in size (ranging from 225 to over 3,000 students district-wide).

These school districts benefit by sharing resources with each other including staffing, students, and curriculum. As a result, courses are offered to students that they would not otherwise be able to obtain. For example, students seeking a career in IT or

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<sup>8</sup> The founding school districts are Adna, Concrete, Eatonville, Lake Chelan, North Franklin, Quillayute Valley, Wapato, Wellpinit, and White Salmon. Since 1997 Lake Chelan dropped out from the project and Ocosta, Brewster, Quinalt Lake, and the Washington School for the Deaf have joined.

sign language would not otherwise be able to take these courses because many of the school districts lack teachers trained in these subjects. For each school district to find and hire trained staff to teach approximately 1-10 students is a financial burden the participating school districts cannot otherwise meet. With the WAVCC, all students in any of the participating districts with an interest in these programs can take the courses.

Video conferencing events include meetings with congressional leaders, lectures, and dissection of salmonids. Currently there are six courses being offered, with a foreign language course currently under development:

- Salmon Ecosystems Management
- Washington State History
- Virtually Washington
- A+ certification (IT)
- Cisco Academy (IT)
- American Sign Language

Students participate in the classes through video-conferencing. For example, Forks High School Students taking American Sign Language watch and communicate with an instructor from the Washington School of the Deaf via a television set.

### ***Development Strategy***

The school district's extralocal linkages have provided critical support through funding. The ability to expand the program by collaborating with other school districts both inside the county and throughout the state is important in terms of providing additional teaching expertise, students, and curriculum, but also in seeking funding from political entities.

*This is money that the public has given and we need to be able to justify that expenditure and to do that we've got to get beyond the...districts that we currently have as members.*

*There's one school district in each Educational Service District for the state. Those are also congressional districts. So when you start thinking in terms of political connections in seeking federal funds, if I can go out and show a statewide benefit to [the WAVCC] I can go to [the congressional representative] and say, "hey, you might want to support this because it's not only these three [school districts] in your district, but it's also statewide."*

Funding for the project was first obtained in part by a competitive grant from the State of Washington for \$1,070,000 and was administered by Quillayute Valley School District, the host district. The initial funding allowed four of the school districts without networking to attain networking in their secondary schools comparable to the other five participating districts. This phase of the project was followed by purchasing video-conferencing equipment for each participating school district. Another grant of \$900,000 from the State of Washington enabled the networking of elementary and middle schools. U.S. Senators Slade Gorton and Patty Murray have also supported the WAVCC by obtaining substantial congressional appropriations for the project.

Today, focus continues to be on acquiring funding to continue the WAVCC and to concentrate on teacher training and curriculum development. Because the WAVCC is totally dependent upon federal and state funding, efforts are being made to see if corporate sponsorship is available in order to diversify funding sources.

### ***Lessons Learned***

- School districts should take advantage of the K-20 network.

- This program requires the support of local community. This is most easily achieved by word of mouth from the students participating in the program.
- There must be a local coordinator who can coordinate with the local school district officials and address technical issues locally.
- The biggest issue continues to be funding. It is not feasible to get the local school district to fund the project.
- The benefit of the program must be demonstrated if expenditure of public funds is to be justified.

### **Virtual High School**

Since 1997 Forks High School has participated in a national on-line school housed in Massachusetts. A total of 2,034 students from 174 schools in twenty-four states and eight foreign countries participate together in 121 on-line elective courses. Forks High School has approximately 50 students each semester participating in a variety of high quality, elective courses that would not otherwise be available to a small, rural, remote school district. Classes offer diverse topics ranging from Poetry Writing, Folklore, to Mathematical Reasoning and Logic, DNA Technology, and Constitutional Law.

Two teachers at Forks High School assist the students enrolled in the Virtual High School as well as teach an online class. Students take the courses over the Internet, often supplemented by required books, and the supervising teacher reviews notebooks the students are required to keep. The benefits of this program include exposing local youth to other youth throughout the world.

*My daughter was in the first Virtual High School class. It was literally in a classroom with kids from France, kids from Germany, kids from Sweden. It was an amazing thing. I was shocked.*

*It allows kids to have interaction with urban kids and discover similarities between urban kids and themselves.*

### ***Development Strategy***

The school district's extralocal linkages are critical to obtain funding necessary to participate in the Virtual High School Consortium. Initial funding came from a five-year \$7.4 million U.S. Department of Education Technology Challenge Grant. This money was given to participating schools to acquire the computer hardware, software, and Internet access. In addition the grant provided each school with \$9,000 for a site coordinator to oversee students and to ensure the technology is functional.

### ***Lessons learned***

- The school district must make the investment to dedicate a teacher to the project, rather than adding it to the responsibilities of existing staff members. This makes for a better experience for the students. It is also necessary to have a dedicated on-site coordinator who can coordinate between students, the Virtual High School program, local school officials, community members, and local technical support.
- Any student, regardless of educational motivation, can succeed in Virtual High School. It is a useful means of teaching time management and responsibility for work. In addition, the variety of classes and contact with students throughout the world motivates students.

### **High Tech High**

Due in part to the efforts of the Quillayute Valley School District to create the Washington Virtual Classroom Consortium, and with Forks' ties to Washington State University's Center to Bridge the Digital Divide, in February 2002 the Bill and Melinda

Gates Foundation named Forks High School as their first rural High Tech High. This grant provides three years of funding to reinvent teaching and learning at the high school. With Forks High School's strong technology infrastructure, the high school is focusing upon three themes:

- Personalization
- Real World Connections
- Common Intellectual Mission

The goal is to create a powerful learning community that meets the diverse needs of all students, prepare them to achieve high academic standards, and to leave school ready to meet the challenges of higher education and the workplace.

### ***Development Strategy***

As with many of the school district's programs extralocal linkages are critical. The designation of High Tech High and receipt of the associated funds was acquired in part due to the school district's reputation and efforts surrounding the Washington Virtual Classroom Consortium. In addition, the community's ties to Washington State University, the administrator of the Gates Foundation Grant, was also important. The support of the community in terms of funding technology through school levys has also been important as the school district continues to pursue programs utilizing ICT. This use of local integration and extralocal linkages is concisely summarized by one community member:

*[The former superintendent] really sold the board and the community and got some really nice grant support and federal funding support to create the Washington Virtual Classroom Consortium, to have us be a charter member of the Virtual High School, to have substantial technology funding within our levys, and so forth. And this year we*

*received the Gates Foundation Grant, so again we're continuing along that path.*

### ***Lessons Learned***

- Seek out grant support and federal funding
- Build the school district's reputation for using technology.

### **Washington Digital Learning Commons Pilot Project**

Forks High School is one of 15 test sites for the Washington Digital Learning Commons, a new state program eventually linking all schools in the state into an online education network. If the pilot programs are successful the program will be extended statewide by 2005. Included in the Digital Learning Commons will be the Virtual High School, the Washington Virtual Classroom Consortium, University of Washington outreach courses and various advanced courses. It is interesting to note that the Digital Learning Commons – a state program – is replicating programs Forks High School has been doing for several years, including the Virtual High School and the Washington Virtual Classroom Consortium, a project originating from the Quillayute Valley School District. Because this program is still in the testing phase, its impact upon the community was unable to be assessed at the time of this study.

### **North Olympic Peninsula Skill Center**

The Skill Center is a recent project that began in the spring of 2003. It has two primary purposes: education and economic development. The Skill Center is a cooperative partnership of five school districts within the county as well as Peninsula College (the local community college) as a full partner<sup>9</sup>. This program provides vocational programs for high school students between the ages of 16-21 and community

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<sup>9</sup> The five Clallam County school districts involved in the Skill Center are Port Angeles, Sequim, Crescent, Cape Flattery, and Quillayute Valley.

college students. The core facility is located in Port Angeles, the county seat, while Forks and other communities participate as satellite programs. While the initial plan was to house the Skill Center in the ICN Building, it is located at the Peninsula College in Forks for logistical reasons. Classes currently offered include automotive technology and professional medical careers (including Certified Nurse's Assistant). Funding was obtained through Washington State's construction budget for \$2 million. Because this program has only recently been implemented, attempts to assess its impacts upon the community are limited.

**Other Community Projects:  
Northwest Olympic Peninsula Virtual Cultural Center**

In addition to the programs offered through the ICN Building and the local school district, there are other efforts to use ICT to improve computer literacy and strengthen community social ties.

Communities on the Olympic Peninsula are working with the University of Washington to create a web-based museum to showcase the rich history and culture of the area. It will be organized as a series of rooms, each representing a different facet of the region's history or culture. A total of six online exhibits are planned, each documenting artifacts, stories, events, and other cultural and historical materials from the northwest Olympic Peninsula. Photographs, videotapes, oral histories, artifacts, documents, unpublished manuscripts, and other sources are digitized. Topics include the area's Native American Tribes, the timber industry, and pioneer families and settlers. The project will also be used for on-line marketing of the arts and crafts of the region and is expected to have some economic impact by promoting local tourism.

A variety of different media formats, such a text, photographs, video, and audio, will be used for each exhibit. The areas of focus include the various regional Native American Tribal cultures, the collection at the Forks Timber Museum, the Spoelstra collection of historic farm implements, shipwreck materials, materials from the Clallam County Historical Society on the lives of early pioneers, and materials from the Veteran's History Project. Currently three tribes participating: Quillayute, Hoh, and Makah. The original intent was to focus upon the northwest cornering of the county but there are efforts seeking additional funding to expand the project to other parts of the county and region. While the initial funding was for six projects, local interest has grown in the project so that over thirty projects have now been identified, contingent upon funding.

Three rooms are scheduled for completion this year: the Hoh tribe, the Quillayute tribe, and the Forks Timber Museum. The first room, of the Quillayute tribe, is scheduled to be completed and go online by July 2004.

### ***Development Strategy***

The idea for the project was conceived in April 2000 through the community Visioning Workshop, arising from the Hoh tribe concerns that even tribal members don't know some of their own traditions as they should. A virtual museum was seen as a means to pass knowledge of tribal traditions on to others both within and outside the tribal community.

Fostering strong ties between diverse groups within the community is both an important prerequisite for this project, and an important outcome. The organization of the project is community based. A local coordinator, with expertise in ICT, works with a committee of each group associated with a particular exhibit. This committee defines and

controls their project. For example, the Quillayute tribe has designated a committee to work on its exhibit. This committee defines the content, gathers materials, and works with the local coordinator of the project to digitize the content using digital cameras, scanners, and other archival technology. The actual web page creation is done by staff at University of Washington.

Extralocal ties provide expertise and funding for the project. The ICN Committee, recognizing that they lacked sufficient resources to create a virtual museum, approached the University of Washington for assistance. This assistance involves building the web site. A substantial grant for two years came from the Institute of Museum and Library Services in Washington D.C. The Seattle-based law firm, Preston, Gates and Ellis contributed hundreds of hours of pro-bono legal services to work through the intellectual property issues associated with the project.

### ***Lessons learned***

- Get community members involved. This project can't be done by a single person. Involving community members is best done by establishing committees who control and define their own project.
- The cooperation of agencies who have substantial repositories of artifacts and other data must be gained. This is necessary to acquire access to the material. In addition, it is a rich source of volunteers who will form the committee to work on that particular project.

### **Conclusion**

This chapter describes the diverse activities occurring within Forks that address issues related to computer literacy. A latent consequence of these activities is that local

social ties are being strengthened because numerous groups within the community are participating in, and benefiting from, these projects. Activities at the ICN Building, staffed by local volunteers, benefit the general public as well as local youth. The school district, with substantial assistance from its extralocal linkages, continues to provide high quality educational opportunities to its students through an array of programs. The Northwest Olympic Peninsula Virtual Cultural Center is teaching diverse local groups how to use technology to preserve and display cultural and historical artifacts. This program, dependent upon funding and expertise accessed through extralocal linkages, is also strengthening local social networks.

## **Chapter 6**

### **Using ICT for Economic Development**

A primary reason most rural communities seek connection to the information superhighway is for the economic potential it offers. Historically, rural communities have had difficulty in pursuing economic development largely because of geographic isolation and a small population size. With ICT, many business activities can be conducted anywhere in the world, and goods and services can be advertised and sold on the global market. In addition, ICT allows for increased business efficiency by reducing a variety of costs including employee travel expenses to attend meetings and educational events, and enabling employees to tele-commute.

There are five broad strategies of economic development:

- 1) *Improve the efficiency of existing business.* Greater efficiency in local business enables local business to become more competitive in regional, state, national, and global markets. This in turn leads to greater net income that is returned to the community. ICT increases efficiency in numerous ways. A web page is an important means of marketing and selling goods and services. Educational programs update and maintain the computer and technology skills of the local labor force, making the local labor pool more competitive and efficient.
- 2) *Improve the ability to capture dollars.* Local residents and businesses control a substantial amount of dollars with which purchases are made. Every dollar spent within the community adds to the community's overall employment and income, and some will be re-spent within the community. ICT is useful in facilitating trade with local consumers, local institutions,

and other local businesses. In addition, thousands of people pass by many communities on highways and visit nearby tourist attractions. Improving the ability to capture these non-local dollars is as valuable as those generated by exporting goods. ICT assists in generating more purchases by non-local people by marketing the community's tourist attractions and services via the Internet.

- 3) *Recruit outside employers.* This economic development strategy continues to be common among rural communities. Prior to the development of ICT it was called "smokestack chasing" in reference to efforts to recruit manufacturing businesses. Then, and now, it continues to be a difficult strategy to pursue. Although the impact of numerous new jobs within a community is immediate, typically the economic benefits to a community are less than expected due to the substantial amount of investment in terms of facilities, tax breaks, and other incentives. In addition, many of the new jobs are often taken by new immigrants in the community or people who live in nearby communities.

ICT is important in making communities more competitive as they seek to recruit outside employers particularly in terms of reducing the barrier of geographic isolation. Yet rural communities, who often tout their low-wage, hard working labor force, are now competing in a global market as evidenced by recent trends in the outsourcing of U.S. jobs. ICT also increases the mobility of corporations who can now easily move their

operations to another community if it becomes more advantageous to do so.

The jobs that appear to be most successful in rural communities using ICT are call centers. Attracting these employers takes a substantial amount of investment, not only in terms of tax breaks and other related incentives, but also because potential employers often expect “turn-key” operations. This refers to facilities that already have the facility and equipment necessary for business operations to begin. It is also important to note that a redundant broadband connection is also critical, for employers must be assured that if one broadband route goes down, business can continue using the other broadband route.

- 4) *Encourage local entrepreneurial activities.* The need continues for new businesses to meet changing demands from population growth, changing local demographics, and evolving goods and services. New businesses in the community mean new income and employment opportunities. New local businesses also lead to the expansion of trade with other local businesses and may capture sales that may otherwise go to other communities. ICT is a valuable tool for promoting local entrepreneurial activities. The Internet can support limitless efforts to form new businesses. However, historically communities tend to neglect this type of economic development strategy because results take time to appear. For example, adding a few new jobs each year creates less immediate impact

that acquiring numerous jobs at one point in time through non-local business recruitment.

- 5) *Increase aids received from broader units of government.* State and national governments are not only major employers, but return large quantities of funds to local governments through grants and aids. To acquire these funds local governments must specifically request them. In addition, social security, medicare, and medicaid payments are also major sources of income. ICT can help communities attract these funds in a variety of ways. The Internet can be used to inform local residents about what kinds of state and national assistance is available. Grants and aids from broader government structures are useful in funding a variety of ICT programs, ranging from obtaining the broadband infrastructure (see chapter 3) to educational programs. Communities who have politically active citizens also ensure that the community's concerns get fair treatment from broader governmental units.

The community of Forks reaffirmed economic development as a dominant community concern at the Community Vision meeting in 2000, resulting in the articulation of three specific goals:

1. Benefit the business community by creating expansion opportunities for existing businesses within the community while ensuring the ability to attract new industries and business to the community.

2. Benefit governmental agencies by allowing them to provide a better level of service to their citizens without increasing operational costs, while also providing the citizenry a greater opportunity to access and participate in their governments.
3. Convince both the community and the world that rural healthcare is world-class healthcare.

These goals are being pursued by Forks through a variety of activities displayed in figure 6.1 and discussed in detail in the remainder of this chapter. For most of these activities Forks has yet to see substantial success, with the notable exception of the Hospital District's efforts with Tele-Health. It is likely this is largely due to the relatively short period of time these activities have been pursued – four years or less. Economic development is a process that generally takes time to produce results.

**Figure 6.1 Economic Development Activities Related to ICT Occurring in Forks**

Activity	Description	Emphasis
Rural Telework Project	Use ICT to create telework jobs by recruiting outside employers into the community	Recruit outside employers
Labor Force Assessment Survey	Survey assessing technology skills of local labor force	Recruit outside employers
Tele-Health	Forks Hospital District is involved in numerous activities to increase efficiency and to provide additional and improved healthcare services through technology.	Improve efficiency of local business; improve ability to capture local dollars
Business Incubator <sup>10</sup>	Mentor and expand small local businesses who are dependent upon ICT.	Encourage local entrepreneurial activities
West End Technology Business Center (ICN Building)	A turn-key facility for small outside employers dependent upon ICT.	Recruit outside employers
Olympic Coastal Region e-Development Assistance Project	Assemble technology-related information necessary to effectively market the region to outside employers, and acquire information useful to expand regional businesses who are dependent upon ICT	Recruit outside employers; improve efficiency of local businesses

### **Rural Telework Project**

The ICN Committee collaborated with Washington State University's Energy Office to participate in the Rural Telework Initiative with other communities throughout the state.<sup>11</sup> The goal of the project, which lasted from 2001 through 2003, was to use ICT to strengthen and diversify the economy of rural areas through telework job creation.

<sup>10</sup> Located in the West End Technology Business Center

<sup>11</sup> Participants were the City of Forks, Okanogan County, the northeast region of the state consisting of Pend Oreille, Ferry, and Stevens Counties.

Telework, as defined by this project, is ICT-dependent employment in which employers outside the community are able to expand into rural communities as a result of advanced telecommunications. Examples of telework jobs under this definition include call centers for customer service, data entry, claims processing, medical transcription, web site maintenance, and other back office operations.

Forks did not successfully attract a telework employer during the course of this project. The community did, however, obtain other benefits from participating in this project. Forks obtained media opportunities marketing the community as a telework destination, and Washington State University served as an advocate for Forks with business associations. The project also provided general assistance to the community so that Forks is well-positioned to use technology for economic development purposes. The Labor Force Assessment Survey (detailed below) was an outgrowth of the Rural Telework Project.

### ***Development Strategy***

Forks' participation in this project was directly the result of their relationship to Washington State University, the initiators of the project. Washington State University's Energy office obtained funding for this two-year demonstration research project from the U.S. Forest Service, Washington Mutual Foundation, USDA Fund for Rural America, and the Washington State Office of Trade and Economic Development.

### ***Lessons Learned***

- Develop extralocal relationships between local and outside businesses, and between local businesses and outside consumers. This results in relationships that may provide opportunities for business growth.

- Develop a positive press image of the community that can be found by site selectors/prospective businesses through standard web-based searches.

### **Labor Force Assessment Survey**

In 2002 the City of Forks collaborated with the ICN Committee and Washington State University<sup>12</sup> to administer a survey to assess the local labor force. The purpose of the survey was to gain a better understanding of the skills and capability of the local labor force, particularly those skills related to technology. Questions asked on the survey included employment status, job characteristics, job expertise and skills, training needs, and interest in new employment opportunities. The information is being used to recruit businesses and to help community development planners and others to create job opportunities and to identify training needs.

### ***Development Strategy***

The Labor Force Assessment Survey was directly an outgrowth from the Rural Telework Project (detailed above). Forks' relationship with Washington State University was critical in obtaining the expertise and the resources necessary to administer this community-wide survey.

### **Tele-Health**

Beginning in the early 1990's the Clallam County Hospital District #1<sup>13</sup> has worked to use ICT to increase their efficiency, provide additional and improved healthcare services, and to benefit the community overall (a strategy referred to in this study as Tele-Health). An integrated health information system was installed in 1998 and has since continued to expand. As a result network and computer utilization has increased

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<sup>12</sup> Washington State University's Energy Program and the Entrepreneurial Studies Center

<sup>13</sup> Clallam County Hospital District #1 does business as Forks Community Hospital, Bogachiel Clinic, Forks Women's Clinic, Clallam Bay Clinic, and West End Outreach Services.

400%. Medical analyzers have been physically integrated onto the data network and into the health information system, insuring prompt and accurate capture of laboratory results. Efficiency has increased in terms of patient data capture, data disbursement, and work processes and accuracy. Educational offerings to staff have also increased. Staffing issues, and the quality and quantity of health care continues to increase.

The Hospital District continues to lead efforts using Tele-Health. Tele-Health video-conferencing sites have increased from four to eleven and use has increased, on average, from 10-12 hours per month to 30-40 hours per month. Tele-Health systems are used, about equally, for the following:

- *Direct patient and client health care delivery.* In 2001 a CT scan was installed at the hospital utilizing digital radiology images. These images can be quickly moved to radiologists across the Puget Sound during hours when local radiologists are not scheduled. This greatly improves diagnostic and treatment planning in critical care areas as well as increased radiology turn-around times.
- *Provider and staff education.* Travel time and expenses have been reduced
- *Provider collaboration and administrative meetings.* In addition to reducing costs associated with travel, provider collaboration has improved as a result of using ICT.
- *Address staffing shortages.* Two areas of highest need in rural Washington are pharmacy staffing and radiology staffing. By collaborating with other rural hospitals these staffing needs are being met by “renting” excess staff time to another rural medical facility that has the need. One area recently implement is Tele-Pharmacy in which pharmacists are being shared by participating hospitals.

- *Leverage existing equipment and technology.* For example, an under-utilized Radiology Imaging Server (PACS) at one rural medical facility is shared with the other rural partners for digital film storage and distribution. This is much more cost effective than for each facility to spend \$150,00 or more to acquire their own.

### ***Development Strategy***

Extralocal linkages are key to the hospital district's TeleHealth efforts. Six Critical Access Hospitals<sup>14</sup> in Western Washington are collaborating to provide critical services using ICT. This collaborative effort is working to address the following issues:

- Difficulty in recruiting and retaining professional staff
- Difficulty in providing cost-effective specialty medical services
- Exporting work and jobs to metropolitan areas
- Difficulty and expense in providing staff and patient education
- The expense of Tele-Health and related technologies, and difficulty in obtaining services.

### ***Lessons Learned***

- Collaborating with other rural hospitals is important in aggregating need. The larger, urban hospitals are more likely to respond to a collaborative effort where demand is high rather than a single rural hospital with relatively fewer demands.
- Rural hospitals have needs that must be addressed immediately, whereas larger, urban hospitals typically move slower. By sharing services with other rural hospitals it is possible to obtain more immediate results than with the larger

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<sup>14</sup> Current partners are Forks Community Hospital, Jefferson General Hospital (Port Townsend), Mark Reed Hospital (McCleary), Morton General Hospital, Willapa Harbor Hospital (South Bend), Ocean Beach Hospital (Ilwaco) and CHOICE Regional Health Network (Olympia). Other interested facilities include Mason General Hospital (Shelton) and Shoalwater Clinic (Tokeland).

hospitals. Efforts to work with larger hospitals are more effective addressing long term needs.

- Collaboration is key. A hospital may be on an integrated network, but this is meaningless unless human relationships are fostered that can be utilized.
- Work with the local telecommunications provider to access innovative services.
- Collaboration with other rural hospitals result in timely solutions to address rural staffing and service needs. Large hospitals are slow to respond to the unique needs of rural healthcare – rural healthcare providers better understand the struggles and needs of other rural healthcare providers. A desired service may be available from another rural healthcare provider.
- Rural facilities involved in Tele-Health are able to “rent out” excess staff time that another rural facility may need. This helps keep jobs in the rural community rather than exporting jobs and work to medical centers in urban areas.
- Collaboration between rural medical facilities allows them to share the costs of the telecommunications infrastructure.

### **Business Incubator**

One purpose of the ICN Building (see chapter 4) is to be a business incubator for new local business start-ups and for local businesses seeking to expand. The objective is to provide business related services, such as legal, accounting, and consulting on business marketing and business development. Currently there are three tenants in the building – two in offices and server space that is being leased. A community member describes the vision behind Forks’ business incubator program:

*I see this as kind of being a daycare for businesses. A pre-school for businesses would actually be better. And then actually start out helping them to build. And then taking that pre-school business into the community and helping them to grow and to develop and become a stand-alone facility.*

To date there has been one local start-up dependent upon telecommunications that is located in the ICN Building. Two local men, one of whom owned his own fishing guide business, joined together to design web pages for other fishing guide services throughout the country. This business has since expanded to create other types of web pages focused upon outdoor recreation services.

### ***Development Strategy***

Leveraging local resources and expertise is critical to provide local entrepreneurial efforts the knowledge, support, and access to resources necessary to ensure the business will survive and expand. A facility is also important for these efforts both in terms of providing housing but also providing a supportive atmosphere.

### **West End Business and Technology Center (ICN Building)**

This chapter describes several efforts seeking to recruit outside employers. The ICN Building complements these attempts by providing a potential facility for small outside employers who seek to locate within the community and who require a turn-key facility. Having a turn-key facility that accommodates workers is important to outside employers because it gives them office space at much lower operating costs than that available in urban areas. While the community has, to date, not yet attracted an outside employer to this facility, Forks anticipates that this facility will help attract ICT-dependent jobs in the future.

## ***Development Strategy***

The County Economic Development Council continues to work with Forks to market the community to outside businesses. The community also continues to work with Washington State University, through various projects, in hopes of attracting an outside employer. Specifics related to the creation of the ICN Building are detailed in chapter 4.

### **Olympic Coastal Region E-Development Assistance Project**

The ICN Committee is collaborating with Washington State University's Center to Bridge the Digital Divide for a five month project in 2004. The purpose of the project is to assemble information throughout the region and fill current information gaps to provide a basis for marketing the region as a telework destination, or for location and expansion of telework-linked businesses to the region. This information will be used to identify how Forks compares to other communities in the coastal region, as well as determine how a collective marketing approach to the entire region could be utilized to help Forks' business recruitment endeavors. Seven counties on the Olympic Peninsula are participating.<sup>15</sup> Objectives of the project include the following:

- Assemble baseline data on ICT assets available within the study region
- Develop baseline information on ICT workforce skills
- Inventory potential building sites appropriate for telework development
- Document innovative business applications of ICT which may serve as models of business expansion opportunities for existing businesses within the region
- Identify industry categories and specific employers as target candidates for business recruitment into the study area

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<sup>15</sup> The counties participating in the Olympic Peninsula Region Project are Clallam, Jefferson, Mason, Kitsap, Grays Harbor, Pacific, and Wahkiakum.

At the time of this study the Olympic Coastal Region Project was in process. As with the other economic development efforts the community continues to pursue, it is anticipated that information from this project will enable Forks to recruit outside employers, as well as expand local businesses dependent upon advanced telecommunications.

### **Conclusion**

The ICN Committee continues to be involved in numerous activities focusing upon economic development using ICT. Most of these activities have not yet displayed tangible results. One notable exception is the effort of the Hospital District's efforts in pursuing different facets of Tele-Health. It is important to note that while locating an employer into a community provides results that are easily identified, other economic development strategies – typified by the efforts of the Hospital District – are equally as important. In addition, it is also important to note that Forks has been actively pursuing economic development using ICT for a relatively short time span – approximately four years. Economic development is a process that generally takes time to produce results.

## References

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## **SECTION 3**

### **Conclusion: Keys to Bridging the Digital Divide and Future Directions for Forks**

## **Chapter 7**

### **Conclusion: Keys to Bridging the Digital Divide and Future Directions for Forks**

Since the ICN Committee was formed approximately four years ago substantial gains have been made in bridging the different dimensions of the digital divide. Forks has acquired a redundant fiber-optic infrastructure, necessary for linking the community to the information superhighway. Numerous activities within the community facilitate computer literacy enabling local residents to obtain the knowledge required to more fully utilize ICT for their needs. And while many of the community's efforts to capitalize on the technology's ability to bring economic development to Forks have yet to fully materialize, important progress has been made, particularly efforts in Tele-Health.

This study focuses upon how local integration and extralocal linkages assist a community's efforts to bridge the digital divide. Prior chapters discuss the role of local and extralocal linkages in relation to a particular activity. This chapter summarizes how local integration and extralocal linkages contribute to Forks' overall success in using ICT to promote both the social and economic well-being of community members.

#### **Local Integration**

Development efforts that involve different community groups in decision-making processes are typically more successful lead in achieving goals that benefit the collective. Local integration enables a community to effectively address five specific problems related to development efforts:

- *Initiation and spread of interest of the problem.* Local issues are identified and communicated throughout the community.

- *Organization sponsorship* addresses the problem of organization. A new group is created or an existing group is utilized to deal with the identified problem.
- *Goal-setting and strategy formulation.* Specific goals and strategies to pursue those goals are identified by community residents.
- *Resource mobilization.* Community members work to secure the resources necessary to successfully achieve identified goals.
- *Implementation of project.* Mobilized resources are applied to achieve the defined goals.

Forks demonstrates how strong local integration addresses these problems. During most of the 1990's several entities within Forks – the City of Forks, the hospital, and the school district – pursued separate efforts to integrate ICT into the community. By 1999 these entities recognized the utility in collaborating with each other to make a stronger case for their efforts. This local collaboration directly led to the community's designation as the pilot project for CenturyTel's ICN project, and to access CenturyTel's resources.

Identifying the community's technology needs occurred primarily through the Community Visioning Workshop, held in the spring of 2000, which was attended by approximately 130 community members. From this meeting the top five community issues of greatest concern were identified: 1) Recruit outside business and enhance local business endeavors; 2) increase educational opportunities for all citizens; 3) educate the community on the uses and benefits of ICT; 4) increase opportunities to do business with the government; and 5) convince the community and the world that rural healthcare is world class healthcare. Specific strategies were also identified for each goal.

The Community Visioning Workshop in 2000 was critical for identifying and defining the needs faced by diverse segments of the Forks' population. It also began the process of communicating to community members the benefits of the technology. Rather than focusing upon a single issue – for example, outside business recruitment – these goals reflect the needs of different segments of the local population. The goals address the community's economic development concerns, both related to local business and the desire to more aggressively recruit outside business. Education and healthcare benefit all community members. Community members describe the success in this effort to initiate and spread interest in the benefits of ICT:

*All of a sudden people are talking about upgrading and their [computer] speed. People who are not that computer literate. But they're getting there.*

*This community accepted this idea very, very rapidly. And some of it came from the leadership we had of individuals within the school district, teachers, principles, administrators, the school board, the superintendent, and the city attorney.*

The process of educating, communicating, and informing the public on ICT continues to occur through the local newspaper, which regularly publishes articles on the subject.

*The articles in the Forks Forum newspaper are a big asset. It is a passive way of informing the community without making the people feel intimidated or stupid. They can learn information on their own.*

To address issues of organization sponsorship a group of community members was formed at the Community Visioning Workshop. This group – the ICN Committee – continues to meet regularly to work on realizing the goals identified at the Community Visioning Workshop. The ICN Committee has an open, fluid membership in which

diverse groups within the community participate. Members of this group include representatives from the school district, the City, business, the hospital, interested community members without a specific organizational affiliation, in addition to representation by groups located outside the community. The open nature of the ICN Committee is described by participants:

*People came and went, new people come, some leave...[Community members] are still very interested in what it is we're doing.*

The open participation promoted by the ICN Committee has several important benefits. By fostering a dialogue between the diverse groups within the community specific needs of certain groups are identified and addressed. Conflict between competing groups is reduced. Alternative solutions to a problem are identified because of different perspectives are vocalized and discussed. And, each group has access to a variety of extralocal entities which provides resources not available within the community. A participant describes this open, tolerant environment:

*I've never experienced a situation that expressed so much genuine tolerance for different peoples' roles in the community.*

The ICN Committee continues to access diverse resources available within the community. For example, the ICN Building was furnished with furniture and computers donated by a local businessman. Community members with expertise in technology volunteer to teach free public courses on a variety of topics. Local youth networked the ICN Building and continue to maintain and upgrade the equipment. Diverse groups within the community are working together and pooling their historical and cultural artifacts to create a community on-line museum.

## Extralocal Linkage

The ICN Committee – with its open and diverse participation – also continue to access diverse resources outside the community. This ability is an important outcome of strong local integration, which facilitates greater access to a variety of extralocal resources (see figure 2.1 in chapter 2). This ability is critical for small rural communities who often lack the expertise, the funds, and other types of resources necessary to successfully achieve their goals. Extralocal linkages provide access to the following resources:

- *Professional expertise.* Expertise often not available to a small, rural community includes technical knowledge related to ICT, economic development skills, and research skills.
- *Funding.* Funding is critical for any project to succeed and for rural communities with a small tax-base and substantial poverty, funding is critical. Funding is obtained through federal, state, and county government, non-profits, and other sources.
- *Staffing, curriculum, and other resources* necessary to increase business efficiency and educational opportunities. Staffing shortages are common in rural communities where hiring professional staff willing to locate in a small rural community is a highly competitive endeavor. Small rural schools also experience challenges in providing a diverse curriculum due to staffing and funding constraints. Extralocal linkages are invaluable assets in addressing these needs through a stronger presence by collaboration, and the sharing of equipment, staff, curriculum, and other resources.

The ICN Committee's ability to access the expertise of a variety of professionals has been critical to achieve the community's goals. Local collaborative efforts between the school district, the City, and the hospital directly resulted in Forks' acquisition of fiber-optic infrastructure. It was only through the collaborative effort that the community was able to capture the attention of their local telecommunications provider, CenturyTel. This local collaborative effort recognized that they lacked the necessary expertise and resources to acquire the advanced telecommunications infrastructure without the assistance of CenturyTel.

*We didn't have anybody who understood [telecommunications] well enough...so we really felt there was an advantage of courting our provider...*

The ICN Committee's access to several institutions of higher education continues to provide professional expertise otherwise unavailable to the community.

*One positive aspect of Forks is the three higher educational institutions: University of Washington ONRC project, Washington State University, and Peninsula College. All are working to assist Forks in various ways.*

*It's terrific Forks has the advantage of those people out here. Seeing what can be done. Because without the outside expertise and people coming into to help assess what the needs are and to help try to fill those and bridge those gaps and things, the potential wouldn't be realized.*

These institutions continue to provide Forks with a variety of expert knowledge. Washington State University provides expertise and research skills that assist Forks pursue economic development opportunities. The University of Washington provides expertise and funding with the on-line community museum. Peninsula Community

College provides facilities and other resources necessary for the North Olympic Peninsula Skill Center and for the on-line community museum.

Extralocal linkages also provide access to funding, a critical ingredient for Forks' development efforts. Forks' redundant fiber-optic infrastructure was funded entirely by outside entities, including approximately \$6 million by CenturyTel and \$1.7 by CERB (Washington Community Economic Revitalization Board). The ICN Building was also funded entirely through extralocal linkages. Political connections to state Senator Patty Murray enabled Forks to secure \$100,000 in federal appropriations funding and the county economic development council contributed \$200,000. Washington State University was instrumental in the designation of Forks High School as the first rural High Tech High by the Gates Foundation and receiving the associated funds. Extralocal funding continues to be critical for many of the school's programs, as well as the on-line community museum.

Many rural communities confront staffing shortages and lack of resources necessary to provide a variety of educational and healthcare opportunities available to more prosperous and urban communities. A community member associated with the hospital describes these challenges:

*Staffing is a huge [problem]...to get a specialist of any kind you're probably going to have to pay them more than you would have to pay them in the city. You have to recruit them aggressively because every other small hospital in the country is trying to get them, too!*

To address staffing and other resource shortages Forks Hospital District continues to make extensive use of extralocal linkages. Collaboration with other rural hospitals has led to the sharing of staff, such as pharmacists and radiologists. Collaboration between

both rural and urban hospitals has also enabled Forks and other participating hospitals to share equipment.

The school district also relies heavily on extralocal linkages to supplement both its staff and its curriculum to increase educational opportunities for its students. The school district's collaboration with other rural school districts was central in creating the Washington Virtual Classroom Consortium Project. In this project staffing and curriculum are shared via ICT among participating rural school districts. It is notable that the success of this project – initiated by Forks' school district – is now being replicated in a larger statewide initiative scheduled to be implemented in 2005. School district staffing and curriculum is also supplemented in the Virtual High School project, in which Forks High School students are able to access over one hundred courses and interact with students world-wide through the Internet.

### **Future Directions for Forks and the ICN Committee**

This study documents the tremendous gains Forks has made over the past four years in bridging the digital divide and using ICT to improve both the social and economic well-being of the community. Yet much remains to be done. Over the next five years community members throughout Forks hope the ICN Committee will work address the following needs.

#### ***Economic Development:***

- *Recruit outside business.* ICT is seen as reducing the geographic isolation of Forks, a primary impediment to the community's ability to attract outside business. A business that is ICT dependent – such as a call center – does not have to address issues of transporting goods in and out of the community. Community

members assert that even the addition of 10-12 new jobs would have a substantial economic impact upon the community. It is important to note that some community members appear skeptical in Forks' ability to attract an outside employer. This skepticism arises partly from the small population size of the community, the barriers a business may have in transporting goods from Forks, and that rural communities less geographically isolated with a larger population base are competing for the same employers.

- *Focus upon building upon Forks' unique assets based upon existing cultures and collective heritage of the region.* Forks is unique in its close proximity to the Hoh Rainforest, the Pacific ocean, and several Native American tribes. The recreational and cultural opportunities associated with these attractions are seen having great potential that is, at the present time, largely underdeveloped. ICT is seen as an invaluable tool for creating a potential niche market that sets Forks apart from the many other rural communities also seeking to capitalize upon the tourism market. Developing an economic development plan that focuses upon these attractions would involve using ICT to market Forks to tourists across the world. In addition, marketing these assets globally would lead to the expansion of local business and the creation of new local business.
- *Promote local entrepreneurial efforts by building up the business incubator program.* Community members see this program as having a great deal of potential. However, they state that this program needs greater attention if it is to realize this potential. There is recognition that some community members are already involved in small entrepreneurial activities dependent upon ICT, so

greater effort needs to be made to identify these persons and their efforts, and to help them expand.

- *Marketing.* Now that Forks has a redundant broadband infrastructure, community members state that greater attention needs to be given to marketing the community. Such a marketing campaign would focus upon outside business recruitment and building upon Forks' assets in an effort to expand and develop local business.
- *Conduct a business retention survey.* This survey would question local businesses on their intentions to expand, sell, or retire, and their needs concerning ICT. Such a survey would provide a wealth of information, including addressing workforce needs, identifying opportunities for planning future business ownership transitions, and other needs concerning ICT.

***Community access to technology:***

- *Placing refurbished computers in low-income homes.* There continues to be concern that low-income homes within the community lack sufficient access to computers. This is a problem for both school-aged children who need computer access in today's computer-dependent society, as well as for adults. A program placing refurbished computers in these homes would address this need.
- *Utilize students' knowledge by providing technical support for community members.* While the knowledge of local youth continues to be useful in maintaining the equipment at the ICN Building, community members continue to see local, computer-savvy youth as an under-utilized resource. Implementing a

paid internship program may be a useful means to use youth to assist both local businesses and citizens with their technical support needs.

- *Get the ICN Building open to the public by staffing it.* The ICN Building is recognized as having important potential for an array of technology-related activities. There is some frustration that the remodeling effort has taken so much time and therefore impeding the use of this building. Of central concern is finding sufficient money to staff the building to facilitate public use. Suggestions include staffing the building from early in the morning to late at night so that school children and working adults can use the building after regular business hours.
- *Continue to raise skill levels of community members.* Increasing the computer literacy of the local population continues to be a concern. In particular, Forks has a growing retiree population. There is concern that the computer literacy needs of this population are not being met.

***Infrastructure:***

- *Obtain wireless technology.* There is concern that Forks has lost its competitive edge because it does not have wireless capabilities. Wireless is seen as having numerous advantages, particularly for economic development. It is seen as an important competitive tool for recruiting outside businesses into the community. Local tourists and others visiting the community would be better able to access their email, conduct business, and engage in other computer-related endeavors if wireless technology existed (at the moment they must go to the public library which has limited hours and a limited number of computers).

## **Conclusion**

Given the rapid pace of technological advancement and the world's increasing dependence upon ICT, efforts to bridge the digital divide will be ongoing. A community must continue to maintain and upgrade the physical infrastructure. Computer literacy must keep pace with technological advances. And, economic development issues will continue to a primary concern of rural communities. Thus far, Forks and its ICN Committee have made important progress in addressing these issues. By fostering strong local integration the ICN Committee is able to access resources inside the community and to identify and address a wide variety of community needs concerning technology. In addition, strong local integration has lead to increased linkages to resources outside the community which provide Forks with expertise, funds, and other resources not otherwise available to the community.

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