

# Asset-Based Rural Development Part III: Identifying Assets for the Knowledge Economy

## KNOWLEDGE BRIEF



### INTRODUCTION

Knowledge-based economies are “*directly based on the production, distribution and use of knowledge and information*”.<sup>1</sup> Knowledge is an increasingly important driver of economic growth and productivity.<sup>2</sup> This transformation is linked with the arrival of information and communications technology (ICT), but the knowledge economy can appear in any sector.<sup>3</sup> The marker of a knowledge-based industry is the innovative use of information and technology in the production of goods and services, ranging from microchips to food products and everything in between. Indicators for measuring the knowledge economy in a community or region include: the number of patents applied for locally, research and development expenditures, new business start-ups in knowledge-based sectors, or more qualitative indicators related to the local area.<sup>4</sup>

The knowledge economy is a key sector in British Columbia. Across the province, clusters such as engineering, ICT, and clean tech are growing rapidly.<sup>5</sup> The high-tech sector alone accounted for 6.5% of the province’s economic output in 2013 and is growing by 2.2% per year.<sup>6</sup> 4.4% of the provincial workforce works in high-tech jobs – more than mining, oil and gas, and forestry combined.<sup>7</sup> As many of

the initiatives in the Knowledge-Based Economy examples table demonstrate, these sectors are not exclusive to urban centres, but hold opportunities for rural communities as well.

### ASSETS TO SUPPORT THE RURAL KNOWLEDGE ECONOMY

What role can the knowledge economy play in rural areas? As many rural communities face declining primary industries, the knowledge economy can offer opportunities to create new business and attract investment.<sup>8</sup> However, it must be adapted to fit the unique assets and character of rural communities. Much of the literature on the knowledge economy is heavily focused on urban settings and has not adequately explored its applicability to rural communities.<sup>9</sup> However, outside the literature there are numerous examples of rural communities that have harnessed the knowledge economy to spur economic and social renewal (see **ABRD Resource Table: Knowledge-Based Economy** on pages 4-7).

The first step in fostering the rural knowledge economy is to identify and promote the local amenities, or assets, that are typically required by this sector. Using an asset-based approach, communities can determine what key assets are

present to support knowledge-based businesses and workers, and what assets need to be built up. Essential to most knowledge-based businesses is high-speed internet access, which is often a barrier for more remote communities lacking broadband infrastructure.<sup>10</sup> Other physical infrastructure can support entrepreneurial activity in knowledge-based sectors, such as underutilized space where business incubators, co-working spaces, or ICT hubs can be set up. These facilities can also help improve public internet access, support distance education, increase computer literacy, and enable local entrepreneurs to engage in electronic commerce or advertise local businesses to a global audience. Perhaps one of the most critical sets of knowledge economy assets is the amenities that can attract knowledge-based workers. With a strong tendency to work virtually or telecommute, knowledge workers often have a great deal of flexibility in where they live.<sup>11</sup> Many knowledge workers are very deliberate about the communities they choose to live in, seeking out amenities like diversity and openness, arts and culture activities, and opportunities for outdoor recreation.<sup>12</sup> Communities in the Columbia Basin-Boundary region are extremely well-positioned in a number of these amenities, such as recreation opportunities and relatively high internet connectivity.<sup>13</sup> These amenities are invaluable assets that must be promoted in strategies to attract and retain residents employed in the knowledge economy (see **ABRD Knowledge Brief Part I : What is Asset-Based Rural Development?**).

## EXAMPLES OF THE RURAL KNOWLEDGE ECONOMY

There are a number of examples of how rural communities and regions have engaged in the knowledge economy (see **ABRD Resource Table: Knowledge-Based Economy** on page 4-7). These show how the knowledge economy is often initiated through collaborative approaches that bring together a wide range of community stakeholders. This regional collaboration has been called a “quadruple helix” model of rural innovation, where four stakeholder groups from higher education, government, industry, and non-profits work together to create new synergies that foster the knowledge economy.<sup>14</sup> Each of the examples listed shows different approaches to this kind of collaboration.

## REFERENCES &amp; RESOURCES

1. Organization for Economic Cooperation and Development, "The Knowledge-Based Economy," (OECD, Paris, 1996): p. 6.
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4. David A. McGranahan, Timothy R. Wojan, and Dayton M. Lambert, "The Rural Growth Trifecta: Outdoor Amenities, Creative Class and Entrepreneurial Context," *Journal of Economic Geography* 11 (2011): 529-557.
5. KPMG, "British Columbia Technology Report Card: 2014 Edition," (KPMG LLP, 2014).
6. Dan Schrier and Lillian Hallin, "Profile of the British Columbia High Technology Sector: 2014 Edition," (British Columbia Statistics Agency, 2015).
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10. S. Jacobs and Marlien Herselman, "An ICT-Hub Model for Rural Communities," *International Journal of Education and Development Using Information and Communication Technology* 1, no. 3 (2005): 57-93.
11. Brinkley, 2006.
12. McGranahan, Wojan, and Lambert, 2011.
13. Columbia Basin Rural Development Institute, "2015 State of the Basin Snapshot Report," (Selkirk College, 2015).
14. Jari Kolehmainen, Joe Irvine, Linda Stewart, Zoltan Karácsonyi, Tünde Szabó, Juha Alarinta, and Anders Norberg, "Quadruple Helix, Innovation and the Knowledge-Based Development: Lessons from Remote, Rural and Less-Favoured Regions," *Journal of the Knowledge Economy* 7, no. 1 (2015): 23-42.

Initiative	Sector(s) Involved	Type	Description
Appalshop	Non-profit, industry	Community-based film production and music studio with community radio	Appalshop is a community-based arts organization in Appalachia that has created community video projects and has an active role in promoting region-wide dialogue on innovation and creative economic development. The organization has helped create a digital marketing venture company called Mountain Tech Media.
AVAPCO LLC	Industry	High-tech manufacturer	The community of Thomaston has lost jobs from the closure of local mills. In 2011, a high-tech R&D facility opened in the community that is developing nanocellulose – a bio-based plastic replacement made from agricultural waste using an experimental chemical process.
BitSource	Industry	Community tech company	A web-based start-up that opened in a rural Appalachian mining town to help provide new job opportunities to former coal miners. Local initiatives like BitSource seek not to be the “silver bullet” for the community, but instead “be part of the silver buckshot” of many new economic opportunities.
Electric vehicle charging stations in Kootenays	Public, industry	Regional infrastructure plan	A plan that is currently underway in a number of communities in the Kootenay Region to install electric vehicle charging stations. A number of communities have installed charging stations to enable electric vehicle use by tourists and local residents. Major logic of siting stations is economic co-benefits, such as retail and dining, that can occur when drivers spend 4+ hours in a community while their vehicle is charging.
Fiberstar LLC	Industry	High-tech manufacturer	Fiberstar uses citrus waste from an orange-producing rural county in South Florida to produce an innovative and healthy food additive using novel bio-technology. The company diverts waste from local orange juice manufacturers while creating high-paying jobs in an economically deprived county.
Ikageng Information Technology Centre	Public, non-profit	Community technology resource/ Information & Communications Technology business hub	Local community centre that created an ICT hub for local residents to access internet, receive training and education, and for entrepreneur incubation and support.
Knauf Insulation	Industry	High-tech manufacturer	An innovative insulation manufacturer that uses recycled glass and environmentally friendly corn-based binder that dramatically reduces the environmental impact of the product while improving energy efficiency. The company chose Chambers County, AL for its operation, a county formerly reliant on the textile industry which previously had Alabama's highest unemployment rate at 22%. The county now has 5% unemployment and is seeing new residents move in and new business growth.

Location	Impacts	Reference
Whitesburg, Kentucky, USA	Documentation of Appalachian culture, lifestyle, and regional challenges; business development	Appalshop (no date). Appalshop: Making media in the mountains since 1969. Retrieved from <a href="https://www.appalshop.org/">https://www.appalshop.org/</a> ; Stolberg, G. S. (August 17, 2016). "Beyond coal: Imagining Appalachia's future". <i>New York Times</i> . Retrieved from <a href="http://www.nytimes.com">www.nytimes.com</a>
Thomaston, Georgia, USA	Job creation; attraction of highly skilled workforce; partnership with local college	AMCREF Community Capital (2015, June 16th). AVAPCO, Thomaston, GA [Video file]. Retrieved from <a href="https://www.youtube.com/watch?v=3qQi7mh04sE">https://www.youtube.com/watch?v=3qQi7mh04sE</a>
Pikeville, Kentucky, USA	Creation of 10 jobs for laid-off coal miners, training in programming and web design skills	Stolberg, G. S. (August 17, 2016). "Beyond coal: Imagining Appalachia's future". <i>New York Times</i> . Retrieved from <a href="http://www.nytimes.com">www.nytimes.com</a>
Kootenay Region, BC	Offering renewable energy amenities possibly desired by knowledge workers; generation of economic co-benefits to host communities	The Ecocentric: Kootenay Co-op Radio (Producer). (2016, July 19th). <i>Electric cars in the Kootenays, Farming and climate change, 100% renewable</i> [Audio podcast]. Retrieved from <a href="http://itunes.apple.com">http://itunes.apple.com</a>
Clewiston, Florida, USA	Job creation; diversion of waste from local industry; training in high-skilled new job fields	AMCREF Community Capital (2015, June 17th). Fiberstar, Clewiston, FL [Video file]. Retrieved from <a href="https://www.youtube.com/watch?v=7BNfBt4dEqY">https://www.youtube.com/watch?v=7BNfBt4dEqY</a>
Itsoseng, South Africa	Improvement of community computer literacy, job creation, offering internet access	Jacobs, S., & Herselman, M. (2005). An ICT-Hub model for rural communities. <i>International Journal of Education and Development Using Information and Communication Technology</i> , 1(3), 57-93.
Lanett, Alabama, USA	Creation of 220 jobs at high salaries; attraction of new residents and workers to the community; new training and skills development; waste reduction and reduced contamination	AMCREF Community Capital (2016, June 20th). Knauf Insulation, Lanett, AL [Video file]. Retrieved from <a href="https://www.youtube.com/watch?v=L0J-UbKWFZA">https://www.youtube.com/watch?v=L0J-UbKWFZA</a>

Initiative	Sector(s) Involved	Type	Description
Northern e-Biz Centre	Non-profit, public	Community technology resource/ e-business hub	Network of high-speed internet service centres in three Northern Manitoba communities (Thompson, Churchill, and Norway House) that provide computer and internet training as well as offer e-business and e-commerce training and consultation.
Recleim LLC	Industry	High-tech manufacturer	Recleim is a high-tech recycling facility that deconstructs home appliances using experimental technology. The company operates in a previously abandoned industrial site in Graniteville, SC, a community devastated by a deadly chlorine leak which led to the closure of the local textile mill.
Rural broadband in Skibereen, Ireland	Public, industry	Community broadband initiative	A rural community in Ireland gained funding to launch broadband internet service as part of nationwide broadband initiative. The initiative supported the creation of a number of new e-businesses, such as a heritage-based tourism company operated mostly online.
South Ostrobothnia Research & Innovation Programme	Higher education, Public, industry, Non-profit	Innovative tech-based research partnership	This rural region in Western Finland partnered with national universities to form a number of local institutes specializing in rural development research and continuing education. Building on the success of such institutes, the region formed a research and innovation program that eventually led to the creation of a regional university, the Seinäjoki University of Applied Sciences, which attracted highly-skilled professionals to the area while providing local youth higher education opportunities within the region.
Technology & Knowledge Transfer Centre, University of Debrecen	Higher education, Public, industry, Non-profit	Innovative tech-based research partnership	This region is one of the most economically underdeveloped areas in Hungary, with unemployment over 11%. However, the University of Debrecen, based in the region, has played a key role in community development by sponsoring a Technology and Knowledge Transfer Centre that has supported innovative business development in sectors like food production.
Yaruwu Technology Group	Industry	Community tech company	Community-based tech hub and online training centre serving a remote Aboriginal region of Australia through its TelePod training centre. The TelePod's opening has helped youth to stay in the community by offering distance education courses and reducing the need to leave for university.

Location	Impacts	Reference
Northern Manitoba	Research on regional internet access and needs; improvement of access to internet and online business opportunities	Cook, M., Johnston, T., & Larway, M. (2004). <i>Manitoba Research Alliance on community economic development in the new economy: Information technology summary report</i> . Northern e-Biz Centre & North Central Development. Thompson, Manitoba.
Graniteville, South Carolina, USA	Job creation and rehire of previous mill employees; training in high-tech manufacturing; reuse of existing community assets	AMCREC Community Capital (2015, June 12th). Reclaim, Graniteville, SC [Video file]. Retrieved from <a href="https://www.youtube.com/watch?v=0KBHbmhCKI">https://www.youtube.com/watch?v=0KBHbmhCKI</a>
Skibereen, West Cork County, Ireland	Improvement of community internet access; new business creation	RTÉ Radio (Producer). (2016, August 1st). <i>Today with Sean O'Rourke: A success story on rural broadband</i> [Audio podcast]. Retrieved from <a href="http://itunes.apple.com">http://itunes.apple.com</a>
South Ostrobothnia Region, Finland	Improvement of local higher education opportunities; attraction of high-skilled workforce; research and infrastructure investment	Kolehmainen, J., Irvine, J., Stewart, L., Karácsonyi, Z., Szabó, T., Alarinta, J., & Norberg, A. (2015). Quadruple helix, innovation and the knowledge-based development: Lessons from remote, rural and less-favoured regions. <i>Journal of The Knowledge Economy</i> , 7(1), 23-42.
North Great Plain Region, Hungary	Business support and development; knowledge generation and diffusion	Kolehmainen, J., Irvine, J., Stewart, L., Karácsonyi, Z., Szabó, T., Alarinta, J., & Norberg, A. (2015). Quadruple helix, innovation and the knowledge-based development: Lessons from remote, rural and less-favoured regions. <i>Journal Of The Knowledge Economy</i> , 7(1), 23-42.
West Kimberley District, Australia	Improvement of community internet access; distance education facilities	Three Star Enterprises (2016, February 10th) <i>Establishing rural tech hubs in remote communities</i> [Video file]. Retrieved from <a href="https://www.youtube.com/watch?v=qBuXV2jD5kk">https://www.youtube.com/watch?v=qBuXV2jD5kk</a>

*The Columbia Basin Rural Development Institute, at Selkirk College, is a regional research centre with a mandate to support informed decision-making by Columbia Basin-Boundary communities through the provision of information, applied research and related outreach and extension support.*