

UNITED STATES DEPARTMENT OF AGRICULTURE
SMALL BUSINESS INNOVATION RESEARCH
 SOLICITATION NO. USDA/03-1
 PHASE I AND PHASE II
 PROPOSAL COVER SHEET

OMB Approved 0524-0025

Proposal No.
Date Received

SUBMITTED BY	Firm	CEO Praxis, Inc.
	Mailing Address	The Dacotah Building, 100 North 3rd Street, Grand Forks, North Dakota 58203

Project Title
Facilitating Rural-Urban Trade and Technology Flows

Topic No. and Area (check appropriate box; see Section 8.0)

<input type="checkbox"/> 8.1 Forests and Related Resources	<input type="checkbox"/> 8.4 Air, Water, and Soils	<input type="checkbox"/> 8.8 Industrial Applications
<input type="checkbox"/> 8.2 Plant Production and Protection	<input type="checkbox"/> 8.5 Food Science and Nutrition	<input checked="" type="checkbox"/> 8.9 Marketing and Trade
<input type="checkbox"/> 8.3 Animal Production and Protection	<input type="checkbox"/> 8.6 Rural and Community Development	<input type="checkbox"/> 8.10 Wildlife
<input type="checkbox"/> 8.7 Aquaculture		

Amount Requested (\$) \$80,000	Proposed Duration (Mos.) 6 months	Congressional District No. ND #1	YES	NO
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1. The above concern certifies that it meets the first two criteria of small business concern as stated in this solicitation or that it will meet that definition at time of award. (See subsection 2.2).	x	
2. The above concern certifies that it qualifies as a socially and economically disadvantaged small business as defined in this solicitation (See subsection 2.4). (For statistical purposes only).		x
3. The above concern certifies that it qualifies as a women-owned small business as defined in this solicitation (See subsection 2.5). (For statistical purposes only).		x
4. The above concern certifies that the Project Director's primary employment (at least 51%) will be with proposing firm at the time of any resulting award and during the conduct of the proposed research (See subsection 2.2(c)).	x	
5. The above concern certifies a minimum of two-thirds of the research (phase I) or one-half the research (phase II) will be performed by this firm (See subsection 2.2(D)).	x	
6. Will you permit the Government to disclose the title and technical abstract page of your proposed project, plus the name, address, and telephone number of the corporate official of your firm, if your proposal does not result in an award, to entities that may be interested in contacting you for future information?	x	
7. Do you plan to send, or have you sent, this proposal or a similar one to any other Federal agency? If yes, give acronym(s); e.g., DOE, NIH, NSF, etc.		x
8. Is the organization delinquent on any Federal Debt? (See subsection 5.11). (If yes, attach explanatory information).		x
9. Will the work in this proposal involve recombinant DNA, living vertebrate animals, or human subjects? (If yes, complete Form CSREES-2008).		x
10. Is this proposal a resubmission of a proposal submitted earlier to the USDA SBIR Program? If yes, list the proposal number _____.		x

By signing and submitting this proposal, the prospective grantee is providing the required certifications set forth in 7 CFR Part 3017, as amended, regarding Debarment and Suspension and Drug-Free Workplace; and 7 CFR Part 3018 regarding Lobbying. (Please read the Certifications and Instructions included in this solicitation before signing this form.) In addition, the prospective grantee certifies that the information contained herein is true and complete to the best of its knowledge and accepts as to any grant award, the obligation to comply with the terms and conditions of the Cooperative State Research, Education, and Extension Service in effect at the time of the award. *Submission of the Social Security Number is voluntary and will not affect the organization's eligibility for an award. However, it is an integral part of the CSREES information system and will assist in the processing of the proposal.

PROJECT DIRECTOR		AUTHORIZED ORGANIZATIONAL OFFICIAL	
Name and Title	Name and Title	Delore Zimmerman, Ph.D. President	
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Telephone No.	Fax No.	701-775-3354 701-775-3909	
Signature	Date	Signature	Date
	8/29/02		8/29/02

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PROPRIETARY NOTICE (IF APPLICABLE, SEE SUBSECTION 5.4)

The following pages (specify) contain proprietary information which (name of proposing organization) requests not be released to persons outside the Government, except for purposes of evaluation.
 Form CSREES-667 (2/2001)

U.S. DEPARTMENT OF AGRICULTURE
SMALL BUSINESS INNOVATION RESEARCH
PHASE I AND PHASE II
PROJECT SUMMARY*

9.2
 OMB Approved 0524-0025

FOR USDA USE ONLY			
Program Office	Solicitation No.	Proposal No.	Topic No.
TO BE COMPLETED BY PROPOSER			
Name and Address of Firm CEO Praxis, Inc. 100 North 3 rd Street Grand Forks, ND 58203		Name and Title of Project Director(s) Delore Zimmerman, Ph.D. President	
Title of Project (140-character maximum) Facilitating Rural-Urban Trade and Technology Flows			
Technical Abstract (200-word limit) <p>A growing number of economists and policymakers contend that finding new ways to connect to the markets and technological innovation of metropolitan areas will be a critical challenge for rural companies and communities who now face thin local markets and thin networks of firms and support institutions, e.g. finance. This research will look at how functional rural-urban linkages may be created and sustained to facilitate trade and technology transfer between rural and metro areas. More specifically, the project will determine the feasibility of developing organizational mechanisms and/or practices for creating trade and technology linkages within metropolitan economies that will benefit rural businesses and communities by integrating them more fully with the informational economy.</p> <p>The research includes an examination of existing practices that could serve as the basis for creating a service delivery system for enabling rural companies and communities to proactively develop these linkages in metropolitan areas; including business-to-business linkages, business network and cluster linkages, civic-oriented rural-urban linkages, and technology liaison centers.</p>			
Anticipated Results/Potential Commercial Applications of Research (100-word limit) <p>The research will lead to the commercialization of two possible service delivery models: <u>A training program</u> for identifying, creating and sustaining a market presence in metropolitan areas with a particular emphasis on issues related to information technologies. <u>Direct or liaison services</u> to individual businesses, business networks and business development organizations that 1) serve as a focal point for the entry of rural-produced products into metro markets and 2) facilitate the acquisition of information about technology advances occurring in metro areas for rural companies</p>			
Keywords to Identify Technology/Research Thrust/Commercial Application (8-word maximum) Rural-urban linkages, informational economy, trade, technology transfer			

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0524-0025. The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and viewing the collection of information.

*The Project Summary must be suitable for publication by USDA in the event of an award. Do not include proprietary information on this page.

(E) Technical Content

(1) Identification and significance of the problem

Rural America faces both great opportunity and danger in the emerging digital age. How rural people and communities react to this challenge will determine their long-term viability.

In our company's work with rural companies and rural communities we find two fundamental barriers to their full participation in the informational economy – **thin markets and thin networks**. Rural areas, except those on the urban fringe, are disconnected from metropolitan areas that serve as the primary engines of the economy. It is in the metropolitan areas of the country where the vast majority of economic activity occurs and it is in the metro areas where the large industrial and consumer markets reside. Economists at the Milken Institute have found that this concentration of both manufacturing and services remains high in the urban areas and that these agglomeration tendencies persist until they are thwarted by high-congestion related costs.

Life on the outside of the informational economy can have serious consequences. According to a Center for the West report by Phil Burgess and Flo Raitano, "The Other Digital Divide," the "continued survival and prosperity of small towns, suburbs and rural areas depend on the ability of business enterprises and public institutions to access new, high-speed, broadband networks, just as they depended on access to waterways, railroads and highways in other areas. The high-speed broadband networks of the 21st century are essential to attracting and retaining businesses, providing state-of-the art health care, and offering children the benefits of distance learning on the Internet."

The problem, however, runs deeper than telecommunications connections. As noted by Manuel Castells (2000):

"the global economy is now a network of interconnected segments of economies, which play, together, a decisive role in the economy of each country – and of many people. Once such a network is constituted, any node that disconnects itself is simply bypassed, and resources (capital, information, technology, goods, services, skilled labor) continue to flow in the rest of the network. (p. 147)

Castells's space of flows is characterized by simultaneous concentration and decentralization of people and economic activity. Places, people and companies outside the flow are increasingly relegated to a self-reinforcing spatial marginalization, social exclusion and functional devaluation. They are not only disconnected but fail to implement organizational forms and engage in those kinds of activities that characterize the informational economy – information generation, processing and transmission – which are now the fundamental sources of productivity.

Many rural communities and small cities outside the major metroplex areas of the United States have lagged significantly in making the transition to the informational economy and have largely missed out on opportunities in electronics, biology, and informatics – the convergent technologies now increasingly based on a common digital language that will define the economic opportunities of the future.

In this context, an increasing number of rural economists and rural policymakers contend that finding new ways to connect with metropolitan economies will be a critical challenge for rural companies and communities.

The Phase I research that we are proposing will take an in-depth look at how these kinds of functional rural-urban linkages may be created and sustained. More specifically, the project will determine the feasibility of developing organizational mechanisms and/or practices for creating trade and technology linkages within metropolitan economies that will benefit rural businesses and communities.

(2) Background and rationale

The great promise in the digital age for rural communities lies in the potential of modern communications and the information economy. By bringing the capacity to perform tasks virtually to any community, the digital age offers rural communities a chance to use their natural points of leverage to build and/or attract information and technology-based businesses and enhance the connectivity of their communities to the global economy.

Yet at the same time, the processes of the information age, by allowing for the further automation of tasks, both industrial and commodity-based, could further erode the transactional role played by smaller communities. As noted by Kotkin (2000) and Castells (2001) the internet has a geography of its own, a geography made of networks and nodes that process information flows generated and managed from places.

The Internet and new communication technologies connect people from all over the world in a global network society. The implications of these connections are aptly characterized in Denmark's national information technology plan.

The electronic network of cables and computers links people in new ways. New networks of communication are created between people, networks of employees and enterprises, networks of enterprises and shoppers, networks of teachers and students.

The shift to networked structures (as illustrated in Figure 1) represents a fundamental shift in how we work, learn and play. Networks of networks will break down the walls among companies – suppliers, customers, and competitors. We are already seeing the rise of the networked business, networked government, networked learning and networked healthcare. As the bandwidth of such networks grows to achieve full multimedia the opportunities for such new structures will grow dramatically.

Networks, rather than individual people or organizations, are becoming the predominant form of economic organization. The reality is that places, people,

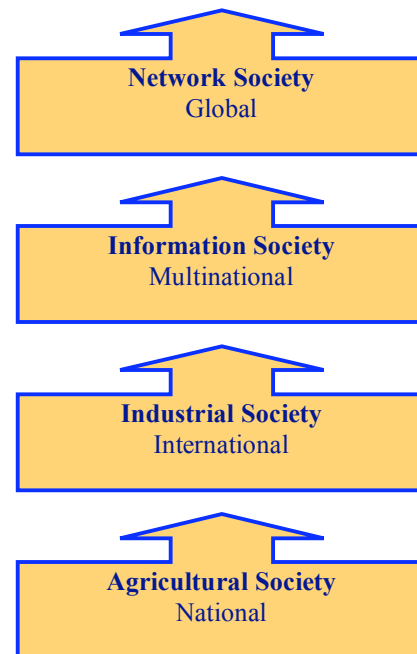


Figure 1: Societal & Economic Shifts

companies and organizations will increasingly be differentiated as those that participate in rich networks and those that do not. To sum up, Kevin Kelly, editor of WIRED magazine, has called networks *possibility factories*.

Connectivity via **technology networks** and relationships via **people networks** reign supreme in the network society. Today, places develop competitive advantage based on their ability to quickly mobilize the best people, resources and capabilities and this is most effectively accomplished through networks.

The Internet has contributed significantly to the rising importance of information industries and will continue to accelerate this process. In the past twenty years, information industries have doubled their share of the US economy and accounted for most of the nation's growth in productivity.

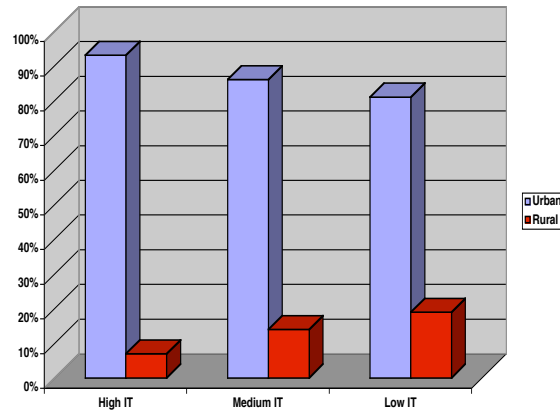


Figure 2: IT Employment by Intensity for Rural and Urban Areas

Employment in information-intensive firms in the United States is, nonetheless, overwhelmingly urban (Kolko, 1999; see Figure 2). Moreover, the utilization of IT in firms in rural areas is heavily weighted toward less intensive uses. Such activity now accounts for nearly two-thirds of the differential in economic growth between various regions.

Focusing entirely on information industries, however, ignores important dimensions of the role of and the use of information technology. IT employment now cuts across a number of industry groups including many components of manufacturing, telecommunications and services (Markusen et. al)

Information technology not only generates employment, output and economic growth but also enhances productivity growth of many other industries. Consequently, differentiating between information-producing and information-using industries has become common practice because of the proliferation of IT throughout many industries.

IT-using industries are those that are engaged in activities that intensively use information in their production processes. Examples include utilities, medical services and management and public relations. **IT-producing industries**, on the other hand are those engaged in activities that facilitate the use of information. Examples include telephone communications, data processing services and manufacturers of electronic products.

As Glasmeier (1999) notes in a discussion of industrial district service centers, “ the type of information at the base of today’s business success stories is increasingly both codified and semi-codified. As knowledge about new developments from outside the district comes increasingly to take the form of technical know-how (in this case, not scientific knowledge alone, but knowledge about management, logistics and finance) firms within the district may lack the internal translation capabilities needed to benefit

from this new information.”

And, according to Glasmeier, because the gap between informational firms and non-informational firms is growing “the success of the regional economy will, to an increasing degree, then, be tied to the fortunes of fewer, smarter firms.” For the purposes of the proposed research, the importance of Glasmeier’s findings is that territory-based (i.e. community or region-based) planning must focus on two key elements.

- Providing efficient and modern infrastructure, and
- Nurturing flexible and self-conscious institutions and an information coordination and dissemination capacity for trends unfolding outside the immediate local area.

In *The High-Tech Potential: Economic Development in Rural America* Glasmeier also concludes that one key element of building a geography of technology success in rural areas is to cultivate and sustain linkages between businesses and industries in rural communities and those in metropolitan areas; thereby, creating trade and technology transfer flows between firms at the center of technology innovation to those in more remote rural areas.

Trade and Technology Linkages: The South Korean Model

Today the Republic of South Korea is implementing the most prominent example of the kind of connections to metropolitan economies that we are proposing to examine. The ROK-sponsored “Information and Communications and Venture Support Center” in San Jose is a high-tech liaison center in Silicon Valley whose mission is to 1) network with local researchers and companies, 2) serve as a focal point for entry of ROK products into the US market and 3) facilitate acquisition of US information technology. The Federation of Korean Industries (FKI) is also establishing a biotechnology facility in San Diego.

The main purpose of both South Korean centers – one in biotechnology and one in information technology – is to “grasp in real time the latest advances and trends in these industries.” The research proposed here seeks to determine if there is an organizational innovation that can be created to do the same for one or more of rural America’s business sectors or regions. That is, to enable rural businesses to participate in thick markets and thick networks.

(3) Relationship with future research and development

The proposed Phase I research will serve as the foundation for future research and development in Phase II that will develop and pilot mechanisms for linking rural companies and communities to trade and technology transfer opportunities in metropolitan areas. The approach that we propose to examine differs from traditional “outreach” models whereby technology or business assistance is disseminated from metro-based organizations to rural firms. Instead, we intend to develop business practices and techniques for individual companies, or for business networks/clusters, or for territory-based development organizations to proactively pursue and take advantage of economic opportunities within one or more metropolitan economies.

As noted within the context of the South Korean “trade and technology liaison

centers” the purpose will be to identify organizational mechanisms or structures that serve as a focal point for the entry of rural-produced products into metro markets and facilitate acquisition of information about technology advances occurring in metro areas for rural companies.

(4) Phase I technical objectives

The overall objective of the proposed research is to:

Determine the feasibility of developing organizational mechanisms or practices for creating trade and technology linkages in metropolitan economies that enable rural businesses and communities to participate more fully in the informational economy.

Two technical objectives will be addressed in accomplishing the overall objective of the research.

Technical Objective 1

Examine existing organizational mechanisms and initiatives for trade and technology flows between rural-urban businesses and territories to determine the structures and linkages that facilitate that activity.

- Task 1: Topic Scoping by the Project Team
- Task 2: Investigate community and regional-based initiatives for identifying and developing rural-urban trade and technology flows
- Task 3: Investigate civic-oriented initiatives to create rural-urban linkages
- Task 4: Examine existing rural-urban business-to-business relationships
- Task 5: Examine existing rural-urban business network and cluster relationships
- Task 6: Investigate the South Korean -Tech Liaison Center Model

Technical Objective 2

Identify and characterize strategies and methods – a “best model” – for facilitating metropolitan-based trade and technology linkages and flows that benefit rural businesses and communities.

(5) Phase I Work Plan

The proposed research will be carried out by CEO Praxis, Inc. supplemented with the expertise of Joel Kotkin an internationally recognized authority on economic, social and technology-related trends and author of the groundbreaking book “The New Geography: How the Digital Revolution is Reshaping the American Landscape.” Dr. Delore Zimmerman will be the project’s principal investigator.

The overall Phase I objective, which we believe can be readily achieved within the six-month period of performance, will be accomplished by completing the following activities for each of the technical objectives.

Technical Objective 1

Examine existing organizational mechanisms and initiatives and business models for facilitating trade and technology flows between rural-urban businesses and territories to determine the structures and linkages that facilitate that activity.

Task 1: Topic Scoping by the Project Team

The research will begin with the project team's collection and sharing of books, published research reports and other materials that are relevant to the conceptual framework and real-world applications of the topic at hand. The project team will also begin to identify and select candidate organizations or individuals for interviews or for secondary research. This will enable the project team to begin the project with the same baseline information and facilitate clearly framing the research questions for subsequent tasks.

Task 2: Investigate community and regional-based methods for identifying and developing rural-urban trade and technology flows

In *World Class Communities: Thriving Locally in the Global Economy* Rosabeth Moss Kanter identifies strategies for helping communities to link to external markets. One of the strategies identified by Kanter is to follow the trade routes by identifying the key trade connections of major companies in the area and then to develop strategies for transportation, telecommunications, and language skills (in the case of foreign markets) that build on existing ties.

In comparison to international trade there is little if any equivalent published data regarding domestic trade flows. Consequently, in this task we will conduct case studies identified through secondary sources and contacts in the development profession to identify and analyze techniques that are or have been used by regions and communities to develop domestic and international trade and technology flows. We will also examine the practices of a select group of technology transfer organizations from throughout the country to identify and analyze practices that have been used successfully to develop reciprocal linkages between rural and urban areas.

Finally, we will look to the research regarding reciprocal rural-urban linkages in developing countries. At a minimum, this research will provide a conceptual framework for organizing our research on "structures and flows" between rural and urban areas. We intend, as part of this aspect of the research, to speak with Mike Douglass who is one of the leading theorists and practitioners in this area.

The intent, ultimately, is to develop a set of practices and tools that can be used by rural development organizations and/or rural companies to proactively develop these kinds of linkages with metro areas. Some communities, for example, have established regular exchanges or "sister city" relationships that serve this kind of function. One of our client communities – Wenatchee, Washington – recently established such a relationship with the Seattle area by striking a semi-formal agreement between the Greater Wenatchee Technology Alliance and the Seattle Technology Alliance.

Task 3: Investigate civic-oriented initiatives to create rural-urban linkages

In addition to examining rural-urban linkages between businesses, business associations and economic development organizations we will also identify and analyze linkages that have been developed between civic organizations. As noted in a later section of this proposal, the Heartland Center for Leadership Development has implemented a project “Strengthening the Rural-Urban Connection” that brings together a broad range of both rural and urban representatives for roundtable retreat discussions in two separate geographic regions. Participants include professional development practitioners, volunteers and activists, academics, private sector “power brokers,” charitable foundation leaders, and public policy makers.

In this task we will examine the Heartland Center’s project as well as identify and examine other similar kinds of efforts. It is entirely possible that these kinds of civic ties – which build social capital linkages – may be an essential ingredient in building the kinds of trade and technology flows that we are primarily concerned with in this research.

Task 4: Examine existing rural-urban business-to-business relationships

Kevin Kelly’s book *New Rules for the New Economy: Radical Strategies for a Connected World* outlines the guidelines for success in the networked society. One of the principles of building successful networks is to empower the parts. In order to determine how to empower the parts of a network that is intended to establish linkages between rural businesses and metropolitan markets we intend to conduct case studies of companies who have implemented – either successfully or unsuccessfully – these kinds of relationships. These case studies will include at a minimum:

- Companies with multiple location operations, including those in rural communities and metro areas.
- Companies that are headquartered in rural areas but have field offices in large metropolitan areas. For example, Sundog Interactive is a software and programming company headquartered in Fargo, North Dakota with a branch office in Los Angeles. The company’s strategy explicitly recognizes that being in the technology innovation and social milieu of Los Angeles is vitally important to generate business as well as to have real-time access to the latest innovations and knowledge of industry culture.

Examining the practices of individual businesses is an important dimension of rural-urban trade and technology flows. As noted elsewhere, individual business cosmopolitans (Kanter, 1995) create many of the connections between regional economies and individual “smart firms” are often the only real ties to the informational economy that some regions and communities possess (Glasmeier, 1999). In this light, finding out how individual companies establish and sustain these linkages is crucial to our research.

Task 5: Examine existing rural-urban business network and cluster relationships

Business networks and clusters have proliferated in rural areas. In many cases, reaching out to new markets is a primary objective of these associations. In this task we will identify business networks and clusters located in rural areas throughout the United

States to determine if and how they are creating relationships between rural and urban economies. Our approach in this task will involve two key elements:

- 1) A survey of manufacturing networks that CEO Praxis originally surveyed in 1997. This will enable us to conduct at least some longitudinal comparisons on issues relevant to the current research. Additional networks will be added if they are found to be relevant to the current research.
- 2) Discussions with participants in North Dakota's four of the six industry clusters that are part of the state's New Economy Initiative. The Principal Investigator, Delore Zimmerman, is part of the leadership team of the NEI and has ready access to and an existing working relationship with each of the clusters. The clusters include information technology, aerospace, advanced manufacturing, and food processing.

The networks that will be included in the survey for this task include:

Louisiana Furniture Industry Association

A network of 67 small furniture manufacturers in Louisiana

Kansas Manufacturers, Inc.

A group of 21 small metalworking firms in Wichita, Kansas. KMI serves as a joint marketing organization to help sell members' products to the aerospace industry as well as new industries.

Connecticut Metalworking Network

A network of 15 Connecticut machining and metalworking firms that joined forces to more effectively market their capabilities.

Louisville-Jefferson County Office for Economic Development

A county development organization that has been instrumental in creating networks in food products, metalworking and plastics throughout Kentucky.

A group of five companies that jointly manufacture sophisticated electro-mechanical parts.

Grand River Guild

A network of high-end residential furniture manufacturers in Michigan.

Catawba Valley Hosiery Association

A network of companies in the hosiery industry that produce and market cooperatively.

ACENet

A group of more than 50 firms with varied manufacturing capabilities located in southeastern Ohio. The firms work together to manufacture specific products.

TeCMEN

A network of 31 Florida firms with a variety of capabilities that jointly manufacture and market products.

Berkshire Plastics Network

A group of 38 plastics manufacturers in western Massachusetts.

Appalachian by Design

A group of home-based knitters in Appalachia that produce high-quality knitwear products for large fashion companies.

Kentucky Wood Manufacturers Network

A network of 15 wood products manufacturers located throughout Kentucky.

Tri State Manufacturer Association - Excel Industries

An organization of firms in west-central Minnesota and the eastern Dakotas.

Montana Indian Manufacturers Network

A group of seven manufacturing firms based on seven reservations across the state.

Watermark Association of Artisans

A network of more than 700 artisans located in rural northeastern North Carolina. The network markets the members' products to more than 4000 companies in 11 countries.

EBC Industries

A group of 15 small metalworking firms in Pennsylvania and Ohio.

Metal Working Connection

A network of 57 small manufacturers in Arkansas

All-Tech manufacturing Association

A group of small metalworking firms in the Portland, Oregon area

Task 6: Investigate the South Korean -Tech Liaison Center Model

Our initial research and discovery related to the proposed research has identified the Republic of Korea's technology liaison centers for information technology and biotechnology as models worth investigating. This task will involve meeting with the management of these centers to learn more about how they operate and how they are working with individual companies and the Federation of Korean Industries.

Technical Objective 2

Identify and characterize strategies and methods – a “best model” – for facilitating metropolitan-based trade and technology linkages and flows that benefit rural businesses and communities.

Tasks associated with accomplishing the second technical objective will be directed at conceptualizing and operationalizing a business model for a service delivery system that meets the objectives of the proposed research. That is, to create trade and technology linkages in metropolitan economies that will enable rural businesses and communities to participate more fully in the informational economy.

As articulated within the context of the South Korean “trade and technology liaison centers” model the purpose will be to identify organizational mechanisms or structures that

- serve as a focal point for the entry of rural-produced products into metro markets and
- facilitate acquisition of information about technology advances occurring in metro areas for rural companies.

As noted in the post application section of this proposal we anticipate the development of two possible models:

- 1) A training program that provides information about identifying, creating and sustaining a market presence in metropolitan areas with a particular emphasis on issues related to information technologies. This training program can be integrated into the High Performance Community initiative that CEO Praxis developed with the Center for the New West and has now been deployed in 15 states. The High Performance Community initiative combines training in strategy for community and business leaders with ongoing performance support.
- 2) Direct services to individual businesses, business networks and business development organizations. An increasing part of our business is with small technology and information service companies located in rural areas that have a need to expand their market presence into larger metropolitan areas. These companies, located in thin markets, find it difficult to sustain business revenues and must find ways to serve customers in metro areas if they are to survive. Because of their rural locations many of these clients do not have ready access to information about technology innovations and organizational management innovations.

(6) Related Research and Development

Research on rural-urban business linkages is limited. There does, however, exist a large body of research and theoretical work on uneven development at the regional and international level and a similarly large body of research on dependency theory and core-periphery relationships in the world system. While core-periphery research has also focused on international relations the conceptual framework has been used to explain the persistent gap between rural and urban areas.

One of the few research frameworks put forth that explicitly united rural with urban development was the “agropolitan approach” espoused by Friedmann and Douglass (1978). This approach emphasized local capacity building and popular participation in developing nations. Interestingly, Douglass (1998) uses a conceptual and analytical framework for creating reciprocal rural-urban linkages that parallels the “structures and flow” language that Castells uses in characterizing the underlying operating system of the informational economy.

On the policy front, Karl Stauber of the Northwest Area Foundation, writing for the Center for the Study of Rural America at the Federal Reserve Bank of Kansas City, suggests that rural communities must figure out ways to connect to each other and to robust urban areas. According to Stauber rural communities need technologies that link them to what Jane Jacobs calls “metropolitan engines.” In Stauber’s opinion, technology is one of the key linkages to help make these connections.

Similarly Galston and Baehler (1995) contend that “a central challenge for U.S. rural development will be to conceptualize, and put into place, new kinds of linkages between metropolitan areas and remote communities. Absent such innovations, the prospects for remote communities without significant natural amenities can only be regarded as bleak.”

On the practice front, a project aimed primarily at creating social capital and opportunities for reciprocal learning between urban and rural was recently launched by the Heartland Center for Leadership Development, a nonprofit organization in Lincoln, Nebraska that works with communities nationwide to strengthen local capacity. The project “Strengthening the Rural-Urban Connection” brings together a broad range of both rural and urban representatives for roundtable retreat discussions in two separate geographic regions. Participants include professional development practitioners, volunteers and activists, academics, private sector “power brokers,” charitable foundation leaders, and public policy makers.

The long-range goal of the program is to find solutions to community problems by exploring the strengths and weaknesses of both rural and urban environments, and exchanging ideas that work. This type of interaction has been infrequent in the past. Although some urban development models have been modified and transposed to rural areas, it is much more unusual for a rural model to be tried in an urban setting.

We can also look to the manufacturing networks and clusters, as noted by Stuart Rosenfeld (2001), that proliferated in rural areas and served to expand the social life of small and medium-sized companies – even in relatively industrialized rural areas. These networks helped and continue to help isolated manufacturers to link with their peers to exchange information, get advice on common problems or investment decisions, learn about different methods of doing business or forge alliances.

Similarly, many of the “industrial extension” models that were established by states in the 1980’s and 1990’s to help companies adopt, adapt and utilize new production and information technology systems focused on increasing their competitiveness rather than reaching out to metro markets.

Rosabeth Moss Kanter’s work (1995) on world-class communities focused on the power of networks and particularly the part played by “business cosmopolitans” who bring alternatives from one place to another. According to Kanter “business cosmopolitans have an interest in making places more similar – not by reducing choices to a single one-size-fits-all, but by increasing the range and variety available everywhere.” They are the Johnny Appleseeds of the informational economy, spreading the practices and technologies that make the network economy function.

With regard to the research proposed here, and consistent with the previously mentioned work by Glasmeier, it is important to take account of the fact that a few smart, savvy firms can make the difference between a regional economy that is excluded and one that is at full stride within the informational economy. Therefore, our research must be attentive to identifying these leading edge companies in rural areas and learning about their techniques for linking to metropolitan economies.

Contradictions of the Informational Economy Landscape

In today’s technology landscape distributing work among scattered centers and nodes – what author and CEO Praxis associate Joel Kotkin describes as a “matrix management structure” – has become a practical reality. The use of advanced telecommunications makes coordination between disparate individuals and companies, even on a global level, increasingly easy. At the same time, according to Kotkin (2002), the dispersion of talent and technology to various parts of the country and the world has altered the once-fixed geographies of talent. Being nearby industry sources and people is still important, but increasingly less so. This dispersion trend has been further accelerated by the fallout of September 11th.

Today the network is the enterprise and the internetworked organization is a tech-enabled business model that requires new skills and new tools and relies on the Internet’s anytime, anywhere capabilities. In the Digital Economy Don Tapscott concludes that the new form of business is based on

“effective individuals, working on high-performance team structures; becoming integrated organizational networks of clients and servers; which reach out to customers, suppliers, affinity groups and even competitors; which move onto the public Net, changing the way products and services are created, marketed and distributed.

The contradiction of the informational economy, of course, is that economic activities continue to concentrate in particular areas because of economic factors and, increasingly, because of quality of life factors that appeal to knowledge workers. So, at least one challenge of the proposed research will be to determine what aspects of trade and technology linkages between rural and urban areas are subject to the dispersive tendencies and, likewise, which aspects are more influenced by the agglomeration tendencies.

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(F) Key Personnel and Bibliography

Delore Zimmerman, PhD. – Principal Investigator

Delore Zimmerman's career has focused on the connections between community and enterprise development. He is a founder and President of CEO Praxis, Inc. a firm that is nationally recognized for its leading-edge practices and tools to help economic developers and community leaders to create an entrepreneurial culture and work more effectively with businesses in technology and information industries.

Dr. Zimmerman has been a Senior Fellow at the Denver-based Center for the New West since 1996 where he leads the High-Performance Community Initiative. The HPC is a strategy development initiative designed to help communities and regions become fast, focused, flexible, networked and global. The HPC has been implemented in 15 states to date. He co-authored *High-Performance Communities: New Economy Ideas into Action* with Phil Burgess. They are currently working on the second edition of this book.

Delore served as the lead consultant for the Business Development Work Group of the Northern Great Plains Rural Development Commission, established by Congress to develop a 10-year strategy for 5 states.

He has consulted and appeared as a speaker throughout the United States and the United Kingdom for a diverse range of clients including the Federal Reserve Bank of Minneapolis, the Kansas City Office of the Comptroller of the Currency, the Steamboat Springs (CO) Economic Summit, the National Alliance of Business, Senator Daschle's South Dakota Tech Summit, the New Mexico Quality Association, the National Association of Towns and Townships, the National Trust for Historic Preservation and numerous other national, regional and local groups.

He is a founder and Board Chair of MarketGateway, Inc., a business-to-business e-commerce solution for helping small and medium-sized enterprises (SMEs) to reach out globally to new markets.

Delore is founding member of the New Economy Initiative of the Greater North Dakota Association. He is also a Board Member of North Dakota's EPSCoR program, whose mission is to create more effective linkages between university technology and expertise and North Dakota's business community.

Delore attended the University of North Dakota and earned a doctoral degree from the Pennsylvania State University where his doctoral work culminated in a dissertation entitled *The Mobilization of Territorial Alliances to Enhance Economic Development*.

Recent Selected Reports and Presentations

Information Technology Strategic Plan for North Dakota's REAP Zones. Prepared for the Rural Economic Area Partnership Investment Board (May 2002)

High Performance Communities in the Flow Economy. Keynote speech at Steamboat Springs (CO) Economic Summit. (May 2002)

Strategies for Early-Stage Technology Companies. Seminar at the 2002 South Dakota Tech Summit, Hosted by Senator Daschle. (April 2002)

Moderator and Panelist: *Broadband Access and State and Local Economies.* Federal Reserve Bank of Minneapolis Forum (April 2001)

Panelist, South Dakota Tech Summit. Hosted by Senator Tom Daschle. (April 2001)

Rural Reconstruction in America's New Economy. Keynote Speech to Kansas TelePower Conference. Fort Hays State University, Hays, KS. (October 2000)

High-Performance Communities in the Digital Economy. Rural TeleCon 2000. Aspen, CO. (October 2000)

International/Interdisciplinary Team Member, Countryside Exchange to the North Ceredigion Region of Wales. Glynwood Center (October 1999)

Panelist, The Center for the New West's Summit on the Digital Divide held in Spokane, WA, Salt Lake City, UT and Helena, MT. (1998)

"High-Performance Communities: New Economy Ideas Into Action." (1997) *Center for the New West.* With Phil Burgess. Denver, Colorado. October 1997.

Panelist, "The Role and Importance of Competition, High Performance and Continuous Improvement in the Delivery of Services." National Alliance of Business Annual Conference. Washington, DC. September 1997.

"Preparing Your Community for the New Economy." Workshop at the National Association of Towns and Townships 1997 Annual Conference. Washington, D.C. September, 1997.

Plenary Session Panelist, "Rural Problems of the Northern Great Plains Panel," 5-Star Northern Great Plains Conference. Bismarck, ND. June 1997.

Douglas McDonald

Douglas McDonald is a Principal and Founder of CEO Praxis, Inc. - a community and economic development firm. Doug's experience spans over 15 years of applied research and development focusing on sustainable community and economic development, environmental impact assessment, socio-economics and demography. He is a sociologist and holds undergraduate and graduate degrees from the University of North Dakota.

Doug has served as the Project Lead in the completion of a comprehensive plan for Ramsey County, a heavily agricultural dependent county beset by lake flooding for the past 7 years; lead author of a market analysis and business plan for the Mandaree Enterprise Corporation, a Native American owned company through the Mentor-Protégé program through the US Air Force and Northrop Grumman; a housing market assessment for the Turtle Mountain Band of Chippewa, and an economic impact assessment, housing study and strategic plan for the City of Devils Lake, North Dakota.

Doug has been instrumental in the development of distance learning and telemedicine applications for rural areas, serving on the Telemedicine Task Force for a regional health system in North Dakota. He has served as the lead research analyst for an environmental consulting firm in the development of comprehensive local water plans for 21 counties in Minnesota and an impact assessment for the proposed Backscatter Radar System. Doug also served as the field coordinator and principal researcher in the assessment of socioeconomic and demographic trends that impact services to the elderly in the Hennepin, Anoka and Ramsey county (MN) service area.

Doug is co-author of *Growth Fundamentalism in Dying Rural Towns: Implications for Economic Development Practitioners; Organization and Financing of Local Economic Development*, a handbook for local development organizations, and; *Advanced Manufacturing Opportunities in North Dakota's Leading Edge High Tech Industry Sectors*, a study for the Economic Development Administration and Technology Transfer, Inc.

(G) Facilities and Equipment

CEO Praxis has the equipment and facilities necessary to perform the work.

(H) Outside Services

Joel Kotkin will participate in the project as a consultant on all major tasks of the proposed work plan.

Mr. Kotkin is an internationally recognized authority on global, economic, political and social trends. Joel is a Senior Fellow with both Pepperdine University's Davenport Institute for Public Policy and the Milken Institute. Joel has previously worked with CEO Praxis on several engagements related to rural economic development strategy, planning and development.

Mr. Kotkin is a columnist with the Los Angeles Business Journal and ReisReports.com; a frequent contributor to the Wall Street Journal, Washington Post, Forbes ASAP and the Los Angeles Times, where he is a contributing editor to the Opinion Section. For five years he served as the West Coast editor for Inc. Magazine where he continues to contribute regularly.

Joel is the author of four books:

- THE NEW GEOGRAPHY: How the Digital Revolution is Reshaping the American Landscape was published in November 2000. It is recognized as a roadmap for cities and regions to become a crossroads for trade, culture and creativity in the new economy.
- TRIBES: How Race, Religion and Identity Determine Success in the New Global Economy (Random House, 1993) traces the connection between ethnicity and business success – how in-group loyalties are becoming the driving force in the new global economy. TRIBES has been published in Chinese, Japanese, Arabic and German.
- He co-authored THE THIRD CENTURY – America's Resurgence in the Asian Era (Crown, 1988), a title translated into Japanese, and Chinese, with a special English edition published for Rim.
- His first book, CALIFORNIA, INC. (Crown, 1982) dealt with California's links to emergent powers of the Pacific Rim.

Mr. Kotkin lectures widely in the United States, Japan and Europe and has addressed both Democratic and Republican Congressional groups. He has testified before the Joint Economic Committee of the Congress, the State of California Economic Strategy Panel and is highly sought after as a speaker by major business and financial organizations.

(I) Satisfying the Public Interest

The project specifically satisfies the public interest by *enhancing economic opportunity and quality of life, especially for people in rural areas.*

(J) Potential Post Application

Our intent is to develop a service package for individual businesses, business networks and/or community and regional based economic development organizations that may include the following:

- A training program that provides information about identifying, creating and sustaining a market presence in metropolitan areas with a particular emphasis on issues related to information technologies. This training program can be integrated into the High Performance Community initiative that CEO Praxis developed with the Center for the New West and has now been deployed in 15 states. The High Performance Community initiative combines training in strategy for community and business leaders with ongoing performance support.
- Direct services to individual businesses, business networks and business development organizations. An increasing part of our business is with small technology and information service companies located in rural areas that have a need to expand their market presence into larger metropolitan areas. These companies, located in thin markets, find it difficult to sustain business revenues and must find ways to serve customers in metro areas if they are to survive.

Information about CEO Praxis, Inc.

CEO Praxis, Inc. is a community and enterprise development company that is recognized nationally for its work with entrepreneurs, economic development and technology research organizations to create enterprise opportunities in technology and information industries. Our experience is grounded in more than 20 years of theory, policy and the practice of economic development in rural areas as well as metropolitan areas.

CEO Praxis was founded in 1994 and since then has engaged in numerous notable projects, partnerships and programs, including:

- CEO Praxis is a 6-time winner in the Small Business Innovation Research program and a 1997 winner of SBA's National Tibbetts award for contributions to and success in the SBIR program. This research has resulted in innovative techniques, practices and tools to help economic developers and community leaders create an entrepreneurial culture and work more effectively with entrepreneurs in technology and information industries.
- CEO Praxis has recently teamed with Joel Kotkin to deploy a new geography development framework that focuses on the critical role of human resource development, networking and the deployment of relevant infrastructure to equip communities and regions as a crossroads for creativity, trade and culture in the digital era. Joel Kotkin is the author of "The New Geography: How the Digital Revolution is Reshaping the American Landscape."
- CEO Praxis is currently engaged with the Los Angeles, California based Milken Institute on the project "Rural America in the Digital Age." This study will be a landmark, national-wide work on the promise and the challenge of networks of technology and people for rural areas. The study will examine national trends and focus on regional case examples in the Dakotas, California, the Mid-Atlantic States, the Pacific Northwest and the South.
- CEO Praxis recently completed the North Dakota REAP Zones' "Information Technology Strategic Plans." These plans included a comprehensive telecommunications infrastructure assessment, an analysis of statewide technology plans, and strategies for IT-based development in the Zones.
- CEO Praxis was the lead consultant for the Business Development Work Group of the Northern Great Plains Rural Development Commission, established by Congress to

develop a 10-year strategy for 5 states including North Dakota, South Dakota, Iowa, Minnesota and Nebraska.

- CEO Praxis is the managing member of the Center of North America Capital Fund, LLC a community development venture capital company that invests in early stage and expanding companies in North Dakota with exciting ideas and high potential. The CONAC Fund is part of Rainstreet.com, a network of funds using the RAIN Fund model developed in partnership with the Minnesota Investment Network Corporation.
- CEO Praxis and the Denver-based Center for the New West developed the High-Performance Community Initiative, a strategy development initiative designed to help communities and regions become fast, focused, flexible, networked and global. The HPC has been implemented in 14 states to date.
- CEO Praxis developed “enterprise homesteading” a trademarked development approach to attracting entrepreneurs to rural communities. This approach has been implemented in South Dakota, Pennsylvania and Washington.

(K) Current and Pending Support

There is no current or pending support for the proposed research.

(M) Documentation of Multiple Phase II Awards

Not applicable