

Developing and Testing a Rural Business Incubator: A Best Practice Framework

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Abstract: Compared to an urban context, starting a business in a rural context has its distinctive challenges such as the lack of entrepreneurial support infrastructures typical in an urban context. Business incubators are types of entrepreneurial support organizations that support the creation and growth of new companies with tangible and intangible resources. They help incubatees transform their ideas and concepts into feasible products and services with tangible and intangible resources such as facilities, shared equipment, administrative services, knowledge, and access to networks. In the rural context, business incubators can help to address rural entrepreneurship challenges such as population and infrastructure deficiencies, and rural entrepreneurship opportunities such as strong social bonds and embeddedness to a rural environment. In this manner, they can help to mitigate entrepreneurial challenges and foster the use of entrepreneurial opportunities through direct and indirect effects to the local, regional, and national economy. However, rural incubators tend to perform worse than their urban counterparts. The reasons for this aren't well understood, as there is a lack of incubator research on how locational attributes affect rural business incubators. There is a need for further knowledge about how rural context influences business incubators to improve the development, tracking, and impact of rural business incubators. This study addresses this research gap by creating a rural business incubator best practice framework that addresses general incubator best practices and rural entrepreneurship-specific challenges and opportunities that should be addressed in rural business incubators. The proposed framework is tested in rural VAU!HAUTOMO business incubator and the results are analysed to review the framework's capabilities and suggest future use cases and research avenues. The framework provides a novel approach to plan, measure, and manage rural business incubators which both researchers and incubator actors can use to develop rural business incubators that better take into account rural entrepreneurship challenges and opportunities.

Keywords: Rural business incubator, Rural entrepreneurship, Incubator model, Pre-incubator, Rural context

1. Introduction

Companies are molded by their environment which can be in turn shaped by their actions (Anderson, 2000; Mair & Marti, 2009). This is also true in rural contexts where rural companies are molded by their rural environment and vice versa (Baumgartner et al. 2013). However, entrepreneurship policies have considered rural entrepreneurship challenges and opportunities insufficiently, and rural entrepreneurship is often approached in the same manner as urban entrepreneurship (Korsgaard et al 2015; Fortunato, 2014). Business incubators can help to mitigate entrepreneurial challenges and foster the use of entrepreneurial opportunities (OECD, 2019; Hausberg & Korreck, 2021). While business incubators can improve entrepreneurship capabilities also in rural areas, studies have shown that rural business incubators tend to perform worse than their urban counterparts (Dickes, 2011). Rural business incubator challenges can be partially explained by rural entrepreneurship challenges from which very little is still known as most of the entrepreneurship research has focused on business incubators in an urban context (Cheng & Schaeffer, 2011; Pato & Teixeira, 2016; Freire-Gibb & Nielsen, 2014).

To address these knowledge gaps, this study creates a rural business incubator best practice framework to help researchers and rural actors to better identify, track, and manage rural entrepreneurship challenges and opportunities in rural business incubators. To do this, we first identify incubator best practices, and central rural entrepreneurship challenges and opportunities. This knowledge is then applied to create the framework which is tested to analyse VAU!HAUTOMO business incubator. Finally, avenues for further testing, use, and development of the framework are suggested.

2. Literature Review

2.1 Business Incubators

Business incubators are entrepreneurial support organizations that aim to enhance the local entrepreneurial climate (Dickes, 2011). Business incubators aim to develop the entrepreneurial competence needed to initiate and engage in the practice of entrepreneurship through the process of entrepreneurial learning and the development of entrepreneurial self-efficacy (Newman et al 2019). Some business incubators have a specific sector focus such as food processing, medical technologies, or tourism (Adkins et al 2001) while others have diverse sets of incubates from different sectors. Many localities have business incubators that have been

modified to meet local needs and maximize entrepreneurial yield (Dickes, 2011). Truly, business incubators differ from each other and some argue that there are no two business incubators alike (Allen & McCluskey, 1990). Incubator management team determines business incubator’s objectives, designs the suite of services, builds relationships with affiliated organizations and institutions, and selects the incubatees (OECD/European Commission, 2019). The management team is responsible for incubation counselling, the actual dissemination of knowledge, and advice to incubatees, which has a critical role in the incubation.

2.2 Best Practices for Business Incubators

In their systematic literature review, Hausberg and Korreck (2021) identify 16 different typologies for business incubator. This comparison shows that identification of incubator best practices varies between authors according to selected incubator type and dimension. From these 16 typologies we select sponsor/partner focused typology originally presented by Zedtwitz (2003) to investigate business incubator best practices in further detail. In his study, Zedtwitz presents different incubator strategies, business models, management practices, and incubator services. Due to its comprehensiveness and adaptability, we will use it as a base for the development of a rural business incubator framework.

Business incubators typically offer five types of services (Table 1). Business incubators offering all five types of services are called incubators in the strong sense of the term. Business incubators that offer only four types of services are called incubators in the weak sense of the term. Finally, business incubators that offer fewer than four of these services lack too many incubator services to be called incubators and should be therefore approached differently.

Table 1: Five types of incubator services (modified from Zedtwitz, 2003)

Service	Description of service
Access to physical resources	Physical incubator spaces such as office spaces
Office support	Office support such as bookkeeping and IT support
Access to financial resources	Venture capital opportunities through incubator activities
Entrepreneurial start-up support	Support activities in entrepreneurial topics such as idea development, management, and legal
Access to networks	Networking opportunities through incubator activities

For-profit and not-for-profit are two basic types of incubators. For-profit incubators’ main goal is to generate profit while not-for-profit incubators have non-profit-based main goals such as regional development. Incubators can be then associated further with five incubator archetypes which all have different degrees of competitive focus in terms of incubator segment, industry, and geography (Table 2). Incubators can be strictly one of these archetypes or have elements from multiple of them.

Table 2: Five incubator archetypes (modified from Zedtwitz, 2003)

Incubator archetype	Typical objectives	Typical establishers
Independent commercial incubators	Commercial objectives	Venture capital firms and independent entrepreneurs
Regional business incubators	Public objectives such as employment	Local governments and organizations with similar regional interests
University incubators	Commercial objectives	Universities and local technology transfer offices
Company-internal incubators	Commercial objectives	Companies with internal R&D capabilities
Virtual incubators	Commercial objectives	Service aggregators

In the generic incubator business model, investors provide venture capital to the incubator which supports incubatees through incubator services so that incubatees can generate value. This value then proceeds partly to the incubator from which it returns partly to the incubator’s investors. The incubator’s management plays a key role in the success of this model. Management’s goal is to leverage investors' venture capital to provide timely and efficient deployment of incubator services and create synergy potential between incubatees through segmentation of similar incubatees.

Regardless of the selected incubator archetype, there seem to be four incubator management practices that are considered valuable for good incubator management (Table 3). Together with a long-term commitment to the

incubator by the key investors, these management practices form the basis for a successful incubator business model.

Table 3: Key practices for incubator management (modified from Zedtwitz, 2003)

Incubator management practice	Description of the practice
Incubation charter	Incubator has a clear and well-communicated vision statement that motivates investors and incubatees
Day-to-day management	More personal hands-on coaching is provided by focusing on fewer incubatees at the time and by maintaining optimal incubatee capacity
Optimizing leverage	Individuals with relevant know-how and experience are recruited, selected and retained as incubator managers
Optimizing synergy	Incubatees are selected so that their synergy value can be maximized in the incubator

2.3 Entrepreneurship in Rural Context

2.3.1 Rurality and rural entrepreneurship

The essence of rurality is still under ongoing debate (Pato & Teixeira, 2016). Rurality can be seen as a set of hard measures (such as geographical scope and population density) and soft measures (such as characteristics of social networks) (Labrianidis, 2006; Stathopoulou et al 2004). Halfacree (1993) and Siemens (2007) identify three categories from the literature for rurality. These are social definition (focus on individuals' interpretation of rurality), a definition based on lack of population (focus on disadvantages of rural areas' population density compared to urban areas population density), and geographical definition (focus on physical location, natural resources, and geographical connections to urban areas).

There are a multitude of debatable definitions for rural entrepreneurship (Gaddefors & Anderson, 2019). For example, McElwee and Atherton (2021) define rural entrepreneurship as entrepreneurship that happens to occur in a rural environment. Rural entrepreneurship often involves engagement in the rural milieu and making use of different types of resources of a rural environment (Gashi & Tillmar, 2022). Rural entrepreneurship is thus seen as spatially bound to a particular setting (Korsgaard et al 2015) so the context of rural entrepreneurship matters as each rural setting is diverse in its way (Gaddefors & Anderson, 2019).

2.3.2 Challenges of rural entrepreneurship

Different rural entrepreneurship challenges and opportunities have been identified in the literature. Stathopoulou et al. (2004) present environment-based grouping (physical, social and economic dimension) that helps to compare rural entrepreneurship challenges and opportunities. Table 4 summarizes some of the most addressed challenges and opportunities in rural entrepreneurship literature. Although this comparison is not comprehensive, it helps us to form an overview of the topic.

Table 4: Summary of identified rural entrepreneurship challenges and opportunities in Stathopoulou et al. (2004) environment-based grouping

Dimension	Typical rural entrepreneurship challenges when compared to urban entrepreneurship	Typical rural entrepreneurship opportunities when compared to urban entrepreneurship
Physical dimension	Weaker accessibility to customers, suppliers and institutions (Stathopoulou et al 2004)	Better accessibility in terms of migration (Keeble & Tyler, 1995)
	Smaller local market size and demand (Stathopoulou et al 2004; Dabson, 2001)	Lower rent costs (Imedashvili et al 2013)
	Higher distribution and marketing costs to enter external markets (Lekhanya, 2016; Sternberg, 2009)	More natural resources that may offer business opportunities (Johnson & Rasker, 1995; Tennesen, 1994)
	More difficulties to reach economies of scale (Dabson, 2001)	Entrepreneurs have more knowledge about locally available resources (Müller, 2013)

Dimension	Typical rural entrepreneurship challenges when compared to urban entrepreneurship	Typical rural entrepreneurship opportunities when compared to urban entrepreneurship
	Weaker access to skilled and educated human capital (Deller et al 2019)	Rural landscape has the potential for greater work satisfaction and for a more ethical office environment (Tennesen, 1994)
Social dimension	<p>Over embeddedness to local social networks decreases competitiveness (Uzzi, 1997)</p> <p>Stronger social obligations may cause irrational behavior (Kjeldsen & Svensen, 2011)</p> <p>Less potential interpersonal interactions (Francis & Sandberg, 2000)</p> <p>Stronger fears of social exclusion that decreases entrepreneurial behavior and culture (Spigel & Harrison, 2018)</p> <p>Attitude towards entrepreneurial actions is less encouraging (Honig & Dana, 2008)</p>	<p>Stronger social relationships and trust facilitate regional cooperation and networking (Müller, 2013; Kjeldsen & Svensen, 2011; Lee et al 2005)</p> <p>Rural cultural identity and embeddedness can be utilized to build specialty that attracts external resources (Ray, 1998)</p>
Economical dimension	<p>More skepticism towards digital technologies (Hardy et al 2019)</p> <p>Entrepreneurs are more inclined to use locally available resources even if they aren't economically the best choice (Müller, 2013)</p> <p>Less finance and human capital to entrepreneurial development (Müller, 2013)</p> <p>Slower creation and adoption of innovations (Harrison & Kelley, 1996)</p>	<p>Less developed infrastructure offers more opportunities for innovation (Canfield et al 2019)</p> <p>Digital technologies offer opportunities to mitigate disadvantages of rural environments such as distances and small market size (Stathopoulou et al 2004)</p>

2.3.3 Rural business incubators

Rural business incubators are business incubators operating in rural contexts. Studies have shown that rural incubators tend to perform worse than their urban counterparts likely requiring ongoing subsidization (Dickes, 2011). Both regional factors and incubator factors explain this but the relationship between them has been unclear until recent study by Harper-Anderson & Lewis (2018). They show that regional capacity has a weaker relationship to incubator outcomes than incubator quality. This indicates that optimal incubator program operations can compensate for the lack of regional capacity. However, when incubatees graduate from the incubator, regional capacity's importance increases as graduated incubatees will hire employees at a faster rate in regions with higher capacity for innovation.

Rural business incubators' challenges can be at least partially explained by the challenges of rural entrepreneurship (Cheng & Schaeffer, 2011). Some approaches to mitigate these challenges have been proposed in the literature. For example, it has been proposed that rural incubators should be arranged as virtual incubators or hybrid incubators combining physical and virtual incubator approaches (OECD/European Commission, 2019). While virtual incubators have been shown to lower rural entrepreneurs' barriers to participate in incubator programs (OECD, 2021), they lack the richness of interaction common to physical incubators which may decrease synergy and commitment between incubatees. To mitigate this shortcoming, the incubator can be arranged as a hybrid incubator combining both virtual and physical incubator to achieve the advantage of both incubator models. (Zedtwitz, 2003) Virtual incubators offer two types of functions that can help to mitigate rural entrepreneurship challenges (Zedtwitz, 2003). First, they offer online matchmaking

such as online communication, seminars, and learning groups. Second, they offer service aggregation such as access to external professional services.

3. Research Design

3.1 Rural Business Incubator Best Practice Framework

We use previously presented Zedtwitz (2003) incubator strategy, management model, business model, and incubator services. For each of these, our rural business incubator framework (Figure 1) proposes an approach that takes into account both rural region and rural incubator program factors. Stathopoulou et al. (2004) environment-based grouping of rural entrepreneurship challenges and opportunities is used in the framework to distinguish different perspectives. Decisions that led to the framework are discussed in more detail in the next sub-chapters.

Strategy	Management model	Business model	Services	
Public missions such as regional employment and growth as not-for-profit main goals	Elements from two archetypes to provide the incubator as a hybrid incubator <ul style="list-style-type: none"> Regional incubator (physical) Virtual incubator (virtual) 	Generic incubator business model is utilized by incubator managers Managers follow four key management practices <ul style="list-style-type: none"> Incubation charter Day-to-day management Optimising leverage Optimising synergy 	All five services are provided <ul style="list-style-type: none"> Access to physical resources Office support Access to financial resources Entrepreneurial start-up support Access to networks 	
				Physical dimension
				Social dimension
				Economical dimension
				Rural entrepreneurship challenges & opportunities

Figure 1: Rural business incubator best practice framework (Adapted from Zedtwitz, 2003 & Stathopoulou et al. 2004)

3.1.1 How Zedtwitz (2003) strategy, management model, business model and services is applied

Regional capabilities affect rural business incubators which in turn foster entrepreneurship in the area. Both rural regions and rural business incubators can benefit from incubators if their strategy and management model are chosen wisely. With this in mind, we argue that not-for-profit-based public mission goals are more fitting goals than for-profit-based goals for rural business incubators as they prioritize regional development over profitability. In the same manner, we argue that from different types of incubator archetypes, a hybrid mix of regional business and virtual incubator fit best to this use case. Regional business incubators focus on local communities and their priority is in public development. Rural entrepreneurship challenges and opportunities can be addressed in these incubators even better if virtual incubator capabilities are applied in them. Generic incubator business models can be adapted to rural environments. Incubator managers play a key role in the business model so special attention should be put on their managerial practices, especially in rural environments where skilled managers are rarer than in urban environments. Four key management practices are a good starting point for management and they can be expanded according to incubator-specific needs. Finally, rural business incubators should adapt all five types of services to be incubators in the strong sense of the term. Emphasis and content of these services should be planned case-by-case.

3.1.2 How Stathopoulou et al (2004) environment-based grouping is applied

Environment-based grouping helps to identify, distinguish, and track different types of rural entrepreneurship challenges and opportunities in rural business incubators. We argue that this knowledge can help rural incubator managers address the influence of the rural context better in their incubators and thus improve their incubation activities. While rural entrepreneurship challenges and opportunities vary in different rural environments, environment-based grouping sets a good starting point for a case-by-case review. Specific challenges and opportunities identified in previous studies can also help to identify challenges and opportunities for specific cases. We propose in the framework that rural entrepreneurship challenges and opportunities should be taken into account in the incubator’s strategy, management model, business model, and services. We see rural entrepreneurship challenges and opportunities as an overarching theme that helps to connect incubator best practices to the current rural entrepreneurship context.

3.2 Testing Framework in Development Project – Case VAU!HAUTOMO

To test the framework in practice, we used the framework to plan and track rural business incubators in Finland. The incubator was developed as a part of European Regional Development Fund development projects which aimed to start a business incubator in the Nivala-Haapajärvi sub-region area. The development project was conducted together with the Nivala-Haapajärvi sub-region's business development organization NIHAK. Nivala-Haapajärvi sub-region is located to Southern part of Northern Ostrobothnia region in Finland. Sub-region's population is small by European standards with a total population of 26 806 people in 5 municipalities: Haapajärvi, Kärämäki, Nivala, Pyhäjärvi and Reisjärvi (Tilastokeskus, 2023). NIHAK, the Nivala-Haapajärvi sub-region development organization, is responsible for entrepreneurship development in the sub-region area. Its main missions are the regional development of sub-region municipalities and the development of the sub-region business environment for companies.

4. Results

4.1 Overall Results From the Incubator

64 incubatees took part in the incubator from which 20 utilized actively different types of incubator services throughout their stay in the incubator. The other 44 incubatees either only short time in the incubator or utilized incubator services only partially. From the 20 active incubatees, 4 incubatees were ideating, 12 incubatees were implementing their idea, and 4 incubatees were developing their innovation further and seeking funding when the development project ended. In total 38 workshops were organized on various themes such as team building, funding, innovation, marketing, and legal. The management team organized visits to several start-up competitions where incubatees presented their ideas and innovations, and sought funding from the investors. After the end of the development project, the incubator continued through a new still ongoing development project which aims to increase cooperation with the sub-region's educational institutions and establish a sub-regional level capital investment fund for the incubator. Although these development steps are interesting for further study, our analysis is limited only to the first VAU!HAUTOMO development project.

4.2 Using the Framework to Analyze the Incubator

The incubator's best practices and rural entrepreneurship challenges and opportunities which it addressed were analysed by using the framework (Figure 2). The incubator had a similar strategic objective and management model as in the framework. The main goals were not-for-profit and the incubator was organized as a hybrid incubator consisting of regional and virtual incubator. Business model actors and examples of four key management practices were easy to identify. The incubator offered many incubator services but didn't offer access to financial resources as there were no in-house instruments for venture capital.

Different rural entrepreneurship challenges and opportunities were addressed in the incubator. In the physical dimension, challenges of small local market size, high marketing costs lack of skilled workforce, and opportunities for entrepreneurial local knowledge were addressed. In terms of the social dimension, challenges of over-embeddedness to local social networks reserved attitudes towards entrepreneurship, and opportunities of strong trust among local and rural cultural identity were addressed. In terms of the economic dimension, challenges of scepticism towards digital technologies and slow adoption of innovations, and opportunities of digital technologies were addressed.

The analysis indicates that the incubator managed to address different physical, social, and economical rural entrepreneurship challenges and opportunities. The incubator followed the framework's best practices in many respects although its services lacked in terms of access to financial resources. The incubator's results were analysed only subsequently when VAU!HAUTOMO development project had ended. Thus the framework's potential use case to plan incubator activities couldn't be analysed. However, the analysis can be utilized and expanded to plan activities in VAU!START+ to develop the incubator further. This could include topics such as fulfilling managers' expertise gaps, development of virtual incubator capabilities, development of day-to-day management practices, and design of sub-regional venture capital instruments. Location-specific rural entrepreneurship prerequisites could be also analysed further and the framework could be used to benchmark the incubator with other similar incubators to identify new best practices and rural entrepreneurship challenges and opportunities.

	Strategic objective	Management model	Business model	Services
Best practices	<p><i>Not-for-profit, public missions</i></p> <ul style="list-style-type: none"> Development of local (rural) entrepreneurship capabilities Sub-regional employment Growth <p><i>Not-for-profit, indirect operation profits</i></p> <ul style="list-style-type: none"> Increase of local SMEs' innovation capabilities 	<p><i>Hybrid incubator model</i></p> <p><i>Regional incubator characteristics</i></p> <ul style="list-style-type: none"> Regional interests Secured funding through development project provides a safe-haven for starting incubatees Loose screening of incubatees Incubator managers with general business development skillsets, specific knowledge has to be gathered externally <p><i>Virtual incubator characteristics</i></p> <p>Function 1: Online matchmaking</p> <ul style="list-style-type: none"> Workshops materials Private communication channels Public communication and news channels Special interest groups for competitions <p>Function 2: Service aggregation</p> <ul style="list-style-type: none"> Access to workshops experts for professional services Access to NIHAK business development services 	<p><i>Investor</i></p> <p>Public funding from the European Regional Development Fund and NIHAK</p> <p><i>Incubator (management)</i></p> <p>NIHAK, 4 business developers</p> <p><i>Incubatees</i></p> <p>Individuals and SMEs, 64 in total</p> <p><i>Key management practices</i></p> <ol style="list-style-type: none"> Incubation charter <ul style="list-style-type: none"> Clear main promise: "from idea to market" which is market diversely under VAU! Brand Day-to-day-management <ul style="list-style-type: none"> Incubatees' individual needs and situations are tracked regularly Workshops are designed according to incubatees needs Optimizing leverage <ul style="list-style-type: none"> Business developers with different skills are selected as managers Optimizing synergy <ul style="list-style-type: none"> Incubatees in similar situations are connected 	<p><i>Incubator services</i></p> <ol style="list-style-type: none"> Access to physical resources <ul style="list-style-type: none"> Physical incubator spaces in municipality centers Office support <ul style="list-style-type: none"> Basic office support services such as printing and wifi access Access to financial resources <ul style="list-style-type: none"> No in-house venture capital Incubatees are directed to external venture capital sources Entrepreneurial start-up support <ul style="list-style-type: none"> 38 workshops on various themes Access to networks <ul style="list-style-type: none"> Access to NIHAK business networks Access to external networks through start-up competitions
Physical challenges	Small local market , high marketing costs & weak access to skilled workforce			
Physical opportunities	Entrepreneurs knowledge			
Social challenges	Over embeddedness to local social network & reserved attitude towards entrepreneurship			
Social opportunities	Strong trust among locals & local branding advantages			
Economical challenges	Skepticism towards digital technologies & slower creation and adoption of innovations			
Economical opportunities	Digital technologies			

Figure 2: Analyse of the incubator through rural business incubator best practice framework

5. Discussion

This study aimed to clarify best practices for rural business incubators to create a best practice framework for business incubators in the rural entrepreneurship context. This goal was achieved by forming the framework which combined Zedtwitz's (2003) incubator best practices and Stahopoulu et al (2004) environment-based grouping of rural entrepreneurship challenges and opportunities. The framework was then tested to describe best practices in VAU!HAUTOMO business incubator and suggestions were made on how the framework could be used to further develop VAU!HAUTOMO business incubator and compare rural business incubators with each other.

Business incubators aim to enhance the local entrepreneurial climate by focusing on the development of early-stage firms. Instead of measuring their performance according to individual practices, synergy among multiple practices, policies, and services should be emphasized to improve their quality. Growing business incubators make important contributions to their local environment and thus they can also help to improve entrepreneurship capabilities in rural contexts. Rurality and rural entrepreneurship can be defined and approached in many ways. Rural areas are often compared to urban areas in terms of social, population or geographical factors to identify specific challenges and opportunities for rural entrepreneurship. Its shown that both rural context and incubator capabilities impact the rural incubators which raises an interest to further study rural entrepreneurship challenges and opportunities, and business incubators' best practices. Zedtwitz (2003) and Stathopoulu et al (2004) were analyzed to identify best practices for incubators and environment-based grouping for rural entrepreneurship challenges and opportunities which were then populated with examples from the literature. This analysis led to the creation of the rural business incubator best practice framework which was then pilot-tested to analyze VAU!HAUTOMO incubator.

The analysis helped to identify practices in the incubator that followed and practices that didn't follow the best practices mentioned in the framework. The framework also helped to separate different types of rural entrepreneurship challenges and opportunities that the incubator addressed. The framework was tested only in this one incubator and the analysis focused only on the results of the incubator which can be seen as the biggest limitation of this study. Further testing of the framework should be conducted to identify how the framework can be used to plan rural incubators and compare their results. This would help to identify the benefits of the framework and potentially help to clarify what kind of rural entrepreneurship challenges and opportunities are taken into account in rural business incubators and in which ways. This knowledge could be then further used to identify how rural context influences rural business incubators to improve understanding and development of entrepreneurial support activities in rural areas. Despite its limitations, this study provides a novel approach to rural incubator research which is still in its infancy (Nicholls-Nixon & Valliere, 2020, OECD, 2019; Barbero et al 2014), and helps to clarify antecedents for business incubators in rural environments and communities to fill

multi-level study research gap identified by Hausberg and Korreck (2021). Together with other models, the framework can be utilized to further clarify how rural context affects business incubator activities and vice versa.

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