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The purposes of this paper are to identify the types of telecommunications-based businesses that may offer significant development opportunities for rural areas, to assess the resource requirements and other location factors that are salient for each major business type, and to evaluate the potential economic contribution of these businesses for rural areas. In addition, the strategies that rural communities and/or states could employ to recruit such businesses or to encourage their development are briefly discussed.

Telecommunications-Based Businesses: Potential Source of Rural Economic Development

F. Larry Leistritz^{*}

For many rural areas of the United States, the 1980s have been a period of economic stress. Several of the goods-producing industries that have traditionally been mainstays of the rural economy (e.g., agriculture, energy extraction, manufacturing) have experienced severe economic problems, resulting in substantial reductions in the economic growth rates of the 1970s -- and even absolute decreases in employment levels in some rural areas. These events overlay longer-term trends that have limited the ability of many rural areas to keep pace with metropolitan areas in economic growth. These trends include continuing improvements in labor productivity that have eliminated many jobs in manufacturing, agriculture, and mining, and the apparent inability for rural areas to share fully in the rapidly growing services and high tech manufacturing sectors.

These trends, both short- and long-term, raise serious questions about the future of many rural economies. State and local leaders, as well as federal officials, across the country are placing increased emphasis on efforts to diversify the economies of nonmetropolitan areas. The need for economic development is broadly accepted, and the attraction or creation of new export-oriented businesses, as well as retention and expansion of existing ones, is generally recognized as being central to

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any economic development effort. A factor that is increasingly being recognized as central to rural development efforts is an area's telecommunications infrastructure (Pulver 1989). Although modern telecommunications may expose rural businesses to new competitive pressures and challenges (Dillman et al. 1989), recent advances in communications technology also may alleviate the "tyranny of rural space" and allow rural businesses improved access to market information and opportunities (Cleveland 1985, Hudson 1987, Irwin 1990, Cole 1989, Richards 1989, Leistritz and Ekstrom 1989). In particular, the possibility that advanced telecommunications may facilitate spatial separation of such business functions as data processing, claims processing, and telemarketing (sometimes termed "back office operations") from a firm's headquarters or major production facilities appears to afford new growth opportunities to rural areas.

In North Dakota, the interest in activities of this type as a source of economic diversification and development has been heightened by the advent of several new businesses, each of which is becoming a major employer in its local area. Rosenbluth Travel, which now employs about 100 people in Linton (Winsor 1991), and U.S. Health Care with about 150 employees in Bismarck (Conrad 1990) are only two examples of such enterprises. As the significance of telecommunications-linked businesses as a source of new jobs has become evident, questions arise concerning the importance of various factors in influencing decisions regarding the location of such businesses. For example,

- (1) To what extent does a community's telecommunications infrastructure constrain or enhance its development

- (2) What is the role of labor force attributes and transportation infrastructure in location decisions?

Other questions relate to the economic contribution of these firms. Some argue that telecommunications-based businesses, like some other service sector businesses, have low wage scales with many jobs near the minimum wage and with a disproportionate share being part-time. Others, however, indicate that, in an era of global competition, many rural manufacturing firms also are offering relatively low wages and that the part-time jobs offered by telecommunications-linked enterprises may actually be quite desirable for some labor force members (e.g., women, students). Answers to these and related questions are obviously important to those involved in formulating economic development strategies at both state and local levels.

The *purposes* of this paper are to identify the types of telecommunications-based businesses that may offer significant development opportunities for rural areas, to assess the resource requirements and other location factors that are salient for each major business type, and to evaluate the potential economic contribution of these businesses for rural areas. In addition, the strategies that rural communities and/or states could employ to recruit such businesses or to encourage their development are briefly discussed.

Dimensions of Telecommunications-Based Industry

The telephone and other forms of telecommunications technology are now an integral part of business operations in all sectors of the economy (McHatton 1988). Therefore, it is difficult to identify a sector that is not affected substantially by recent advances in telecommunications technology. In this paper, however, the discussion is focused on those types of activities that appear to have potential for location in nonmetropolitan areas of the Upper Midwest. These activities fall generally into two categories:

1. Businesses that can be operated as an independent organization in locations remote from major population centers but serving markets in those centers
2. Business functions that can be spatially separated from the headquarters or major production facilities of a firm

A wide variety of businesses and business functions could conceivably fall into one or both of these categories, and certainly the categories are not mutually exclusive, as most of the business functions that might be identified in group two could conceivably be provided either by an independent service firm or by an in-house department. In order to focus the discussion, therefore, attention is directed toward those types of activities that have demonstrated a potential to be operated successfully at locations remote from major markets, or from their parent organization, or both.

Based on review of available literature and interviews with economic development professionals and telecommunications specialists in the Upper Midwest,

several types of business activities were selected as the focus for this analysis. These activities fall into two broad categories:

- (1) Telemarketing -- including both outbound and inbound telemarketing operations
- (2) Data processing -- and various related activities that are sometimes collectively described as "back office operations"

The resource requirements of these types of business activities are discussed in the following section.

Resource Requirements

A major objective of this analysis was to determine the resource requirements of different types of telecommunications-based businesses. The major data sources for assessing resource requirements are interviews with representatives of a number of telemarketing and data processing firms (Leistriz 1990-91). (For a listing of contacts, see the Appendix.) The principle findings from these interviews are summarized in terms of labor, telecommunications infrastructure, and other factors.

Labor

Labor is the largest single cost for most firms engaged in telemarketing or data processing, and labor considerations were the factors most frequently cited by firms as reasons for their location decisions. The telemarketing and data processing industries include several distinct types of activities, each with somewhat different human resource requirements. Basically, telemarketing is using the telephone to support, or substitute for, a field sales force. *Outbound* telemarketing involves

contacts initiated by the telemarketing organization with businesses (business-to-business) or consumers (business-to-consumer). *Inbound* telemarketing, on the other hand, involves responding to calls initiated by potential customers. Hotel reservation centers and order fulfillment departments of mail order catalogues are examples of inbound telemarketing. Both forms of telemarketing require persons with the combination of personality traits that is often described as "sales ability." Both also generally require at least a minimal level of computer/data processing skills (typing levels of 20-30 words per minute were mentioned by some industry representatives).

Other requirements for telephone sales representatives (TSRs) are the ability to speak with proper grammar, to write short messages in proper English, and to perform simple calculations. Persons who do not have a strong, recognizable regional accent are generally desired, especially for operations that may be making or taking calls on a nationwide basis. The absence of a strong regional accent is frequently cited by telemarketing firms as a factor favoring locations in the Upper Midwest. There are some circumstances, however, in which special language skills are required. For example, one of the telemarketing firms interviewed had recently located a branch in Pueblo, Colorado. A major factor in the choice of location was the availability of substantial numbers of bilingual (English-Spanish) workers.

Telemarketing and other forms of telecommunications-based businesses that involve consumer contact often also involve substantial amounts of part-time work, or work outside the usual business day, or both. Outbound telemarketing directed toward consumers requires that most of the calling be done during the hours when

employed persons are most likely to be found at home (which is generally considered to be 6 pm to 9 pm). This suggests that most TSR positions will be only part-time. A mid-continent location, preferably in the Central Time Zone, was cited as an advantage by some firms because the TSRs could begin calling earlier (to eastern destinations) and continue later (calling to western destinations).

Inbound telemarketing geared to consumers (e.g., 800 numbers) typically requires that the phones be staffed at hours convenient for potential customers. In many cases, the phones may be staffed on a 24 hours per day, 7 days per week basis (although the number of TSRs needed will vary depending on the anticipated volume of calls). To meet these demands, many firms must require TSRs to accept flexible schedules. The dislike of many workers for night and weekend work was frequently cited as a factor contributing to worker turnover.

Worker turnover was a frequently expressed concern of the firms interviewed, and past experiences with turnover leads many industry officials to believe that a relatively large pool of potential workers is required to staff telemarketing operations. Reasons for turnover which are frequently cited include (1) dislike for working nights or on weekends or holidays, (2) preference for full-time rather than part-time work, (3) competition from other firms in the area, (4) problems in coping with rejection (primarily for outbound telemarketing), and (5) the prevalence of students (who graduate or obtain better jobs) and second-income workers (whose spouses are transferred). Some firms that have located telemarketing operations in rural areas have reported much lower turnover than is typical in urban settings (Leistriz and

Ekstrom 1989); this may be a major factor encouraging some firms to seek nonmetropolitan locations for branches. Other firms have noted that towns with post-secondary schools are good sites, because many students may be seeking part-time jobs and evening work may be more acceptable to them.

When asked about the employee qualifications they are seeking, outbound telemarketers tended to emphasize sales skills and the ability to cope with rejection as the key factors, with computer skills an important but definitely secondary consideration. Inbound telemarketers emphasize a good telephone voice and technique (also important in outbound work) and computer/typing skills. One company official summarized the demands of outbound work compared to inbound as the difference between making sales and taking orders.

Most firms indicated that they prefer high school graduates, at a minimum, and that they provide some training for their workers. A one-to-two week orientation and training program, often with additional on-the-job training and periodic refresher courses, appears to be typical. Company officials had mixed feelings about the usefulness of training programs offered by public institutions such as vo-tech schools or community colleges. Some had little experience with such programs and generally perceived very limited potential benefits, but others believed that programs emphasizing telephone techniques and keyboarding would be helpful. Two firms expressed satisfaction with short orientation courses for TSRs that had been conducted by local community colleges.

While both inbound and outbound telemarketing require telephone contact with customers, some types of data processing and other back office operations require little or no direct client contact. The human resource requirements for such operations vary, however, depending on the specific nature of the tasks performed. For highly routinized and repetitive data entry operations, the emphasis is primarily on manual dexterity. For example, one such firm reported a performance standard of 9,500 key strokes per hour (10,000 for alpha characters and 6,000 for numeric), which is equivalent to 45 words per minute. Most entry level personnel in this organization have taken high school courses in typing or keyboarding or equivalent courses offered through a community college.

Other types of back office operations have more stringent personnel requirements. For example, medical claims processing requires an understanding of medical terminology. U.S. Health Care, which opened a claims processing facility in Bismarck in 1990, reports that medical background is one of its key selection criteria for new personnel, along with computer skills.

One concern with regard to the more routinized data processing operations is that such enterprises could be subjected to substantial competitive pressure from locations in other parts of the country or even abroad. In recent years, a number of major companies have moved some of their back office operations to the Caribbean, Ireland, and other overseas locations (Warf 1989, Lohr 1988). This raises the prospect that some back office operations could follow a cycle similar to that followed by some low-skill manufacturing branch plants, where moves from urban areas to rural

locations with abundant supplies of low-skill, low-wage workers were followed by movements to off-shore locations where labor is presumably available at even lower wage rates (Falk and Lyson 1991).

Telecommunications Infrastructure

Communications charges are frequently the second largest cost item for the telecommunications-based businesses, and the quality of the telecommunications infrastructure was a factor cited by most firms as a major consideration in location decisions. Telemarketing typically involves a large volume of long-distance telephone calls, and so factors affecting the cost of those calls can have a major impact on firm profits. Large telemarketing operations prefer locations that are a point of presence (POP) for one of the major long distance carriers because lower rates are typically available. The POP is the point at which a long distance call is transferred from the company that provides local service to the long distance carrier. If a company is located away from a POP, it must typically pay an additional charge for "hauling" the signal from the firm's location to the appropriate POP. At this writing (late 1991) six North Dakota towns (Bismarck, Casselton, Dickinson, Fargo, Grand Forks, and Minot) were POPs for AT&T. It should be pointed out, however, that a POP is not a prerequisite for a telemarketing location. Telnet in Fergus Falls, Minnesota, and Impact, Inc. in Grafton, North Dakota are examples of telemarketing operations that have chosen locations away from POP sites.

Other key considerations related to telecommunications infrastructure include digital switching, the ability of the local telephone service provider to provide extra

lines in a timely fashion, and the availability of "data quality," high volume lines. Digital switching is a prerequisite for almost all telecommunications-based businesses as it is the basic technological requirement for data transmission (e.g., modems, facsimile machines) (Dillman 1991). However, since almost all North Dakota communities now have this infrastructure, digital switching is not likely to be a factor in location choices.

The ability of the local telephone service company to provide extra lines in a timely fashion and to handle the peak volume of calls is critical to many telemarketing operations, and particularly those that operate as service bureaus. A service bureau is a company that undertakes telemarketing projects (either outbound or inbound) for third party clients. Depending on the organization's success in developing contracts, a service bureau's volume of activity may be subject to rapid changes. On the upswing, there may be a need to add new lines, as well as new TSRs, quite rapidly. One of the firms interviewed had recently closed a branch site because the local telephone company could not provide new lines expeditiously.

The availability of data quality lines is particularly important for data processing operations, as well as in other situations where clients desire electronic data transmission. Some data processing operations receive source documents from clients by mail, UPS, or other common carrier and send the data to the client either on tapes or discs or electronically. When time is important, clients typically desire electronic data transmission, in which case data quality lines are critical. One firm

reported that they had lost a contract because of poor line quality (unable to transmit at 9600 baud).

Other Factors

Some other factors that can influence location decisions of telecommunications-based businesses include the cost and availability of office space, availability and quality of scheduled air service, energy costs and reliability of service, and special taxes or regulations. Office space is an important consideration because establishing and equipping the office facility is one of the major initial costs associated with telemarketing or back office operations. Further, such operations have some special requirements for office facilities. A telemarketing center ideally should have raised floors (for cables) and large open areas (with no pillars) to allow a few supervisors to visually observe a large number of TSRs. Special "no glare" windows also are desirable to facilitate reading computer screens.

Local entities can sometimes assist telecommunications-based businesses in obtaining suitable office space. In Bismarck, for example, U.S. Healthcare obtained a \$1.2 million loan from the Bank of North Dakota to construct an office building. The interest rate on the loan was reduced to 6 percent by participation of the Bismarck Loan Pool through the state's PACE (Partnership in Assisting Community Expansion) program. The cost saving associated with the interest rate reduction has been calculated at \$337,000 over seven years (North Dakota Economic Development Commission 1990). New telecommunications-based businesses in Minot and Linton,

North Dakota and Fergus Falls, Minnesota, have also received assistance from local groups in establishing their offices.

The availability and quality of scheduled air service also can be a major factor in site selection. For one firm, which was establishing a branch to perform back office operations, the quality of air service was reported to be one of the two or three most important factors influencing the final decision. Air service was particularly important to this firm because of the need for headquarters personnel to travel frequently to the branch site. Representatives of telemarketing service bureaus also reported that air access can be an important issue because clients often wish to visit the facility and meet the staff. On the other hand, one executive of a telemarketing firm with several branches did not feel that air access was a significant factor; he said that he had not visited some of his firm's branch sites.

Energy costs and the availability of electrical services are sometimes cited as factors affecting location of back office operations (Moss and Dunau 1987). These are computer-intensive facilities with substantial energy demands associated with operation and cooling of computers. An area with frequent brownouts or blackouts would clearly not be attractive to these operations, and energy costs could also be a factor in site selection. However, none of the industry personnel interviewed mentioned energy as a site-selection factor.

Finally, special state taxes or regulations can influence location decisions. For example, Nebraska's 1986 telephone deregulation law is widely credited with facilitating the growth of the telemarketing industry in that state (Fulton 1989), and

the decision by Citicorp to move its credit card operations to Sioux Falls was influenced by the South Dakota legislature's removal of usury ceilings on credit cards (Moss and Dunau 1987). Recently, some states have been imposing special taxes or regulations on the industry, and some of these could impact location decisions. For example, recent passage of a 7 percent tax on telecommunications services is expected to hurt chances for more back office operations to locate in New Jersey (O'Donnell 1990).

Comparative Rating of Location Factors

As a supplement to the interviews with representatives of telecommunications-based businesses, a telephone survey was conducted in the summer of 1991. The purpose of the survey was to compare new telecommunications-based businesses with manufacturing firms regarding (1) their rating of various location factors and (2) their contribution to local and state economies. Firms included in the survey had all begun operations at their present location (in North Dakota) within the last five years. Seven manufacturing firms and four telecommunications-based companies were included in the study (Anderson 1991, Hilber 1991). These appear to represent a majority of the two types of firms that (a) started operations between 1987 and 1991, (b) employed 20 or more workers in 1991, and (c) were located outside the Fargo-Moorhead metropolitan area.

The respondents were asked to rate nine factors that might influence firm location decisions. These factors had previously been used in a regional study of new or expanding basic-sector firms (Leistritz 1991). Each factor was rated from 1 to

5, with 1 being critical and 5 unimportant. The mean scores for the two groups were as follows:

Factor	Ratings by	
	Manufacturers	Telecommunications-based Firms
Labor costs	2.67	2.0
Labor availability	3.17	1.25
Transportation	3.33	4.25
Markets	4.67	4.25
Utilities	3.00	3.25
Quality of life	3.00	2.5
Higher education	3.5	2.75
State & local taxes	3.0	1.67
Incentives & Infrastructure	2.5	1.67

Labor availability was the most highly rated factor for the telecommunications-based firms, followed by state and local taxes, and incentives and infrastructure. Labor costs were also a highly rated factor for this group. The telecommunications-based firms also gave a substantially higher rating to higher education (proximity to institutions) than their counterparts in manufacturing. In general, the results of the telephone survey appeared quite consistent with the information obtained from the interviews with industry representatives.

Economic Contribution

As state agencies and local entities strive to establish priorities for economic development efforts, the economic contribution of different types of firms is an important issue. Telecommunications-based businesses have sometimes been stereotyped as offering relatively low wages for jobs that are generally part-time with few fringe benefits. The firms included in the telephone survey just described were

asked about their numbers of full-time and part-time employees, their wage rates, the types of job-related benefits provided, and the percentage of the establishments' expenditures that was made within the state (Anderson 1991). Summary data for those questions are presented in the table below.

	Manufacturers	Telecommunications- Based Firms
Full-time Employees		
Mean	44	74
Range	18-130	0-153
Part-time Employees		
Mean	2	23
Range	0-10	6-35

The average telecommunications-based firm had about 68 percent more full-time employees than the average manufacturer, and the telecommunications-based firms also had more part-time employees. One telecommunications firm reported that all of its employees were part-time while one manufacturing firm reported that all of its 20 employees were employed on a seasonal basis (i.e., full-time but only for a portion of the year).

The firms also were asked about the job categories of their workers. Among the telecommunications-based businesses, about 22 percent of the workers were classified as sales representatives (i.e., TSRs) and 70 percent as clerical workers. The manufacturers reported that about 85 percent of their workers were operators and fabricators.

The firms reported their wage and salary levels for workers by job category. The manufacturers reported that their wage rates for operators and fabricators ranged from \$5 to \$7.50 per hour. (These figures are averages of the low and high figures reported for this job category by each firm.) The telecommunications-based businesses reported that wage rates for clerical workers ranged from \$6 to \$8 per hour while those for sales representatives were from \$5 to \$8 per hour. Thus, the wage rates offered by the two groups of firms to the bulk of their work force were very similar.

When asked about job-related benefits, all four of the telecommunications-based firms reported that most of their employees received benefits. One firm hired only part-time workers, but these employees were eligible for health insurance, a pension plan, and other benefits based on the number of hours worked. The other firms also had a wide range of benefits available, but one firm reported that workers were eligible to participate only after three months on the job.

Among the manufacturers, two firms reported that full-time workers receive health insurance, life insurance, and paid vacation. The third manufacturer provided no benefits except two weeks of paid vacation, and the fourth provided some benefits to his full-time workers, but did not specify the type of benefits. The remaining three manufacturers indicated that they provided no job-related benefits.

The firms also were asked what percentage of their total expenditures were made within the state. The telecommunications-based businesses reported that about 86 percent of their total expenditures were made within the state, compared to 49 percent for the manufacturers. If labor costs were excluded, the telecommunications-

based firms made 48 percent of their expenditures within the state, compared to 38 percent for manufacturers.

To summarize, the economic contribution of the new telecommunications-based businesses that have been established in North Dakota in recent years compares favorably with that of new manufacturing firms. While telecommunications firms did have more part-time workers than manufacturers, they also created more full-time jobs. When wage rates were compared for the job categories that made up the bulk of the work force, compensation was found to be very similar between the two groups, with a slight edge to the telecommunications-based firms. The telecommunications-based businesses also generally offered a more attractive package of job-related benefits, and the high percentage of their total expenditures that are made within the state indicates that these firms will have significant secondary (multiplier) effects for state and local economies.

Implications for Economic Development Practitioners

The objective of this paper was to evaluate telecommunications-based businesses as a potential source of economic development, particularly for nonmetropolitan areas in the Upper Midwest. Because the scope of data collection was limited by resource availability so any conclusions must be regarded as preliminary, the findings suggest that telemarketing and back office operations have the potential to play a meaningful role in the economic development and diversification of the region and its rural communities. The telemarketing industry is growing rapidly, not only in the Upper Midwest but also nationwide, and industry

officials indicate that pressure on the available labor supply in established centers, such as Omaha, is creating incentives for the industry to seek other sites for future expansion. Similarly, labor problems and costs associated with congestion create incentives for firms to move selected back office functions out of large urban areas while at the same time advances in telecommunications technology are making such decentralization feasible (Moss and Dunau 1987).

While rural areas have much to offer these export service industries, telemarketing and back office establishments also have much to offer to the communities. Despite the stereotype that telemarketing firms offer only part-time jobs at minimum wage levels and without job-related benefits, this study indicates that these firms compare favorably with manufacturing plants in all these regards. However, discussions with industry officials have indicated that executives in the telemarketing sector, like those in other types of businesses, differ in their attitudes and policies with regard to worker training, compensation, and related matters. Economic development practitioners should discuss these issues with a prospect before any final commitments are made.

While many rural communities in North Dakota and adjacent states would seem to have most of the resources and attributes desired by many telecommunications-based businesses, there may be some specific ways in which local development interests can play a pivotal role. As noted, labor availability is an overriding concern for these companies, and the magnitude of rural labor pools may appear inadequate to some firms. A local labor survey could be useful in assessing labor availability among the unemployed, the underemployed, and persons presently

out of the labor force. Such a survey could identify potential workers and assess their skills and interest in part-time or shift work. In addition, some communities or areas may desire to take a proactive stance and initiate training programs to develop work force skills before or during the recruitment process. Obtaining suitable office space is often a major issue for these enterprises, and local development organizations often have been able to assist in this process. The community's telecommunications infrastructure is another issue. While most North Dakota communities appear to have most of the basic infrastructure in place, specific needs associated with a given project often must be addressed. In some circumstances, an agreement with the local telephone company may be necessary in order to address project-specific needs.

Overall, recent advances in telecommunications technology appear to be creating some new development possibilities for rural communities. The task in coming years is to determine how these possibilities can be most advantageously pursued.

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*Appendix A***Interviews with Industry Representatives**

Anson, Mark, President, Outbound Marketing, SITEL Corporation, Omaha, NE. Personal interview, December 19, 1989.

Braaten-Grabanski, Joan, Executive Director, Walsh County Job Development Authority, Grafton, ND. Telephone interviews February 7 and March 11, 1991, re: Impact, Inc. (Telemarketing).

Idelman, Steve, Idelman Telemarketing, Inc., Omaha, NE. Telephone interview, January 25, 1990.

Killion, Klayton C., Senior Sales Manager, Marriott Worldwide Reservation Center, Omaha, NE. Personal interview, December 18, 1989.

Laverdure, Ron, Uniband Data Entry, Belcourt, ND. Telephone interview, January 7, 1991.

Mathis, Robert, Professor, College of Business, University of Nebraska-Omaha, Omaha, NE. Telephone interview, January 5, 1990.

Pruyn, Mike, U.S. West, Minneapolis, MN. Telephone interview, November 14, 1991.

Ray, Jerry F., President, Telnet Systems, Inc., Fergus Falls, MN. Personal interview, December 5, 1991.

Ressler, Sandy, U.S. Health Care, Bismarck, ND. Telephone interview, January 7, 1991.

Rosenbluth, Hal (President) and Melinda Rippy Smith, Rosenbluth Travel, Philadelphia, PA and Linton, ND. Personal interview, July 15, 1989, and several telephone interviews.

Selland, Ernie, Northern States Power Co., Minot, ND. Telephone interviews, January 15, 1990 and January 7, 1991.

Stokke, Don, Job Service of North Dakota (Minot), Minot, ND. Telephone interview, January 7, 1991, re: Choice Hotels reservation center.

Thomas, Owen, and George Vogel, WATS Marketing Group, Omaha, NE. Personal interview, December 18, 1989.