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COMMUNICATIONS TECHNOLOGY AND THE BUSINESS SERVICE SECTOR: A RENAISSANCE FOR ALBERTA'S COMMUNITIES?

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INTRODUCTION

This is the first of a series of Information Bulletins on a WCER project that addresses the effect of communications technology on the present and potential location of enterprises in rural Alberta. Advances in communications technology now enable knowledge-based firms to operate outside major metropolitan areas and effectively export their product to customers anywhere in the world.

The WCER is interested in the economy of rural Alberta for several reasons. The first is a very general one arising out of the major transition in the agricultural sector. The current changes are driven not only by the need for agriculture to diversify into value-added products and the impact of biotechnology but also by the elimination of the historical Crow Rate in 1995. The abolition of this major subsidy significantly alters the way in which markets operate on the prairies.

Renewable resources (agriculture and forestry) and non-renewable resources (mining, oil and gas) have traditionally been the economic foundation for rural communities. It has been through the export of primary products that rural communities have connected with domestic and foreign markets. Now the Canadian economy is shifting from dependence on primary products and manufacturing to a service orientation. What

are the implications for rural communities of the transition now in progress?

A second reason is the surprising shift in the distribution of provincial population growth during the first half of the 'nineties. Between 1991 and 1996 the growth of 105 Alberta communities with populations ranging between 1,000 and 15,000 exceeded the growth of Edmonton and Calgary. These changing demographics point to the need for a closer look at economic forces that underlie what is happening in smaller communities. Rapid growth in small communities suggests anything but the demise of rural Alberta.

A third reason for reassessing trends in rural communities is to learn how their prospects may be dramatically altered with the impact that new communications technology is having on the location preferences of business services owners. Revolutionary changes have made the hookup to, the use of, and the quality of information technology, known as "connection proximity," more important than the geographic location or "location proximity" that enables direct personal or face-to-face contact.

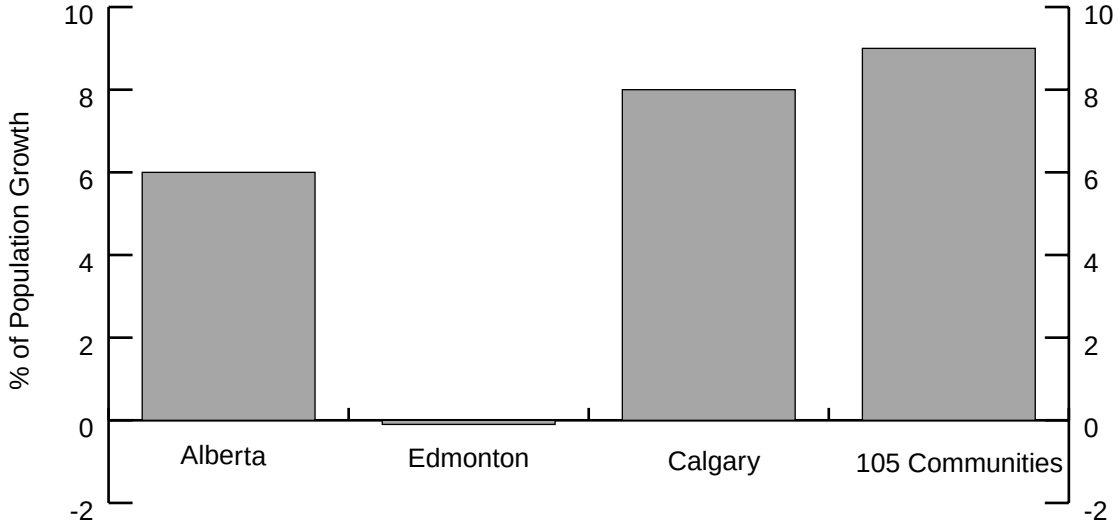
Finally, corporate downsizing, layoffs and early retirement options have frequently led the people affected to go into business for themselves. The result has been out-sourcing of activities that many larger organizations formerly did in-house. Have these new self-employed decided to stay in the region and work in smaller communities because of personal preferences?

This Bulletin is divided into four sections. The first section summarizes some comparative demographic changes that have occurred in the province between the Censuses of 1991 and 1996. The second considers what business services activities are and how small enterprises – including individual proprietorships – make-up a significant part of this evolving sector. The third section considers how recent advances in communications technology can make it possible for small business firms to locate in small communities. The fourth section raises several questions about how advanced communications technology should be maintained and supported in rural communities.

ALBERTA'S GROWING POPULATION: SURPRISING DEMOGRAPHICS

The population of both Alberta and of Canada grew by 6 percent between 1991 and 1996. In Alberta, natural increase accounted for about two-thirds of this growth while domestic and international migration accounted for the other third. During those five years the population of 105 Alberta communities from 1,000 to 15,000 grew by 9 percent, or 1.5 times as quickly as the provincial and national experience. The trend is represented in Figure 1 and is compared with growth of 8 percent in Calgary and no growth in Edmonton.

Figure 1: Percentage of population growth, 1991-1996 for Alberta, Edmonton, Calgary, and 105 Communities



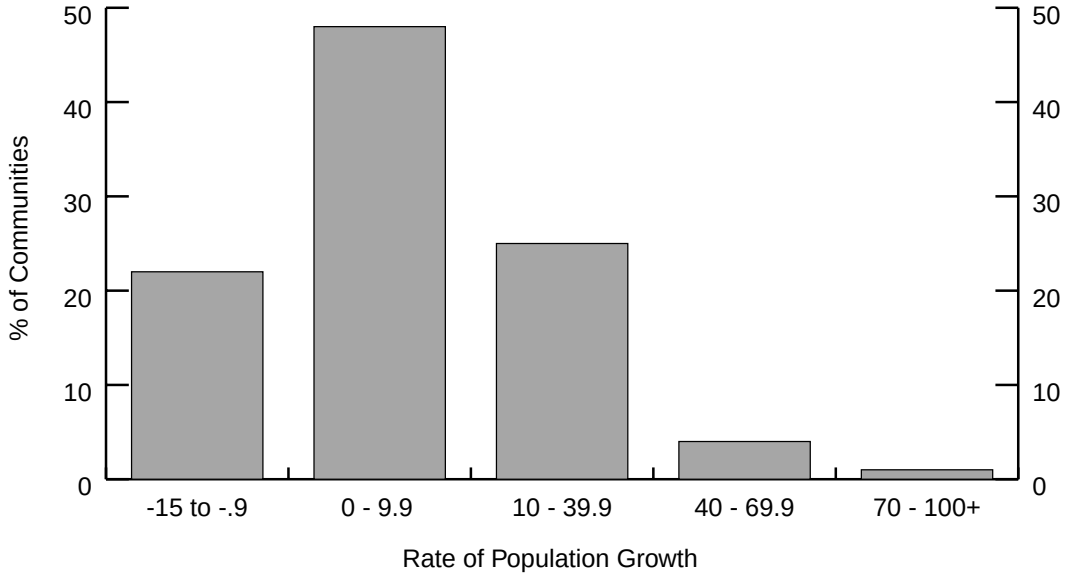
Source: Statistics Canada, Catalogue #93-357-XPB
*105 communities with populations of between 1,000 and 15,000.

Figure 2 shows a frequency distribution of the rate of population growth in the 105 communities. The figure reveals that three out of four communities recorded positive growth, with 30 percent overall recording growth rates in excess of 10 percent. Alberta communities falling into this category include Airdrie, Okotoks, Lacombe, Beaumont, Wetaskawin, Sexsmith and Canmore. Common attributes among communities experiencing the most rapid rate of growth are:

- they lie within commuting distance of the larger centres-Calgary, Edmonton, Red Deer, Lethbridge, Medicine Hat, and Grande Prairie;
- they have a well developed social and physical infrastructure;
- they have lower property taxes for approximately equivalent services;

- they have lower housing costs relative to the large metropolitan areas;
- they have access to major highways.

Figure 2. Frequency Distribution of the Rate of Population Growth in 105 Communities, 1991-1996*



* Source: Statistics Canada, 1996 - Population Counts

The most pronounced area of population increase is in the Edmonton-Calgary corridor, stretching north into the Grande Prairie / Peace River area, and south to Lethbridge and beyond. This growth has resulted in some regions of Alberta experiencing substantial employment increases. For example, employment in the Grande Prairie / Peace River region in 1996 was 30 percent above 1987 levels [Chambers and Warrack, 1997].

THE BUSINESS SERVICE SECTOR

The service sector is by far the largest in our economy. Within the service sector, activities can be distinguished by the degree of human resource skill and training required for the delivery of the service. Work in some service sectors is largely repetitive with low skill and limited educational requirements. However, at the other end of the service sector spectrum are activities known as "business services." These are firms that transmit, apply and interpret knowledge. These professionals are among the highest value-added types of economic activity: labour generally exceeds the cost of what they produce by 80 percent.

WHAT ARE BUSINESS SERVICE ACTIVITIES?

Business services include employment agencies and personnel suppliers; computer analysts; software writers; accountants; appraisers; cartographers; agronomists;

advertising agents; market research analysts; architects; engineers; lawyers, trustees and notaries; management consultants; and financial analysts.

Business services are primarily, though not solely, types of intermediate demand by private and public sector clients that become inputs into the production of goods or other services. But households also require at least some of these services, and they therefore have a final demand component. To produce the service requires highly trained members of the labour force. It is therefore difficult to separate the product from the person who produces it. The product is customized, requiring a high level of cooperation between the producer and the user of the product. Other difficulties exist when defining business services: they have an "orientation function" (i.e. the creation and evaluation of new ideas, customized manipulation of non-standardized and often ambiguous information, and the transmission of complex directives). Business services often have qualitative-subjective characteristics and a degree of trust is often an essential ingredient in product delivery.

COLLABORATIVE AND ALLIANCE ACTIVITY IN THE BUSINESS SERVICE SECTOR

Self-employed independent subcontractors in the sector form an important, perhaps the key source, of professional skills for firms demanding specialized services. Because of their size, collaboration among these firms is a central fact in fulfilling client demand. In the United Kingdom, 85 percent of small management consulting firms and 64 percent of market research firms engaged in collaborative activity [Bryson et al 1992].

Cooperation between legal and accounting services, collaboration between architects and / or engineering establishments, or alliances between market researchers working with management consultants are examples of the joint efforts typifying the sector. These alliances exist for the primary purpose of expanding the range of expertise of the small business service enterprise. Flexible working arrangements enable business services to adjust to technology and management innovations quickly. These efforts can extend the life of a particular project for protracted periods. In addition, collaborative / networking activities can also be an effective method when the changing marketplace requires a rapid response. Subcontracting and partnering with business service firms elsewhere is also helping to tie local business services to the global economy.

BUSINESS SERVICES - EXPANDING THE RURAL COMMUNITY'S EXPORT BASE

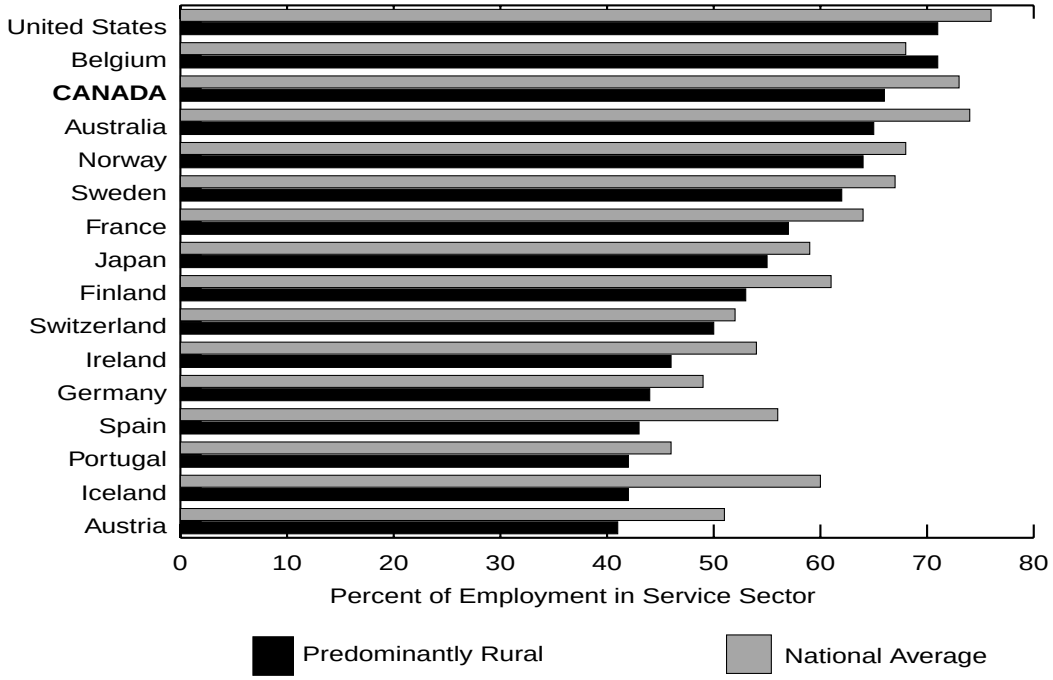
Communities of 15,000 or less are not self-reliant; that is, their local market alone is unable to sustain them. Continuing community viability depends very much on the ties developed within the rest of the province, the rest of Canada, or the rest of the world. The fact that so many smaller communities are recording population growth suggests that the links with the outside world are healthy. Examining the quantity and character of the goods and services that local businesses market externally – their “exports” – is an extremely useful way of looking at the economic viability of a local community. The result is an export base model of community growth.

The export base concept, while recognizing that many specific activities overlap, views the economy of a community as consisting of:

- basic or export-oriented activities where export is defined as the sale of a commodity or service to clients outside of the community and

- non-basic or residentiary activities (those serving the local population).

Figure 3: Percentage of employment in the service sector for selected OECD countries for 1991:
For predominantly rural areas and the nation as a whole



Source: OECD, 1994.

Figure 3 reveals that in developed economies the phenomenon of growing employment in the services sector is also apparent in predominantly rural communities. This figure refers to the service sector as a whole, but Canadian data reveals that business services expanded almost as rapidly in non-metropolitan as in metropolitan areas. Among OECD countries, Canada ranks third in service sector employment for predominately rural areas and the nation as a whole. Between 1981 and 1991, business services employment for Canada as a whole grew by 64 percent while the growth in non-metropolitan areas was 61 percent [Cunningham and Bollman 1997].

There is full understanding of the importance of service exports to metropolitan centres where concentrations of business services abound and where, under older technologies, "location proximity" was essential. But it is known that business service firms located in non-metropolitan communities also trade their services beyond the local area [Richards 1994; Porterfield and Pulver 1991]. Advances in telecommunication technologies emphasize the importance of "connection proximity" and increase the likelihood that business service firms

will locate in rural communities. Connection proximity permits business service firms – the small firm and individual business professional – to become "footloose" and this, in turn, allows the smaller community to enter their set of location options. When the decision of the firm is to locate in the local community, it adds to the export base and brings in additional outside revenue.

BUSINESS SERVICES AS A DEVELOPMENT STRATEGY

As a resource within communities, business service firms are often overlooked in development strategies. Perhaps that is because they lack visibility due to their small size; they lack the physical presence of a manufacturing plant, a retail establishment, or even a farming operation. Moreover, there are few environmental concerns such as toxic emissions, water and noise pollution, or waste disposal that frequently go hand-in-hand with other types of economic activity.

Lamarche [1990: 83], of the Canadian Institute for Research on Regional Development, points out the importance of service sector firms to economic development:

> Interest in the service sector stems from the fact that 70 percent of the labour force in developed countries is engaged in these activities and also from the fact that many services have a value-added feature that is of prime interest for economic growth and regional development.

Other studies also make clear the presence of business service firms in non-metropolitan location [Beyers, 1991, 1994; O'Farrel, 1993]. Clearly non-metropolitan areas have the potential to support a well-developed group of business service firms. For example, in a recent Saskatchewan study, 20 percent of business service firms were located outside of Saskatoon and Regina [Stabler and Olfert, 1993:52].

In view of what is happening in rural communities we need to know whether business services, one of the most rapidly expanding sectors of the economy, are finding these communities an attractive work venue.

BUSINESS SERVICES: TECHNOLOGY AS A CRITICAL INPUT

The business service firm's most important intermediate input is communications technology. Hence the availability and unit price of state of the art communications technology is likely to be a key component in the decision of a business service professional to locate in a rural area. Certainly, where the service is "export" marketed, the importance of technology quality and unit cost is self-evident. Two recent studies, one from the American Midwest and the other from Washington State, underscored the heavy reliance of small rural firms on communications technology [Allan et al 1996; Kirn, Conway and Beyers 1990].

At this point, it is important to outline recent developments in the availability of advanced communication technology to rural communities in Alberta. What is happening in the province suggests that for a small business firm, both the rural community and the metropolitan centre are now viable location options.

THE STATE OF COMMUNICATIONS TECHNOLOGY IN RURAL ALBERTA

In preparing for the telecommunications age, the Government of Alberta has considered rural communities. They have been the subject of extensive programs to make modern communications technology available to as many rural residents as possible.

By 1978 all Rural Mutual Telephone Companies across the province (more than 1,000) had been absorbed into Alberta Government Telephones (AGT). The Rural Buried Cable Program was a rural development strategy of the provincial government and implemented by AGT. Between 1964 and 1978 approximately 115,000 kilometres of telephone cable at a cost of $112 million was installed throughout rural Alberta. The program replaced much of the aerial wire and cable with buried cable and analog subscriber carrier equipment.

The late 1970s and early 1980s saw digital equipment placed in non-metropolitan communities such as Lac La Biche, Blackfalds, Pincher Creek, Nisku, Sylvan Lake, Westlock, Redwater and Coronation. Investment in infrastructure within these communities has been estimated at $42 million.

Perhaps the most significant program for rural residents was AGT's Individual Line Service Program (ILS) initiated by the provincial government. Between 1986 and 1991, approximately 100,000 multi-party lines were converted to individual private lines, providing virtually every person in rural Alberta with a single private line. This was a major accomplishment considering that in some areas within Canada, "party-lines" are still common and there is a lack of suitable telephone infrastructure. The significance of these programs for rural Albertans is that they have access to custom calling services such as name and call display, call waiting, call forwarding, FAX machines and Internet access just like their urban counterparts.

Despite these developments, Alberta residents still have relatively limited access to the servers and nodes necessary to access Internet connections. Individuals wishing to connect to this new technology must often pay long distance tolls - in themselves a deterrent - to get access. If fibre optic cables are not in place, FAX transmission can be erratic and modem connections impossible. There are still obstacles to overcome in making optimal use of communications technology for non-metropolitan communities.

THE COMMUNITY ACCESS PROGRAM

At the present time many Alberta communities are taking advantage of the Community Access Program (CAP), an Industry Canada initiative. This program has several objectives:

- to raise awareness of the opportunities and benefits of using information;
- to accelerate and use the tools of the Internet;
- to sustain jobs and growth in rural communities;
- to promote training opportunities in the use of technology for local businesses and community members generally.

Currently fifty-six Alberta communities (Appendix 1) are participating in the CAP initiative. Eight of the fifty-six have populations of less than 1,000. Some, such as Killam, Lamont and Sedgewick have joined with others to take advantage of CAP. This is not the place to evaluate CAP but it should be said that not all communities have been able to take advantage of the program. Some are unable to raise the resources needed to develop fruitful partnerships, and lack the people willing to devote time and energy to project

implementation, not to mention the training necessary to develop successful proposals. In certain cases there is still insufficient awareness of the benefits accruing from Internet use.

INDEPENDENT INITIATIVES BY LOCAL COMMUNITIES

Some communities have acted independently to secure state of the art access. In central Alberta, Leduc, along with the Nisku Industrial Park, has initiated its own entrance onto the information highway. The Leduc-Nisku area is a hive of expanding economic activity with many businesses using advanced computer technology and communications systems. Several factors have contributed to this growth, namely, a thriving oil and gas service industry exporting knowledge, expertise and products globally, proximity to the Edmonton International Airport, a skilled labour pool, and an "open for business" attitude. The community's Economic Development Authority has been instrumental in incubating and nurturing access to the information age and enhancing electronic communication. Internet services are offered to businesses at competitive costs (Bernard, 1995). This initiative recognizes that the service industry plays an integral part in the well being of the business community, government agencies and non-governmental organizations (NGOs).

In southeastern Alberta, Rosebud, an entrepreneurial community of eighty-eight people, provides an interesting example in the use of communications technology. The community's economic backbone is a theatre school that has been operating for seventeen years. The Internet, accessed through a server in Drumheller (with no long distance charges incurred) is used by the theatre school management and other community businesses.

SOME IMPORTANT QUESTIONS ABOUT ACCESS TO COMMUNICATIONS TECHNOLOGY

It is clear that non-metropolitan areas that invest in a telecommunications infrastructure create an advantage in attracting business service firms. Many business service sector establishments are insensitive to geographic location. Therefore opportunities exist at the community level for diversification through these enterprises. However, several important policy questions arise with respect to how capital and operating costs are to be paid for.

- How should communications systems be maintained and expanded?
- Should all users pay for the new technology or should only those individuals or firms using this technology pay for improved services?
- Who will take the initiative to develop and enhance communications systems in areas where the demand is less?
- Should development be the domain of government through infrastructure programs or should telecommunication companies maintain and upgrade infrastructure as necessary?
- Should individual communities, through their own cooperative efforts, provide for infrastructure upgrades?

CONCLUSION

Research is required to identify the effect of communications technology on business services location options in Alberta communities with populations between 1,000 and 15,000. Business services – engineers, software writers, market researchers, consultants, investment counselors, accountants, and a range of other specialists – are high value, environmentally friendly business activities. In addition, they add to the recipient community a well educated, technically skilled, professional labour force. Many in business services are self-employed and their main intermediate input is communications technology. Therefore, access to technology is critical to link knowledge intensive industries in non-metropolitan communities with global opportunities. Communities that invest in telecommunications, create an advantage for their residents and attract business service firms.

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APPENDIX 1: ALBERTA COMMUNITY ACCESS PROGRAM SITES - AS AT JULY 7, 1997[1] AND THEIR POPULATIONS

Community		Population (1996)[2]	Community		Population (1996)
1.	Arrowwood	600	29.	Lomand	170
2.	Barrhead	4,329	30.	Magrath	1,867
3.	Breton	521	31.	Medicine Hat	46,783
4.	Brooks	10,093	32.	Morinville	6,226
5.	Camrose	13,728	33.	Nanton	1,665
6.	Canmore	8,354	33.	Olds	5,815
7.	Cardston	3,417	34.	Palliser**	-
8.	Carstairs	1,877	35.	Peace River	6,536
9.	Castor	970	36.	Peerless Lake**	-
10.	Chauvin	400	37.	Pincher Creek	3,659
11.	Claresholm	3,427	38.	Provost	1,904
12.	Coaldale	5,931	39.	Raymond	3,056
13.	Cochrane	7,424	40.	Mountain House	5,805
14.	Conklin	-	41.	Sexsmith	1,481
15.	Crows Nest Pass	6,356	42.	Slave Lake	6,556
16.	Edson	7,399	43.	Smokey Lake	1,087
17.	Fairview	3,316	44.	Stettler	5,220
18.	Forestburg	930	45.	Sterling	332
19.	Fort McLeod	3,034	46.	Stony Plain	8,274
21.	Hanna	3,001	47.	Strathmore	5,282
22.	High Level	3,093	48.	Taber	7,214
23.	Jasper	4,301	49.	Tofield	1,729
20.	Gibbons	2,748	50.	Vegreville	5,337
24.	Killam / Sedgewick*	1,043 / 937	51.	Vermillion	3,744
25.	Lac La Biche	2,611	52.	Viking	1,081
26.	Lacombe	8,018	53.	Vulcan	1,537
27.	Lamont*	1,581	54.	Wainwright	5,079
28.	Lloydminster	11,317	55.	Wetaskiwin	10,959

1. see http://cap.unb.ca/cp/capsites/absites.html

2. Population figures as reported in Statics Canada, Catalogue No. 93-357-XPB.

*Denotes communities that have joined with others to share ccess sites. **Data unavailable.