Smart Innovations as Accelerators for SMEs in Rural Areas

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Abstract. Innovative approaches are driving the stabilization, development, and competitiveness of small and medium-sized enterprises (SMEs). The introduction of smart concepts has a favourable impact on their activities. At present, urban areas and urban projects are more preferred and supported. The importance and benefits of rural areas and SMEs’ engagement therein is underestimated in terms of country development at the European level. This contribution aims to point out innovative approaches that contribute to the development of SMEs and smart cities or regions using best practice examples from abroad with a focus on specific rural areas in the Czech Republic—where this issue is gaining momentum. The analysis of best practice examples and expert opinions in this field was used to make comparisons and to summarise the knowledge gained. This contribution also serves as a basis for mapping the factors that can support regional development and growth, as well as provides recommendations for future follow-ups and new concepts for the coming years in Czech rural areas, or areas that are culturally similar, such as Slovak rural areas.

Keywords: Smart cities; SMEs; accelerators; rural areas; Czech Republic

1 Introduction

Nick Skillicorn argues that innovation ‘represents a transformation of the original idea to the final solution that needs to be seen from a customer perspective’ [1]. In most cases, companies require creativity from their employees, but they do not provide sufficient financial and time support at the management level. Although an idea arises, it is not implemented, or it is implemented only internally without considering customer preferences [1,2,3]. Innovation in the sense of ‘applied unpublished ideas hither to, which must meet the implementation conditions, otherwise it is just a form of an idea’ is a definition according to the expert David Burkus. In his opinion, SMEs make a mistake when dealing with innovation management because they see innovation as only being linked with a final product, ignoring the fact that innovation is more than just a smart product or service. The change will affect the entire company and all stakeholders internally or externally [1].

Stephen Shapiro perceives the concept of innovation very simply in terms of relevance. If SMEs want to remain stable and successful, they should be flexible and adapt to new market requirements. Pete Foley defines an intuitive idea as one that is aligned with a new concept and communicated effectively as innovation. Within constraints, they are in favour of ensuring a balanced share of small and large ideas that elevate average businesses above the standard best practices in the field [1]. Gijs van Wulfen defined a relevant offer as one that works on an efficient business model as an innovation for customer segments. McFarthing, Brands, Hobcraft, and Shipulsky see perceptions of innovation as ‘new products and services that add value to SME management, reflect customer and stakeholder requirements, meet a strategic goal, and improve market position, including profit’ [1]. Paul Sloane combines innovation with an element of creativity, which is the basis for creating new concepts; however, its implementation conditions the emergence of innovation. At the same time, it helps generate value in the form of higher sales, lower costs, or a combination of the two [1]. Lindegaard refuses to define this concept and sees it as being overrated. Boyd favours the idea that an actual change in technology or management is innovation only if it is surprising and sudden. Greber recognizes the organic value of the term in terms of creative thinking and social aspects vis-a-vis stakeholders when building trust and relationships. Bebra summarizes opinions by saying that innovation gives the world a future [1]. The expert definitions and opinions above point to the fact that—as with the Smart City issue—no comprehensive and general view of terminology and understanding of innovation exists. The common views of those 15 experts are [1, 4]:

- ideas (60%);
- idea implementation in practice (60%);
- generation of value-added, creation of final solution (40%);
- a different perspective, thinking (27%);

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• advancement (13%);
• the unimportance of the definition (13%);
• focus on a new market, product or service (7%).

In summarizing these elements, the term innovation can be seen as 'a value-generating challenge for all stakeholders' [1,5,6,7]. In this contribution, the term will be seen as the adoption of new intelligent changes by companies at the local or national level when developing concepts of smart cities or villages.

2 Theoretical background

2.1 Rural area smart innovation implementation

The development of small and medium-sized enterprises in rural areas depends on the local conditions and features of each region. According to Steiner, two areas have been identified that need to be addressed in the management of smart villages, i.e. cooperation and education [8]. Cooperation is related to stakeholder engagement in building smart development concepts. The economy of the selected rural region is accelerated by the knowledge and know-how acquired in data form that is distributed through the network [8].

Smart region knowledge databases are a key to succeeding with the innovation management and the activities associated therewith. Collective learning, predictions, social factors, culture, and public opinion, as well as natural benefits, resources, and human capital are indicators that accelerate the growth of rural areas [8]. Local identity and adaptation to change are implemented through development programmes, such as the European Union’s LEADER or Local Action Group. Their role is to [8, 9, 10]:

• accelerate economic and demographic development and growth;
• support the innovation activities in the regions, cities, or villages selected;
• mobilize capacities, knowledge, human potential, partnerships;
• support and give preference to a multidimensional approach;
• implement a development strategy, assess its progress through the monitoring of several criteria, i.e. implementation of a smart product or service, integration of creative and innovative management forms and decision-making processes, selection of new methods, and activities for a specific area;
• apply for grants and select suitable projects for rural areas.

The implementation of the Europe 2020 project, which forms part of European Regional Policy, is an adapted version of the 1990 plan for the 21st century, which reconciles the key role of innovation in regional development better. The EU’s priority is to implement smart specialization concepts for economic, employment, and GDP growth. Insufficient interconnection between R&D, innovation resources, and processes with the current rural areas economic structure restricts this progress [11]. Sustainable development and support for villages is underestimated, although they form an important part of a holistic approach to a country’s development. The city of Kentucky in the USA is an example of best practice in harmonizing and adopting smart concepts in regions. Local SMEs have used the principle of diversification. The region has a natural advantage as a result of its tobacco and maize agriculture. In the 18th century, Kentucky was among the world’s top wine producers, but 1920 laws restricted its production and sought to promote tobacco production instead. In a drive to look for new alternative ways to gain a competitive market advantage, local SMEs expanded their activities to growing vines. The small wineries provide customers with a specific value-added, quality logistics, niche specialization, and a wide range of products. The agricultural strategy is based on setting up small family-run organic vineyards, with access for tourists and free tastings. The local businesses are not only intended for domestic visitors but also potential clients from abroad. Innovation is supported by communities, and the new elements have an impact on technologies, cultural factors, socio-behavioural factors, and management acceptance [11]. SMEs operate on a similar basis in the Piedmont Alps. The innovative approach is linked to the ecological utilization of the mountain landscapes natural resources, resulting in a high quality of life and a healthy lifestyle. The smart development strategy is based on the following success factors [11]:

• resource revitalization;
• environmental protection;
• rejection of the consumerist way of life;
• taking advantage of opportunities connected with introducing new technologies (mountain Wi-Fi internet connection and sensors);
• migration of people from cities who prefer living in rural areas for their attractiveness and benefits.
The rural Langhe region of Italy suffered massive depopulation after World War II. Over the last 20 years, strategic management has sought to combine local traditions with the agricultural sector and support the diversification of the area through the Integrated Territorial Program 2007. At the same time, product innovation has created a competitive advantage for the rural area and led to the emergence of a smart region. These benefits have sparked dialogue on qualitative environmental development, socio-cultural communities, and agricultural associations. It follows that rural areas can be perceived as a source of innovative specialization [11]. North America has built its concept of innovation on a negative trend—the increase in childhood obesity. Rural agricultural businesses began to receive support to provide quality natural diets. The aim was to build a system that would meet the criteria of sustainability, humanity, and economic efficiency. Cities, villages, regions, and SMEs were invited to join this process [11]. According to Mitra, smart concepts bring forth the following benefits for SMEs [12]:

- opportunities;
- better infrastructure, supply chain;
- virtual jobs;
- knowledge database support via sensor data.

According to Da Pires et al., the innovation implementation framework that acts as an accelerator for SMEs should contain an analysis of available resources in the selected city, village, or region and identify stakeholders, as well as the expectations and benefits thereof. In addition, the selected area needs to be connected and aligned with the economic, social, knowledge, and natural conditions of the rural area, i.e. classification of specific and high-income areas [11, 13].

### 2.2 Smart approaches and impacts on SMEs

The implementation of smart cities, villages and regions is strongly dependent on the private sector. Kummitha and Krishna's study confirms that IoT technology collects data that business managers use to support management and decision-making processes. Businesses create initiatives in the field of technological and social change within the framework of maintaining or increasing competitiveness in the market. Smart clusters therefore influence SMEs' business models. For the effective creation of smart approaches, it is necessary to have four stakeholders involved in the implementation process [14, 15, 16]:

- Government - resource allocation, market management, legislation;
- SMEs - support for social interventions, sources of innovation and technical solutions;
- Public - participation, trust, support, cooperation in finding solutions and generating ideas in people-oriented centrist models.

Small cities and regions, or rural areas, act both as a regulator and a supporter of public relations and cooperation. The tax regime creates a suitable background for businesses that use the data collected to modify their business models and search for opportunities to increase their competitive advantage and value-added for customers (Figure 1).

![Figure 1. Smart grouping as an accelerator of business opportunities](Source: [14].)

Smart City Morocco researchers conducted a study in 2018 that worked with the following two hypotheses [17]:

- H1: Implementation of smart solutions will support not only the competitiveness of companies, but also of the region where they operate.
- H2: Smart approaches in cities or villages provide opportunities for SMEs.

The results were graphically represented by a model that examined positive aspects of smart approaches on SMEs (Figure 2).
The survey of 210 SMEs confirmed both hypotheses. After the implementation of the smart concepts, the quality of the products of the participating companies increased by 67%, with managers also indicating an increase in competitiveness by around 91%. Implementation constraints came in the form of cultural and organizational differences and management styles, i.e. the human factor. The final results confirmed both hypotheses.

3 Methodology

A secondary analysis of world best practice in the field of rural area smart innovation implementation was used for this purpose. According to the survey, South Korea has the longest experience (10 years) in this area. Its models are surprisingly close to the local conditions in the Czech Republic, which is this contribution’s area of focus. This contribution examines the development of innovation implementation among SMEs in the Czech Republic in the years 2007–2013, 2016, and 2020. In addition to the secondary analysis, best practices from South Korea regarding smart innovation implementation in rural areas is compared with those in the Czech Republic, including a comparison of different expert opinions on the definition of innovation. A summary of the lessons learned follows in the Discussion section, which contains a summary of common and differing elements, including recommendations and implementation constraints for developing and stabilizing SMEs in rural areas through innovation accelerators.

4 Results

4.1 South Korea rural area innovations

Rural development is progressing differently in the countries of the EU and North America. Europeans are more inclined towards incorporating social cohesion and cultural differentiation into their models and approaches, while Americans favour the market as a mechanism for creating equality through competition. In its approach, South Korea leans towards the European models. Rural development investment plans for the agricultural sector were initiated in 1991, with the latest dating back to 2017. The development over time and the budgets thereof are shown in the following table [18].

| Phase | Titles                                      | Period   | Main objectives                     | Budget  |
|-------|---------------------------------------------|----------|-------------------------------------|---------|
| 1.    | Implementation plan for rural agriculture  | 1991-1996| increasing the competitiveness of the sector | USD 47 billion |
| 2.    | Regulatory plan for rural agricultural development | 1997-2003 | increasing the competitiveness of the sector + rural area | USD 37 billion |
| 3.    | Detailed plan for agricultural development with the support of rural communities | 2004-2017 | sector development, quality of life and business | USD 104 billion |

Source: [18].

The primary reasons for the emergence of these projects were the high level of poverty, the ageing of the rural population, and expensive services in the 1950s and 1960s. The productivity of the agricultural sector was low, with the vast majority of people living below the poverty line [19].
Representatives of strategic (national) management, i.e. government, regional authorities, and the people living in rural areas play a key role in these processes (Figure 3). The role of the region's representatives is to initiate discussions with stakeholders, monitor the project's success, and to provide services and support to the public. People contribute to the functioning of initiatives through their pro-active approach and participation in events [20]. The structure of the interaction is graphically represented in Figure 3. Strategic management allocates resources to the region, controls reports, and provides the public with educational opportunities in rural areas [20]. A rural area in South Korea is a village with a population of about 100,000 people. Very small rural areas range between 50,000 and 200,000 people. According to research studies carried out in 2017, rural areas in Mexico, Slovakia, Belgium and the USA have the highest potential (positive part in Figure 4). Values of around zero were achieved by, for example, the Czech Republic, Great Britain and Chile [21].

The highest urban-to-rural population was identified in Estonia between the years 2000 and 2017 at a value of +6% (see Figure 4).
Based on best practice, the rural Gangwon region of South Korean excels in terms service access, security, health and public involvement. With regards to income, work, housing, education, and the environment, the region achieved higher values from the best practice benchmarking process (see Figure 5) than the OECD [21].

A key element is vision sharing and ensuring effective internal and external communication. A study of rural areas in South Korea found that [21]:

- development has been carried out for the last 60 years, creating a long-term tradition and experience-based knowledge management;
- diversification of economic, financial and social development has increased GDP, national incomes and reduced regional disparities;
- solving rural problems supports the development of the country as a whole;
- changes in the demographic curve predict an ageing population, which implies the need to educate the younger generations and implement growth strategies following the new trends;
- for centralized management of rural areas it is adequate to strengthen cooperation between ministries and departments;
- compared to urban areas, lower quality of life still prevails in rural areas.

### 4.2 Czech Republic Rural Area Innovations

The countries of the European Union, including the Czech Republic, are facing problems in the form of population migration to cities, changes in the demographic curve, or digital transformation issues [22].

The building of new technology-based smart rural areas and social innovation is a rising trend in the Czech Republic, in particular where it concerns the energy, agricultural, and forestry sectors (drones for the removal of bark beetle, etc.). The key elements of their success lie in the people involved, their creativity and attitude towards the region [22]. The countryside therefore represents a strong element of Czech development strategy. In 2016, the majority of areas contributed to improving the agricultural sector and villages generated competitive advantages mainly through their natural character and charm, i.e. *genius loci* [23].

The existing projects aim to motivate people to seek new solutions and implement innovations on the basis of the principle of getting back to the original rural roots [24].

The rural area development plan for the period 2014-2020 focused primarily on supporting the sustainability of the limited resource management, i.e. to ensure efficient farm production so as to improve soil biodiversity by 25% and save water resources by 12%. The project involved 3,500 agrarian and 1,450 forestry programs. Small rural farmers make up 89% of the Czech agricultural sector, producing only 30% of the total volume. The demand for regional products is also falling as a result of the growing number of people (up to 80%) commuting every day to work in cities [25].
Smart principles in rural development consist of six priority initiatives. The first is the transfer of knowledge from the agriculture and forestry industries, and support for rural innovation. The second is to generate start-ups for 1,250 young farmers, who will drive the growth of the agricultural and food sectors, and in forestry, to reconstruct 830 km of forest roads for efficient logging and to invest in IoT technologies [25].

In addition to the cultivation of organic crops, the third priority is to produce quality rural livestock and products. Relevant activities should satisfy the following three priorities [25, 26]:

- healthy ecosystem and preservation of biodiversity;
- mitigation of adverse impacts on the environment;
- creation of new jobs—approx. 1,100 jobs through Local Action Group programmes.

The European Commission has set aside €3.5 billion to meet these priorities, of which €1.2 billion will come from the Czech budget and the rest will come from European Union resources [27]. The stakeholders include 180 Czech companies that are incorporated in the LAG database, which was updated in 2020 [28]. An overview of smart rural development projects in the Czech Republic is presented in the following tables.

### Table 2. SME rural development support projects (Part 1)

| Project                                      | Region/area                  | Year(s)   | Main findings                                                                 |
|----------------------------------------------|------------------------------|-----------|-------------------------------------------------------------------------------|
| Diversification of the rural economy         | Varnsdorf                    | 2007 – 2013| Creative thinking and use of brownfield sites can significantly support rural development. |
| Diversification of the rural economy         | Jetřichovec                  | 2007 – 2013| Pig suspensions should serve as heating fuel; silage of high quality is suitable for feeding animals, and low-quality ones for biogas; the best alternative is corn silage. |
| Restructuring, developing physical potential and promoting innovation | Krucemburk, Kuřim            | 2007 – 2013| New meat production marketing strategies need to be introduced.                |
| Implementing local development strategies   | Czech Republic               | 2007 – 2013| Growing importance of and need to work with communities to build knowledge and experience management–best practice for others. |
| Support for young farmers                   | Vysočina, Hradec Královo, Pízeň and Olomouc | 2018 | Practical understanding of projects through personal visits to farms; building a knowledge base and support. |
| Enhancing farm viability and competitiveness | Černov                       | 2014 – 2020| Monitoring non-economic factors, such as animal welfare on farms and organizational practices is important. |
| Climate change adaptation                   | Šardice                      | 2014 – 2020| Management of limited resources, such as water, land and energy, including the implementation and support of educational activities in this area, is important. |
| Agri-food chain integration & quality       | Písek, Podivín               | 2014 – 2020| Cooperation with science and research teams is the key to successfully meeting the specific objectives of rural development. |
| Water management                            | Bahna I                      | 2014 – 2020| Igniting public interest in the protection of water resources and to see sustainability as a lifestyle trend is essential. |

*Source: [29].*
Table 3. SME rural development support projects (Part 2)

| Project                                      | Region/area                                      | Year(s)     | Main Findings                                                                 |
|----------------------------------------------|-------------------------------------------------|-------------|-------------------------------------------------------------------------------|
| Diversification and job creation            | Pardubice                                       | 2014 – 2020 | Cooperation with the LAG programme led to the creation of new jobs and regional growth. |
| Farm performance, restructuring & modernisation | Záhoří                                        | 2014 – 2020 | Water resources can be protected by motivating private owners to change their work practices and personal attitudes. |
| Restoration, preservation & enhancement of biodiversity | Kašperské Hory, incl. relevant areas in Czech Republic | 2014 – 2020 | Organic farms were criticized for using grants without bringing relevant results to the public. Farm management needs to be changed for rural development. |
|                                              | Doudleby nad Orlicí                             |             | Improving animal welfare on pig farms generates a competitive advantage.        |

Source: [29].

To ensure the successful implementation of projects, the objectives and achievements need to be monitored, which is carried out by the Monitoring Committee of the European Union for the Rural Development Programme [30].

Support for rural development in the Czech Republic is an interesting trend. People are beginning to prefer a healthy lifestyle, which increases mobility to villages, which has a positive effect on tourism. For SMEs, rural development represents an opportunity to supply quality products and provide smart services with the support of state aid and EU grants, thereby ensuring the sustainability of smart principles. Project scheduling and implementation need to incorporate the monitoring of results, which brings the following benefits [30]:

- the data collected and analysed are used to monitor progress and evaluate results;
- allocation of powers and responsibilities for tasks is streamlined;
- effective public and stakeholder communication is ensured;
- models, processes and projects are continuously improved;
- current data are a necessary basis for drawing up subsequent rural development policies and supporting SMEs in the region–across the board or locally.

5 Discussion

Experts define the concept of innovation from different perspectives. On the basis of a secondary analysis of their opinions it is possible to deduce the common and differing elements of their understanding of innovation, which includes the authors’ own opinion on the issue. The authors agree with the views of Skillicorn and Burkus, who say that ‘the idea must be put into practice; otherwise it is not an innovation’. The situation is similar when perceiving strategy. Ways to achieve the objectives, i.e. strategies, do not exist unless they are implemented in practice. If they act only on a theoretical level, they cannot generate benefits, such as profits, market position, or competitive advantage. Skillicorn, McFarthing, Brands, Hobcraft, and Shipulsky make up the largest pool of authors who share the view that ‘innovation affects both the internal and external environment’. On the contrary, Shapiro and Foley argue that ‘innovation has the most impact on the market, i.e. on the external environment’. The majority of authors align themselves with the first opinion, since innovation affects management, employees, business models, services and products, which in turn affects customer satisfaction, sales, profit and the market. Skillicorn and Gijs van Wulfen combine the concept with customer orientation. The authors agree with Graber, McFarthing, Brands, Hobcraft, and Shipulsky that ‘innovation affects all stakeholders, not just customers’. This common understanding is shared by authors such as Babra, Burkus and Shapiro. Opinions vary when discussing Lindegaard’s opinion, who does not want to define innovation, or Boyd, who sees innovation merely as something surprising and sudden. The authors understand the process of defining concepts as an important element of the creation of awareness and knowledge management. Innovation can also come in the form of an evolutionary process, with many managers recognizing and preferring the gradual introduction of innovative changes for better participation and change in the thinking of their employees. If innovation is not rapid and comes in the form of re-engineering, it does not mean that it is not a new creative idea. A summary of the common and differing views is presented in the following table. The views are ranked according to priority, whereby overlapping views have a higher priority, differing ones a lower priority (ranked towards the bottom of Table 4).
Table 4. Innovation features

| Key findings                                                   | Author(s)                                                                 |
|---------------------------------------------------------------|---------------------------------------------------------------------------|
| Innovation is not just about products.                        | Burkus; Šulyová, Vodák                                                     |
| The idea must be implemented in practice.                    | Skillicorn; Burkus; Šulyová, Vodák                                       |
| Innovation has an impact on both the internal and external   | Skillicorn; McFarthing, Brands, Hobcraft & Shipulski, Šulyová, Vodák       |
| environment.                                                  |                                                                           |
| Innovation affects all stakeholders, not just customers.     | Graber; McFarthing, Brands, Hobcraft & Shipulski, Šulyová, Vodák           |
| Innovation is linked to creativity.                          | Sloan; Graber; Šulyová, Vodák                                             |
| Innovation is linked to flexibility.                          | Babra, Šulyová, Vodák                                                     |
| Innovation is the future.                                    |                                                                           |
| Innovation is synonymous with relevance.                     | Shapiro                                                                   |
| Innovation must be sudden and surprising.                    | Boyd                                                                      |
| Innovation is linked mainly to the market (external          | Shapiro; Foley                                                            |
| environment).                                                 |                                                                           |
| Customer orientation.                                         | Skillicorn; Gijs van Wulfen                                                |
| Innovation does not need to be defined.                       | Lindegaard                                                                |

Source: modified on the basis of Nick Skillicorn, 2016.

The secondary analysis conducted showed the positive impact on SMEs building smart city concepts, which is supported by Miter’s claims. The benefits can also be seen in rural areas, creating a competitive advantage for the entire region. The common elements are, inter alia, efforts to protect the environment; utilize natural advantages in the form of mountains, meadows, or pastures; and to generate an effective type of biosphere and plant or animal diversity. Supporting these smart concepts will increase rural traffic, employment, lower urban mobility, and generate higher levels of gross domestic product. The key elements of the structure are the definition of the vision, its communication to all stakeholders, and the alignment of global factors with the specific benefits for the region. By comparing the implementation of rural area innovations in South Korea and the Czech Republic, the following supporting factors have been identified and prioritized (Table 5), whereby, once again, overlapping factors have a higher priority, differing ones a lower priority.

Table 5. South Korea vs. Czech Republic – factors supporting rural smart approaches

| Supporting factor                                             | South Korea | Czech Republic |
|---------------------------------------------------------------|-------------|----------------|
| Diversification of development areas is important.            | Yes         | Yes            |
| Development structure depends on monitoring.                  | Yes         | Yes            |
| Focus on agricultural and forestry industries.                | Yes         | Yes            |
| Trend correlates with changes in the demographic curve.       | Yes         | Yes            |
| Development based on long traditions.                         | Yes         | No             |
| Public mobility trend from cities to rural areas is increasing.| No          | Yes            |
| Growing poverty of rural areas.                               | Yes         | No             |
| Desire for a healthy lifestyle.                               | No          | Yes            |
| Centralized rural area management.                            | Yes         | No             |
| Management requires subsidies from the Czech government/EU.  | No          | Yes            |
| Strong cooperation between the state, the regions and the     | Yes         | No             |
| general public.                                               |             |                |

Source: Authors.

The common factors supporting rural development in South Korea and the Czech Republic are the diversification of development areas, the correlation of trends with changes in demographic curves, and preference for investment in the agricultural and forestry industries. The traditional approach to rural poverty-based development prevails in South Korea. In the Czech Republic, the main theme is increasing the mobility rate to rural areas and the promotion of a healthy lifestyle. Management in South Korea is more centralized but also strongly connected with public communities. The Czech Republic uses subsidies from the Czech government or the EU, which may be a negative factor rather than a positive one (Table 6).
Table 6. Recommendations and constraints on SME innovation development, stabilization, and smart approach implementation

| Recommendations | Constraints |
|-----------------|-------------|
| It is adequate to see rural development as a tradition, and not just as a trend. | Alignment of concepts to local conditions. |
| The diversification of smart projects in the regions is a key factor to success. | Lack of funding for rural areas. |
| Traditionally supported industries, such as agriculture or forestry, should embrace new sectors, such as breweries. | The need to draw on limited European Structural and Cohesion Funds that arrive late. To obtain funding, it is necessary to meet predetermined administrative requirements. |
| Cooperation with SMEs will bring investment for the implementation of development projects in rural areas. | Low awareness or little interest from the public in the implementation of rural development projects. |

Source: Authors.

The secondary analysis and the results obtained confirm the suitability of implementing innovations through SME development projects in rural areas.

6 Conclusions

Building smart cities, villages and regions is an issue that is gaining traction in European countries. The key to success is innovation, which must be perceived within the context of changes in both the internal and external environments. The main findings from the secondary analysis of the associated benefits for stakeholders (SMEs, management, public) of participating in such concepts are:

- higher economic growth, employment, innovative ideas;
- monitoring, building knowledge bases, best practices for culturally and regionally similar countries;
- predictions, use of natural conditions, and the promotion of diversity.

The secondary analysis of best practice confirmed the importance of rural growth and development in South Korea's regions. Although the given territories differ in terms of culture, when applying smart concepts to rural areas, common factors prevail, such as diversification, focus on the agricultural and forestry industries, or the impact of global trends—changes in demographics and the increasing migration of people towards rural areas in search of a healthy lifestyle.

It is imperative to learn and direct the innovative activities of companies, villages or cities towards the benefit of all stakeholders and to eliminate the narrow perception of innovation as purely being technological in nature. By developing and supporting existing projects in the Czech Republic, their expansion to new potential areas, and the establishment of a traditional approach to this issue, this trend can be stabilized and used by SMEs as a basis for gaining a competitive advantage.

References

1. N. Skillicorn, What is Innovation? 15 experts shares their innovation definition [online]. Available at: https://www.ideatovalue.com/inno/nickskillicorn/2016/03/innovation-15-experts-share-innovation-definition/ (2020)
2. M. Kubina, V. Lendel, Successful Application of Social CRM in The Company. Procedia Economics and Finance. 23, 1190–1194 (2015)
3. F. Pollák, P. Dorčák, P. Markovič, Reputation Management. In: Umut Ayman, Anil Kemal Kaya, Promotion and Marketing Communications, [online]. Available at: https://www.intechopen.com/books/promotion-and-marketing-communications/reputation-management (2019)
4. P. Dorčák, P. Markovič, F. Pollák, Multifactor analysis of online reputation as a tool for enhancing competitiveness of subjects from automotive industry. Journal Economics. 65(2), 173–186 (2017)
5. V. Lendel, M. Varmus, Identification of the main problems of implementing the innovation strategy in Slovak businesses. Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis. 60(4), 221–234 (2012)
6. M. Holubcik, Theoretical knowledge in terms of forming cooperation. Selected papers of 5th world conference on business, economics and management: New trends and issues proceedings on humanities and social sciences (BEM-2016). 4 (2017)
7. D. Zrakova, M. Kubina, G. Koman, Influence of information-communication system to reputation management of a company. *Procedia Engineering*. **192**, 1000–1005 (2017)

8. M. Pechrová, A. Kolářová, Assessing of the Projects Promoting Innovations in Rural Areas in the Czech Republic. *Agrarian Perspectives: European Association of Agricultural Economist*. **22**(18–19) (2012)

9. C. Cunha, E. Kastenholz, M. J. Carneiro, Entrepreneurs in rural tourism: Do lifestyle motivations contribute to management practices that enhance sustainable entrepreneurial ecosystems? *Journal of hospitality and tourism management*. **44**, 215–226 (2020)

10. W. Dhewanto, S. Ratnaningtyas, A. Permatasari, G. Anggadwita, E. A. Prasetio, Rural Entrepreneurship: Towards collaborative participative models for economic sustainability. *Entrepreneurship and Sustainability issue*. **8**(1), 705–724 (2020)

11. R. Da Pires, M. Pertoldi, J. Edwards, F. B. Hegyi, *Smart Specialisation and Innovation in Rural Areas*. Luxembourg: Publications Office of the European Union (2014)

12. J. Mitra, *Smart Cities: Ecology, Technology, Entrepreneurship and Citizenship*. University of Essex [online]. Available at: https://www.climateneutral.eu/wp-content/uploads/2017/10/Jay-Mitra_Smart-Cities-for-Evolving-Entrepreneurship.pdf (2017)

13. J. Holly, A. Kona, Will the Internationally Recognizable Country Identity of Slovakia “Work” or will the Current Attempts at Unifying the Presentation of Slovakia Abroad and the Search for an Attractive Narrative End in Failure. *Mediterran Journal of Social Sciences*. **6**(6), 368–371 (2015)

14. R. Krishna, R. Kummitha, Smart Cities and entrepreneurship: An agenda for future research. *Technological Forecasting and Social Change*. **149** (2019)

15. J. Straková, P. Pártlová, J. Váchal, M. Vochozka, Excellent top manager system (ETMS) - Quality management tool tertiary education. *Proceedings of the 29th International Business Information Management Association Conference - Education Excellence and Innovation Management through Vision 2020 – Regional Development Sustainability to Global Economic Growth*. **29** (2019)

16. R. Vachalova, S. Matejkova, J. Vachal, P. Partlova, M. Dumbrovsky, L. Jurik, Evaluation methods of agricultural potential in rural areas including environmental function. *Annals of Warsaw University of Life Sciences – SGGW Land Reclamation*. **43**(1), 87–97 (2011)

17. H. Rochdane, S. Hamdani, Role of Small and Medium Enterprises in the Development of Smart Cities: Case of Casablanca Smart-City Project – Morocco. *International Journal of e-Education, e-Business, e-Management and e-Learning*. **8**(3), (2019)

18. J. Hwang, J. Park, S. Lee, The Impact of the Comprehensive Rural Village Development Program on Rural Sustainability in Korea. *Sustainability*. **10**(7), (2018)

19. J. Craigie, *The self-help rural communities of South Korea* [online]. Available at: https://www.ruralnetwork.sct/self-help-rural-communities-south-korea (2019)

20. S. H. Park, *Rural Development of Korea: Historical Evolution and Performance* [online]. Available at: https://krei.re.kr/eng/selectBbsNttView.do?key=368&bbsNo=192&nttNo=37509&searchCtgy=&searchCnd=all&searchKrd=&pageIndex=5&integDeptCode= (2018)

21. E. Garcilazo, L. S. Springare, M. Sasaki, D. O. Higuera, *Rural study of Korea. OECD Regional Development Working Papers No. 2019/05*. Paris: OECD Publishing (2019)

22. O. Plevák, *Smart village is a remedy for outflow of people from rural areas* [online]. Available at: https://www.euractiv.com/section/agriculture-food/news/smart-village-is-a-remedy-for-outflow-of-people-from-rural-areas/ (2020)

23. Vaishar, J. Zapletalová, E. Nováková, Between Urban and Rural: Sustainability of Small Towns in the Czech Republic. *European Countryside*. **8**(4), (2016)

24. AEIDL, *Smart villages, a remedy for rural areas in the Czech Republic* [online]. Available at: https://www.aeidl.eu/en/news/latest-news/5293-smart-villages-a-remedy-for-rural-areas-in-the-czech-republic.html (2020)

25. European Commission, *Factsheet on 2014-2020 Rural Development Programme for the Czech Republic* [online]. Available at: https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/key_policies/documents/rdp-factsheet-czech-republic_en.pdf (2020)

26. D. Popjakova, M. Blazek, Verification of counterurbanisation processes: Example of the Ceske Budejovice region. *Bulletin of geography-socio-economic series*. **27**(27), 153–169 (2020)
27. eAGRI Venkov, *Program rozvoje venkova 2014-2020* [Rural Development Program 2014-2020]. [online]. Available at: http://eagri.cz/public/web/mze/venkov/program-rozvoje-venkova/prv-2014-2020/ (2020)

28. European Network for Rural Development, *LAG Database* [online]. Available at: https://enrd.ec.europa.eu/leader-clld/lag-database/_en?f%5B0%5D=im_field_enrd_lag_country%3A19213 (2020)

29. European Network for Rural Development, *Project in Czech Republic* [online]. Available at: https://enrd.ec.europa.eu/projects-practice/_en?f%5B0%5D=sm_enrd_eu_countries%3ACzech%20Republic (2020)

30. eAGRI Dotace, *Hodnocení a monitoring* [Evaluation and monitoring]. [online]. Available at: http://eagri.cz/public/web/mze/dotace/program-rozvoje-venkova-na-obdobi-2014/hodnoceni-a-monitoring/ (2020)