


## Chapter 4

# Digital Innovation in Small Firms of Rural Canada

**Suchit Ahuja**

*Concordia University, Canada*

**Yolande E. Chan**

 <https://orcid.org/0000-0003-4040-9778>

*Queen's University, Canada*

### ABSTRACT

*Unless there are systemic investments in digitization of rural economies, rural entrepreneurs will suffer, and digital innovation activity will remain modest. Nonetheless, the authors do find examples of digital innovation practiced by firms in rural economies. These firms successfully fostered growth and revitalization due to co-evolution of business and digital strategies, investments in technology, and digitization of business processes. In this chapter, using three such small, rural firms in Ontario, Canada, the co-evolution of business and digital technology strategies and related performance impacts are described by using the lens of “digital ecodynamics,” which is defined as the holistic confluence among environmental factors, capabilities, and digital technologies—and their fused dynamic interactions unfolding as an ecosystem. The focus on the development of resources and capabilities that are critical for the survival of the firms and the local ecosystem centered around a business incubator that supports and sustains them.*

### INTRODUCTION

*Rural communities are key to Canada’s economy, culture, and social fabric. They work with urban centres to make our country the successful, prosperous place that it is. Rural communities are an integral part of the Canadian economy, contributing to the tourism, high-tech, and manufacturing sectors. They are on the front lines of Canada’s resource economy. Through the Rural Economic Development Strategy, the Government of Canada supports strong and resilient rural communities as an integral part of the Canadian economy. - Infrastructure Canada, 2019<sup>1</sup>*

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Today, digital strategy, technologies, business models, processes, and content are integrated into almost all aspects of business and society. The technologies in themselves do not necessarily provide business advantages but must be combined with other firm resources as well as infrastructure that is available within the ecosystem of the firm to address business problems in innovative ways (Bharadwaj, 2000; El Sawy & Pereira, 2013; Nambisan et al., 2017). Used imaginatively, digital technology can “rapidly create new sources of competitive advantage and concatenate a series of temporary advantages over time” (Tanriverdi et al., 2010, p. 822). Technology investments can spur innovation and increase competitiveness. Some firms use digital technologies to drive their business strategies, facilitating innovation and creating business value. As business activities are digitized or performed electronically, firms can share information with, and respond flexibly to, suppliers and customers; they can reduce cycle times, control quality, and improve customer satisfaction (Tanriverdi et al., 2010).

Although we see the rapid adoption of digital technologies within large firms, startups, and small and medium enterprises (SMEs) in urban areas, the extant literature points to the slow adoption and limited diffusion of the same digital technologies to rural areas, often referred to as the “urban rural digital divide” (Hindman, 2000; Pham & Massey, 2018; Salemink et al., 2017). Rural areas are known to suffer from resource constraints, infrastructure scarcity, seasonality of business, lack of access to local and global markets, etc. (Hindman, 2000; Mair et al., 2012). The same trend applies to digital technologies as well. Unless there are systemic investments in digitization of rural economies, entrepreneurs in rural areas suffer and innovation activity remains largely curtailed (Salemink et al., 2017). Past research on rural areas underlines how they are often described as “passive” and lacking the vibrancy and dynamism that is often attributed to urban areas (Graziano, 2020). However, recent research has shown that on the contrary, rural areas are active on the innovation and entrepreneurship fronts and are often plugged into global networks (Graziano, 2020). This shift has been driven, to a large extent, by the pervasiveness of the digital technologies, platforms, and global ecosystems that leverage broadband connectivity, local technology and human resources, and underlying economic efficiencies provided by rural areas to develop digital products, services, and business models (Muñoz & Kimmitt, 2019).

Nonetheless, we do find some examples of digital innovation in rural economies where governments make the right policy and investment decisions to foster growth and revitalization (Chan & Ahuja, 2015; Chan, Krishnamurthy, and Desjardins, 2020). This is often done by creating innovation ecosystems that create synergy among local actors, resources, infrastructure, customers, and markets. To foster such digital ecosystems in rural areas and to provide rural businesses with equal opportunity to access digital services, the Canadian government has created the “Connect to Innovate” strategy to invest \$585 million by 2023 and bring high-speed Internet to 975 rural and remote communities in Canada, including 190 Indigenous communities (Innovation, Science, and Economic Development Canada, 2019). Most rural areas consist of challenging geography and smaller populations that present barriers to private sector investment in building, operating, and maintaining infrastructure, thereby limiting the scale and scope of digital innovation that can be undertaken in such areas. Surprisingly, rural small firms in Canada often experience challenges and physical, digital, and social constraints that are like those experienced by firms in low-income economies or emerging markets (Ahuja and Chan, 2019). Therefore, it is important to correctly assess the needs of digital businesses in such areas and develop the appropriate digital, physical, and social infrastructure required by rural firms and communities.

In this chapter, we describe the co-evolution of business and digital technology strategies, investments in technology, the digitization of business processes, and related performance impacts. We use the lens of “digital ecodynamics” which is defined as the holistic confluence among environmental factors, business

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