
The Role of Open Innovation in Eastern European SMEs: The Case of Hungary and Romania

Oana-Maria Pop*

Hasselt University, Campus Diepenbeek
Agoralaan Building D, B-3590, Diepenbeek, Belgium.
E-mail: oanamaria.pop@uhasselt.be

* Corresponding author

Nadine Roijackers

Hasselt University, Campus Diepenbeek
Agoralaan Building D, B-3590, Diepenbeek, Belgium.
E-mail: nadine.roijackers@uhasselt.be

Dacian Gabriel Coita

Smartfin Consulting SRL
Str. Gheorghe Doja 50, RO-410169, Oradea, Romania
E-mail: dacian.coita@yahoo.com

Sorin Teodor Constantin

UniCredit Tiriatic Bank S.A.
2-4 Unirii Square, RO-410072, Oradea, Romania
E-mail: sorin-teodor.constantin@unicredit.ro

Abstract:

In response to calls in the Open Innovation (OI) literature, this paper aims to create a better understanding of the role of OI practices in the innovation efforts of Small- and Medium-sized Enterprises (SMEs) located in Hungary and Romania. Specifically, the paper analyses the role of OI in these small firms' new product/service development efforts, explores the types of OI partners they engage with, and examines the drawbacks/advantages of OI as these firms perceive them. Existing research on developing economies has shown that SMEs typically act as catalysts of economic growth and the scarce literature on OI in SMEs indicates that small firms engaging in OI practices are more innovative and competitively stronger than their counterparts that do not practise OI. Hence, it is important to study the cases of Hungary and Romania to gain insight into the effective use of OI by SMEs located in these countries.

Keywords: SMEs; OI; Eastern Europe; Hungary; Romania; Innovativeness; Partner Types; Drawbacks/Benefits of OI; Role of the Owner/Manager.

1 Introduction

The purpose of this explorative paper is to generate insights into the effective use of Open Innovation (OI) practices in Small- and Medium-sized Enterprises (SMEs) located in Hungary and Romania. SMEs and their dynamic nature, inherent risk-taking behaviour, and resulting innovation capacities serve as catalysts to (developing) economies (Benáček, 1995; Peng, 2001; Wachtel, 1999). This is recognized also by the European Commission and evidenced by the funding programs targeting SME development, competitiveness, and survival (e.g. INNOSUP-7-2015 under Horizon 2020). To this point, academic research has shown that OI can add to SMEs' innovativeness and persistence in growth (Vanhaverbeke et al, 2012) if these small companies are able to successfully apply OI approaches to their businesses (Spithoven et al, 2013). The problem is, however, that many SME owners/managers are reluctant to apply OI principles and are therefore not able to use OI as a means of compensating for their challenges (scarce resources and underdeveloped skillsets) (Van de Vrande et al, 2009). Few contributions to the OI literature have focused on this aspect in developing nations. Hence, Brunswicker and Van de Vrande (2014) once again stimulate researchers to study the OI activities in (Eastern European) SMEs on a larger scale, focus on the challenges these companies face when jointly innovating with external partners, and suggest ways of successfully dealing with these issues. As SMEs are important actors in all types of economies (Lukács, 2005), but most notably in developing ones (Peng, 2001), we choose to study the OI activities of a sample of Hungarian and Romanian SMEs. To the best of our knowledge, this is one of the first attempts to shed light on this particular topic.

Through direct contacts with (and support from) local networks possessing relevant information on Eastern European SMEs such as the Hungarian Chamber of Commerce, the Romanian Chamber of Commerce, the Carpathian Region Business Network, the Rotary Club of Oradea, the National Council of Private SMEs in Romania, and the National Innovation Office of Hungary, a survey was administered to a sample of 60 SMEsⁱ that were endorsed by the aforementioned networks to take part in the study. Underlying the endorsement was a careful selection procedure based on companies' tendency to share knowledge, willingness to participate in research for the benefit of the communities they are part of, and potential to learn from the survey resultsⁱⁱ. Close collaboration with the authors' networks in administering the survey ensured a high response rate (Groves et al, 2009), averaging 70% (equals a final sample size of 42). Ultimately, this figure can be attributed to the professionalism and reliability of these networks whose representatives have prioritized contacting participating SMEs personally for data collection whenever possible. Last but not least, the surveyed SMEs were given the possibility to answer the questionnaire in their native language (with subsequent translation by the first author), which ensured content richness and overruled language-barrier problems. Example questions from the survey include: How many new products/services have you introduced in the past 5 years or since you started up your company?; For how many of these new products/services have you collaborated with external partners?; With what type(s) of partner(s) did you collaborate?; Which are, in your opinion, the main advantages and drawbacks of jointly developing new products/services? Analysis of the responses to the survey has led to a (qualitative) overview of the OI activity (in terms of frequency of use, types of partners, etc.) in Hungarian and Romanian SMEs, the main OI themes that are relevant for these firms,

and their management concerns vis-à-vis OI. The results were validated and interpreted through group-based interviews (i.e. video calls) where a subset of the owners/managers of the SMEs participating in the study provided explanations for some of their responses as well as more in-depth information on their OI cases.

The remainder of the paper is structured as follows. In the next section we address the most relevant theoretical insights for our study: Existing research on the important catalyst role of SMEs in developing economies and the articles that have come into existence on the driving force of OI practices behind SME innovativeness, survival, and growth. In section three we describe the demographics of our sample of SMEs. In what follows we provide an overview of SME innovativeness and we zoom in on two showcase examples of innovative products/services introduced by the small firms in our sample, the role of OI in these innovations, and OI leadership exhibited by their owners/managers. Section five focuses on the role of OI in the innovation activities of our sample of Eastern European SMEs, highlights their preferred OI partners, and discusses the benefits/drawbacks associated with OI as identified by the subjects. In section six, we formulate conclusions and provide suggestions as to how to remedy some of the OI challenges within an SME context.

2 The Importance of SMEs and their OI Activities for Eastern Europe

SMEs are viewed as drivers of economic growth and development as they account for over 90% of all businesses in most economies (Brunswick and Van de Vrande, 2014). This catalyst role seems to be particularly important in developing economies, such as Hungary and Romania (Pfirman and Walter, 2002), and is related to the innovative strength of SMEs compared to their larger counterparts where these small firms possess more specialized (technical) knowledge and are less formalized, are more likely to take risks, and are faster to react to change than large firms (Parida et al, 2012). All of these SME traits are considered to enhance innovative capacity and performance (Lasagni, 2012). In both Hungary and Romania, SMEs indeed account for over 90% of all companies in business and around 70% of the overall employment in these countries; despite their large presence in the economy, however, Hungarian and Romanian SMEs only account for about 49% and 54% of the total economic value added, respectively (EC, 2014). In terms of innovative performance, as measured by both the number of new product/service introductions as well as innovative collaborations with external partners, SMEs in Hungary and Romania are lagging behind their counterparts in other EU countries (EC, 2014). Several authors have pointed out that despite efforts at re-shaping and improving the business environment for SMEs in Eastern Europe through both financial and non-financial assistance (human capital and technology) the entrepreneurial climate is still not optimal and SME owners/managers are often reluctant to engage in risky, (collaborative) innovation activities (Brown et al, 2005; Fogel and Zapalska, 2001; Pfirman and Walter, 2002). In addition to the environmental limitations that are characteristic of developing economies (Uzkurt et al, 2012), Hungarian and Romanian SMEs also face restrictions in terms of underdeveloped skills and capabilities (a shortage of skills in innovation management and unstructured innovation processes) and a scarcity of resources (a lack of both human and financial assets) that are typical for the SME context at large (Parida et al, 2012). Sufficient financial resources and therefore a more solid basis for innovation are generally only attributed to family-owned SMEs (Fletcher

et al, 2009). While (Eastern European) SMEs would thus be more capable of exhibiting innovative behaviour through their flexibility than large firms, they are typically less well positioned to embrace innovation and perform well in this area due to an underdeveloped resource base. Even though Hungarian and Romanian SMEs are less eager to engage in collaboration for innovation than other small firms in Europe, the thin research base on OI in SMEs does point out that engaging in OI could greatly benefit these firms and their innovative output (Brunswick and Van de Vrande, 2014; Lasagni, 2012; Parida et al, 2012).

Ever since Chesbrough coined the term ‘Open Innovation’ (Chesbrough, 2003), numerous publications on the topic have arisen. Traditionally, these contributions have focused on the innovation activities carried out in large, R&D-intensive companies and have studied how these activities can benefit from both in- and outflows of knowledge. Only recently academics have begun to focus their attention on SMEs and have started to address the characteristics of OI activities in small firms as well as the benefits and drawbacks related to embracing OI in these types of firms (Van de Vrande et al, 2009). This research shows that SMEs that do engage in innovative inter-organizational linkages and networks with various sorts of partners, e.g. universities and research institutes, suppliers, complementary partners, competitors, peers, clients, and individual inventors, generate a higher number of new products/services than their peers that do not actively practise openness (Brunswick and Van de Vrande, 2014; Lasagni, 2012; Parida et al, 2012). Particularly, small firms that engage in OI projects with their clients are more innovative and are better able to secure market demand for their innovations from satisfied clients than others (Lasagni, 2012). Besides being more effective at innovation, SMEs that are involved in joint innovation projects are also experiencing stronger growth, higher revenues, and a more rapid accumulation of new knowledge (Parida et al, 2012; Van de Vrande et al, 2009). While SMEs may have limitations related to scarce resources and insufficient skills that keep many of them from even engaging in joint innovation projects (Pfirman and Walter, 2002; Spithoven et al, 2013), the few existing publications on OI in SMEs suggest that the ones that do effectively collaborate and make use of their strengths (e.g. flexibility) are performing better than others. This is mainly because SMEs that are proficient in applying OI practices are able to compensate for their limitations as their partnerships provide them with access to missing resources/skills, help them to optimize internal innovation processes, and enable them to share the risks/costs associated with new product/service development with partners (Parida et al, 2012). Despite this relation between OI and SME innovative success, however, there is relatively little knowledge concerning the specific circumstances that drive some SME owners/managers to embrace OI successfully and others to conduct innovative activities predominantly within their firms’ boundaries. While researchers in OI have attempted to transfer some of the lessons learned from large organizations to the SME context in the past, the prevailing tendency in recent years remains to study and understand SMEs as a separate group of companies with specific OI needs and distinct (i.e. that differ significantly from common practice in large firms) ways of going about collaboration. One important finding has been the role of the SME owner/manager and his/her personality in the success of innovation in general (see Marcati et al, 2008) and OI in particular (Lambrechts et al, 2015). The extent to which owners/managers ‘preach’ openness in their company, forge trustful relations with partners, proactively seek new OI opportunities, and take the lead in partner selection and the overall management of the OI network largely determines the successful employment of OI in SMEs.

In the existing OI literature there is a relatively thin knowledge base concerning the specific circumstances under which (Eastern European) SMEs are able to embrace OI, benefit from different OI approaches, and use OI to compensate for internal shortcomings. By assessing the specific use of OI in a sample of Hungarian and Romanian SMEs and the related drawbacks and benefits these companies experience we intend to fill this gap. As such, we respond to Brunswicker and Van de Vrande's (2014) call for more OI research addressing the barriers and stimulators to successful OI implementation in a small firm context. Particularly in developing economies it is important to study the effectiveness of approaches in SMEs that help these small firms in playing their catalyst role. In the following sections we describe our data in relation to these topics.

3 A Characterization of Hungarian and Romanian SMEs

As remarked in the introduction, the primary data for our explorative research was acquired through collaboration with well-established institutions as well as individual experts and consultants in two Eastern European countries: Hungary (19% of the SMEs in the sample) and Romania (81% of the sample). Careful preparations before, during, and after administering the survey, i.e. drafting a bilingual text, including a personal letter, familiarizing SMEs with the purpose of academic research in general and OI research in particular (via group-based video calls or one-on-one coaching), and helping SME owners/managers pin down what innovation management means for their individual organizations have had a substantial influence on the quality and quantity of input received. In other words, this meticulous way of workingⁱⁱⁱ has enabled the authors to gather a high number of completed questionnaires and mini-interviews^{iv} from Hungary and Romania. Regarding demographics, the survey inquired about: Year of establishment (Figure 1), numbers of employees (Figure 2), and industry breakdown (Figure 3).

Figure 1 provides an overview of the sample of SMEs in terms of age. The oldest company in our study is an agri-business established in 1974, while the youngest a private art/creative services practice inaugurated in late 2014.

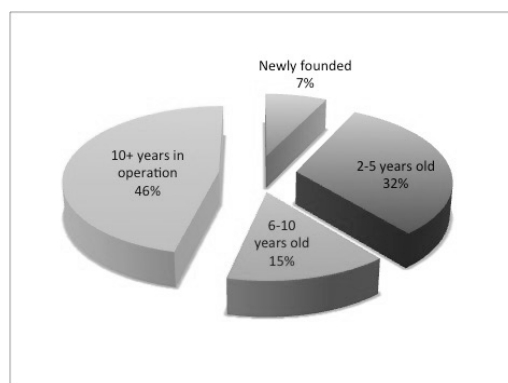


Figure 1 The breakdown (%) of the sample into four distinct age categories: Under 1 year old (“newly founded”), between 2-5 years old, between 6-10 years old, and over 10 years old

Close to 60% of the companies surveyed have been in operation for more than five years – 46% were established before 2004 and 13% between 2004 and 2010 – while the remainder are fewer than five years old. More specifically, 33% are between 2-5 years of age and a mere 8% have been operating for less than a year.

Figure 2 groups SMEs according to headcount. Although we observe a relatively balanced mix of companies in terms of years in business, the number of employees that have directly helped these organizations gather resources, battle uncertainty (including political instability and ambiguous policies and tax regimes), innovate, and thrive is surprisingly low.

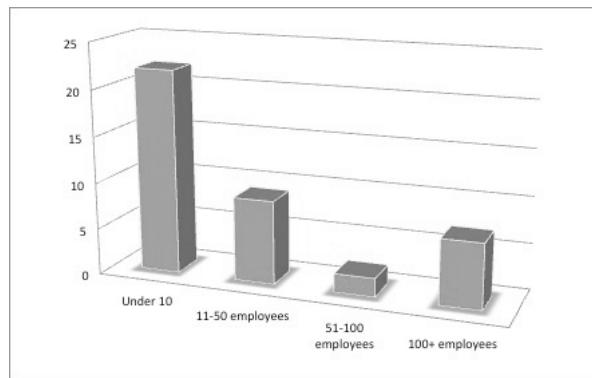


Figure 2 The breakdown of the sample (i.e. number of persons employed) into four distinct size categories: Under 10 employees, between 11-50 employees, between 51-100 employees, and over 100 employees

Approximately half of the organizations surveyed employ fewer than ten employees while about a quarter of the SMEs in our sample employ between eleven and fifty people. The least represented category in the sample is the ‘51-100 employees’ bracket. Finally, over one hundred members of staff powered fewer than 10 companies’ innovation engines. In terms of number of employees, our sample is representative for the larger Hungarian and Romanian population of SMEs (EC, 2014).

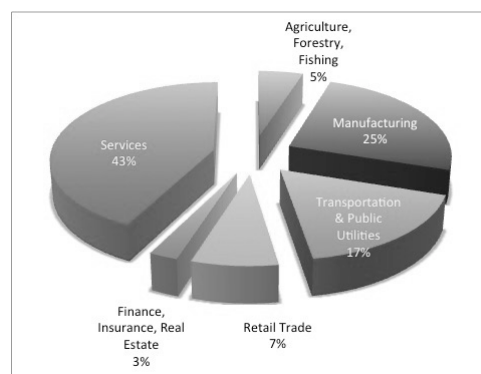


Figure 3 The breakdown (%) of the sample in terms of the industry sector they are active in

In Figure 3 we find the final descriptive, industry breakdown, indicating the percentage of SMEs active in different sectors of industry. 43% of our sample consists of service firms e.g. health services (clinics), computer-programming services, design, advertising, consulting practice, etc. Next, in descending order, 25% of the organizations are manufacturing firms whose operations centre on paints and varnishes, construction materials, dental equipment production, textiles and special fibres, as well as ceramics. The remainder of the sample comprises SMEs specializing in transportation and public utilities (17%), agriculture, forestry and fishing (5%), and, finally, finance and real estate^v (2%).

4 SMEs' Innovativeness

While the characterization of Hungarian and Romanian SMEs in terms of demographics as highlighted in the previous section serves as a starting point for understanding their background and focus, generating insights into the innovativeness of these SMEs and their effective use of OI practices prompts for additional analyses. Measuring innovative performance in SMEs is not a topic that is readily addressed in the innovation management literature. Hence, in selecting our measure of SME innovativeness, we mostly drew from the existing body of knowledge on innovation measures used for studying the innovative performance of large companies. In general, measuring firm innovativeness posed significant challenges in innovation research in the past, primarily for lack of consensus among researchers on which indicator constituted the most effective measure, e.g. R&D input, patent counts, patent citations, new product announcements or a combination of these measures. As such, Hagedoorn and Cloudt (2003) carried out an extensive survey of the innovation management literature cataloguing the aforementioned indicators – single or composite – for knowledge-intensive industries. Their main conclusion is that the statistical overlap between different measures is so strong that any of the individual input, throughput, or output indicators may be reliably used to measure firm innovativeness. Hence, for the purpose of our explorative study, we build on Hagedoorn and Cloudt's work and focus on measuring SME innovativeness by examining the number of new product/service introductions at the organizational level, following also the few studies on SME innovativeness that are available and that have predominantly employed this indicator (Leitner, 2011; Salavou and Avlonitis, 2008).

In collecting data on SME innovativeness in terms of their new product/service introductions^{vi}, we have followed the prescriptions of the Oslo Manual^{vii} (2005). Following this manual, non-innovations to the likes of simple capital replacement or extensions and customization were disregarded from the analysis. Table 1 sets, side by side, four notable examples of innovations and non-innovations. The remaining data has produced a realistic overview of SME innovativeness in our sample and is summarized in Figure 4.

Table 1 Innovations versus non-innovations illustrated with eight excerpts from the sample

<i>Innovations</i>	<i>Source and quote</i>	<i>Non-innovations</i>	<i>Source and quote</i>
Significant improvements in	Ice-cube manufacturer: "A 'ready mix' (or	Simple capital replacement or	Catering business: "We have introduced on the

products and packaging	<i>cocktail base) that will contain everything except the liquid itself. (...) A suggested cocktail recipe could also be included on the packaging."</i>	extensions	<i>market a 'menu of the day' with quality food, diversified ingredients, and new recipes."</i>
Highly specialized, on-demand professional services	LEAN manufacturing consultancy: <i>"'Rent a manager' or 'rent specialist'. (...) We are not giving solutions to the clients but are sensing people that can help extract the right solution from the client's mind via root-cause analysis."</i>	Changes resulting from changes in factor prices	Car dealership: <i>"The (innovative) commercial transactions: (...) our company prospects EU markets, identifies sale opportunities (stock liquidations), purchases a given number of cars at an advantageous price and finally sells these cars further to clients."</i>
Co-development and commercialization of niche products	Dentistry clinic and laboratory: <i>"One of my 'babies' is a type of ceramic developed in France. I go to Liechtenstein a few times a year to get feedback from several people in the (product development) group (...) and when it is ready we take it to market."</i>	Customization trading of significantly new or improved products	Advertising company: <i>"Computerized laser engraving on a number of advertising products: Plates, company boards, wardrobe numbers, room numbers, elevator warnings etc."</i>
Cross-industrial R&D for new to the world product	Textile company: <i>"We developed a mop. (...) We were three companies that came together to bring to the market a product that had the technology to steam-clean using a special textile for the rubber that replaced PVC."</i>	Trading of significantly new or improved products	Non-hazardous waste management company: <i>"Several hundred products that are produced by the main (mother) company in Hungary"</i>

The majority of SMEs in our study lie at one end of the innovativeness continuum, having introduced between 1 and 5 new products/services in the previous five years or since their establishment (the innovativeness of the SMEs in our sample is representative of the larger SME population, see, for example, Ledwith and O'Dwyer, 2009). At the other end of the continuum we find but one responder, a Hungarian manufacturing company, that has introduced over twenty new products including cartridges, ceramic discs, and wax motors. The remainder of the sample is distributed approximately equally between the two extremes.

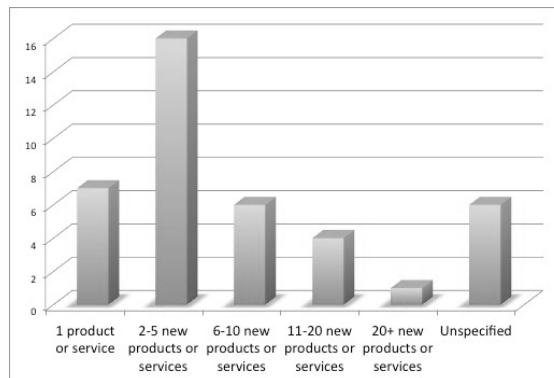


Figure 4 The innovativeness of the sample measured by number of new products/services introduced in the past 5 years or since the company was founded

To provide more in-depth information on the specifics of innovative activities conducted in our sample of SMEs, their OI practices, and the role of their owners/managers, in what follows, we describe two exemplary new product/service introduction cases.

Stoby Dental

Stoby Dental is a dental equipment supplier and clinic established in 2009, currently employing close to 10 people. Its owner/manager is an opinion leader for one of the biggest dentistry companies in Europe (Liechtenstein-based [Ivoclar Vivadent](#)) while its innovation activities are mainly concentrated around market prospecting and development work: *“With Ivoclar it works like this: I make a sample, I send it, I go there, I give them the idea. Ivoclar takes 6 months to make it and within 1,5 years we try it and test it again. After several iterations and a lot of back and forth, we arrive at a final version and if it’s good, we take it to market. There is a strict protocol. Total time to market is essentially 2-2,5 years.”* One of the company’s newest products, a type of ceramic developed in France through a partnership with a peer, is featured in Table 1 as an illustration of an authentic innovation. A particularly interesting aspect of this partnership is that, despite having the option to do so, patenting (or IP protection) is not considered a priority for lack of added value: *“If I collaborate I don’t have a patent. If I work with one of Ivoclar’s competitors I have a patent, but I do not wish to do that. Yes, of course, patents are nice to have in brochures and my name in there but... that is not what I need.”* Instead, the company is content with receiving strong support from a large organization while boosting its own innovativeness in the process. Using OI by partnering with a large organization therefore enables Stoby Dental to influence the new product development priorities of others and also make a difference in dentistry equipment and techniques overall. Finally, the owner/manager’s deep understanding of the industry and market contribute to creating a ‘realistic’ outlook: *“Everyone works with ‘opinion leaders’. In dental technologies, which have an amazingly fast growing market, everyone works like that. Others: I don’t know. Here, in one year you are already behind.”* Summing up, Stoby Dental illustrates how SMEs can foster long-term collaboration with research institutes, peers, and suppliers and additionally, how the owner/manager’s strong vision can help in setting the expectations for future OI projects right.

Team4Soul

Team4Soul is an arts and personal development company established in 2014, currently employing only its owner/manager but whose ambitious development is visibly underway. The company specializes in working with artists to produce unique wooden artefacts bearing motivational messages: *“The object of the business is to create unique handmade products with the help of local artists (mainly painters, sculptors) – products that will make a difference in people’s lives.”* At the onset, Team4Soul offered personal development workshops but later specialized in helping artists monetize their creations. Today, as the community grows, a sustainable business model is taking shape with the help of OI: *“Everything starts from myself, Richard, the person that came up with the business idea, but then the roles become divided. There is a creative team (made up of students at the University of Arts as well as independent artists) and a management team that is in charge of commercialization, e.g. taking photos of the artwork, uploading the images onto the website, establishing payment solutions, doing the advertising, etc.”* When asked to describe a unique new product, the company mentioned paintings on tree bark: *“We are looking at using tree bark, which is very special material, to add value to the product. Furthermore, engraving techniques will be used to sculpt messages (e.g. motivational quotes) instead of simply writing them with a brush. The artist has freedom to experiment”* Despite tapping into a relatively niche market (i.e. not many local clients are open to handmade products) experimentation is the organization’s mantra. Within only four months of activity, six different types of products were created and added to the company’s portfolio. Furthermore, the growth plan relies on sustained partnerships with complementors, such as the universities but also on effectively retaining talent: *“The University of Arts is simply a facilitator in this situation (helping me expand this project), overlooking the young artists’ education and supplying further talent. The goal is to find as many committed art students as possible – many begin the collaboration but few stay motivated.”* Summing up, Team4Souls illustrates how SMEs can successfully collaborate with universities for new product/service development as well how the owner/manager’s motivation acts as a binding element between the different parties involved.

While the focus of the current section has been to describe the general innovativeness of SMEs in terms of their new product/service introductions, in the next part we examine the role of collaboration with different types of partners in these innovative activities in a more detailed manner.

5 OI in Hungarian and Romanian SMEs

While the scarce literature on the role of OI in SME innovation efforts shows that these smaller, flexible companies can benefit to a large extent from making use of OI tools and practices to compensate for internal resource shortages/lack of skills and to support internal new product/service development, many SMEs are reluctant to embrace OI and use this strategy as a driver of their innovativeness. In this section, we describe the OI efforts of our sample of Hungarian and Romanian SMEs with a particular focus on the role of OI in their innovation efforts, their preferred types of partners, and the drawbacks/benefits these firms associate with the use of OI. Figure 5 provides an

indication of the importance of OI for the overall portfolio of SME new product/service development projects.

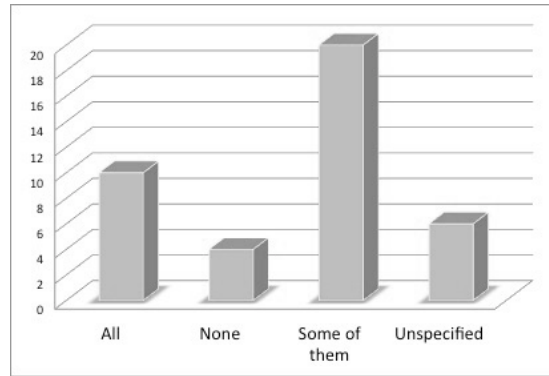


Figure 5 The importance of Open Innovation practice in the sample measured by the number of new products/services resulting from collaboration

Fewer than five companies in our sample responded that they typically conduct all of their innovation activities internally without any influence of external parties or collaborations. Around ten SMEs reported to carry out all of their new product/service development projects in collaboration with different kinds of partners. The majority of firms in our sample (about twenty companies) pointed out that at least part of their portfolio of innovation projects is realized with the help of OI collaborators.

Figure 6 provides an overview of the OI activities in our sample of SMEs in terms of the spread in their use of different types of OI partners, i.e. universities and research institutes, suppliers, complementary partners, competitors, peers, clients, and individual inventors. From this figure we can infer that the preferred OI partners (in terms of frequency of use) of our sample of Hungarian and Romanian SMEs are their suppliers, complementary partners (i.e. companies active in other, adjacent industries/areas of technology), and their peers (i.e. other SMEs that are not in direct competition with them). Suppliers are recognized in the OI literature as important sources of (joint) innovation (Ragatz et al, 1997). Furthermore, collaborating with parties that represent no direct competitive threat either because they operate in different sectors or because the stage of joint innovation projects is several years ahead of market applications is associated with lower coordination costs and a lower risk of opportunism (De Man and Roijakkers, 2009; Leten et al, 2013). SMEs' effort to collaborate with other small companies is considered by both researchers and SME owners/managers more easily manageable than large-small combinations. The reason rests in the power balance, more evenly distributed in the case of the former. Still, what we can conclude from figure 6 is that competitors are also a well-established source of joint innovation projects for many SMEs in our sample. Finally, the surveyed SMEs relied the least on input from their clients and universities when it came to feeding their internal innovation processes with new information. For SMEs, working with clients and involving them in innovation could be important in terms of gaining access to information regarding clients' needs as well as creating market acceptance of new products/services more easily (Lasagni, 2012).

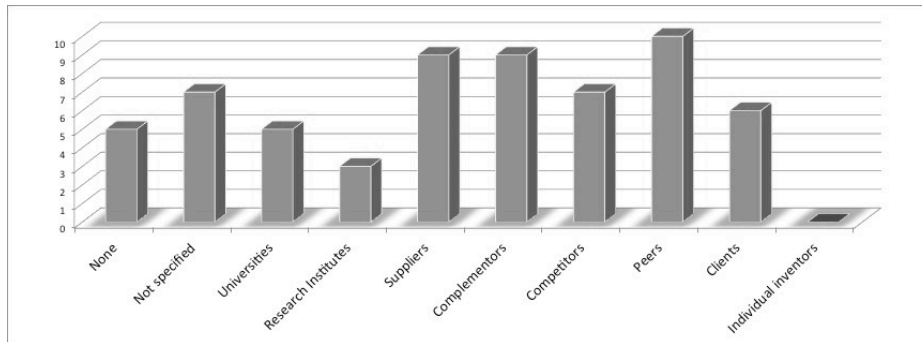


Figure 6 Collaborativeness and variety of partners for innovation in the sample measured by number of SMEs engaging with each category of partners

Table 2 provides an overview of the benefits and drawbacks related to OI activities as identified by the owners/managers of the SMEs in our sample.

Table 2 Benefits and drawbacks of engaging in Open Innovation

<i>Benefits</i>	<i>Drawbacks</i>
Access to state-of-the-art knowledge, assets, and resources	Risk of opportunistic behaviour/partner selection challenges
Cost and risk-sharing	Benefits of joint innovation need to be shared
Speed and efficiency of innovation	Takes away resources from mainstream operations
Increased new product or service quality	High coordination costs/joint decision-making and reconciling different approaches takes time
Increased competitiveness	Only pays off on the long run

As becomes clear from this table, SMEs view OI practices as beneficial. Following a collaborative strategy enables these firms to access, for example, contemporary know-how and assets that would not be accessible otherwise. Furthermore, collaborating on joint innovation projects with suppliers, complementors, and peers allows small companies to share some of the risks and costs associated with innovation with these partners. In an SME context where resources are scarce the latter is an important benefit of joint new product/service development. Another advantage of OI is related to the increasing speed of (technological) development and the widespread distribution of knowledge components where being first on the market and creating strong competitive positions are dependent on the speed and efficiency with which firms can tap into their partners' resources and carry out joint innovation projects with these collaborators. SMEs that make use of their innovative strengths (e.g. flexibility, risk-taking behaviour, etc.) and compensate for their resource shortages by embracing OI strategies feel they are better positioned for keeping up with the pace of development and are better able to create high-quality innovations in a joint effort with their partners. As such, they see a clear link with their competitive position where they are better equipped to compete in their respective industries, such as health services and consulting, to the extent that their new services are developed in collaboration with partners.

By contrast, the SMEs in our sample have also reported a number of drawbacks to OI (see Table 2). Some of these drawbacks are typical for the employment of OI practices in an SME context: The owners/managers reported that resources spent on OI cannot be spent on the mainstream business, which is a problem generally related to smaller firms where there are few slack resources (unless the firm in question has a family-based ownership and capital structure (Fletcher et al, 2009)). Another reported disadvantage that is very typical of SMEs is the difficulty concerning the development of a long-term strategic outlook that is necessary for OI to be successful. Joint innovation efforts (and innovation activities in general) take time to generate beneficial financial results and many SMEs are struggling to survive in the short-term and thus do not have the fortitude to embrace long-term strategies (again, a long-term view seems to be more easily established within the family-based SME context (Lambrechts et al, 2015)). Furthermore, SMEs in our sample have indicated that they view the sharing of the pie with others as a drawback of OI as opposed to internal innovation efforts where all of the benefits associated with creating a new product/service accrue to the single innovator. The remaining drawbacks are disadvantages of collaboration that are reported in the alliance literature (De Man and Roijackers, 2009) and boil down to the costs of opportunistic behaviour and the difficulties with respect to partner selection. Here, smaller firms are at a disadvantage when compared to large companies, as they do not have OI management departments where different processes related to collaboration, such as partner selection, are standardized and optimized across the organisation. In SMEs, OI partner selection is typically up to the proactive, open-minded attitude of owners/managers and based on trustful, personal relationships with peers in other small firms. As such, this process is much more intuitive and is not managed on the basis of formal criteria like in large companies but led by the owners/managers (Lambrechts et al, 2015). Trial-and-error experiences are part of partner selection in SMEs and the risk of opportunism is lower to the extent that small firms collaborate with other SMEs or partners that do not pose direct competitive threats. The final drawback mentioned by the firms in our sample is related to the high coordination costs associated with managing collaborative relations. An advantage of SMEs is their flexibility with respect to making quick decisions (usually decision-making is related only to the owners/managers) and OI projects slow this process down, in their view, as reaching agreement with partners takes time and decision-making consequently has to be postponed.

6 The Importance of OI in Overcoming Barriers to Innovation

This research represents one of the first explorations into the OI behaviour, strategies, and issues of a sample of Eastern European SMEs based in Hungary and Romania. The group of SMEs under study are for the most part operating in service-based industries, have typically been in business for over five years, employ fewer than ten employees, and have introduced fewer than five new products/services on the market since their establishment. In undertaking this exploration, we have followed Brunswicker and Van de Vrande (2014) who have called for papers studying the specific OI challenges in an (Eastern European) SME context and suggesting ways of overcoming these hurdles. While SMEs, their dynamic innovative abilities, and their willingness to take risks are viewed as important drivers of innovation and economic growth in developing economies (Peng, 2001; Pfirrmann and Walter, 2002; Parida et al, 2012), Hungarian and Romanian

SMEs are still lagging behind their counterparts in other European regions when it comes to innovativeness and inclination to engage in collaborations for innovation. Furthermore, despite their majority stake in these developing economies in terms of sheer numbers, they do not generate a correspondingly high share of the total economic value created by firms of all sizes in Hungary and Romania (EC, 2014). The few publications on OI in SMEs that have come into existence so far have found that the effective use of OI practices in small firms can help these companies innovate and grow by overcoming some of their challenges with respect to resource shortages and insufficient skills for innovation (Spithoven et al, 2013; Vanhaverbeke et al, 2012). Indeed, the owners/managers of the SMEs in our sample who have engaged in OI for at least part of their portfolio of new products/services on the market point out that accessing innovative knowledge and sharing the costs of innovation with partners are among the most important drivers for engaging in OI. They also see a clear relation between OI and the quality of their innovations, the speed with which they are able to introduce new products/services on the market, and their overall competitiveness, which is in congruence with the OI literature. The positive relation between OI and innovativeness in terms of number of new products/services brought to market in our sample of SMEs is also portrayed in Table 3. The table shows that more innovative Eastern European SMEs are more likely to report that all of their new products/services were realized with the help of collaborators than less innovative SMEs.

Table 3 The relation between Open Innovation and innovativeness

<i>Number of new products or services/Role of OI in innovation</i>	<i>1</i>	<i>2-5</i>	<i>>5</i>
None	7%	6%	0%
Some	12%	24%	21%
All	3%	15%	12%

Although researchers in OI and entrepreneurship have only just begun to study the role of the individual owner/manager in the success of OI within an SME context (Lambrechts et al, 2015), this scarce research does suggest that the open mind-set of the owner/manager, his/her proactivity in terms of seeking OI opportunities and forging trustful OI relations, and his/her leadership with respect to managing the OI network positively contribute to OI effectiveness in SMEs. Indeed, in the cases we described at a more detailed level we found that innovativeness was clearly linked with OI relations and the strong OI leadership of the owners/managers. Specifically, in Stoby Dental and Team4Soul the owners/managers expressed their strong belief in openness and a clear vision with respect to bringing together partners and leading these partners towards a jointly developed new product/service. Educating owners/managers of SMEs in developing economies with respect to the long-term benefits of openness and the effective management of OI may thus contribute to the successful application of OI practices in these smaller firms and their overall innovativeness benefiting the economy at large.

When it comes to the main OI challenge reported by the owners/managers of the SMEs in our sample, we have found that Hungarian and Romanian SMEs predominantly experience difficulties with respect to selecting trustful OI partners and managing the risks associated with opportunistic behaviour on behalf of their partners. While the preferred OI partners of the SMEs in our sample are suppliers, complementary partners, and peers, we also witness a relatively high number of SMEs engaging with competitors. The alliance literature points out that the risk of opportunism is lower to the extent that OI partners are no direct competitors in end markets (De Man and Roijakkers, 2009) and therefore it may be beneficial for SMEs to predominantly engage with partners that do not pose competitive threats and thus circumvent the risk of opportunism.

Acknowledgements

The authors would like to acknowledge the contribution and support of the following persons and institutions in making this study possible: Oradea Community Foundation, UniCredit Tiriac Bank (Transylvania North Region), SmartFin Consulting, The Hungarian Chamber of Commerce, The Romanian Chamber of Commerce, The Carpathian Region Business Network, The Rotary Club of Oradea (District 2241), The National Council of Private SMEs in Romania (CNIPMMR – Romania), The National Innovation Office of Hungary, Ruth Vanderzande for her input on the case study collection/analysis and literature review, and all SME managers present in the video calls for sharing their Open Innovation journeys with us.

References

- Benáček, V. 1995. Small Businesses and Private Entrepreneurship during Transition: The Case of the Czech Republic. *Eastern European Economics*, 33, 38-75.
- Brown, J. D., Earle, J. S. & Lup, D. 2005. What makes small firms grow? Finance, human capital, technical assistance, and the business environment in Romania. *Economic Development and Cultural Change*, 54, 33-70.
- Brunswick, S. & van de Vrande, V. 2014. Exploring Open Innovation in Small and Medium-Sized Enterprises. In H. W. Chesbrough, W. Vanhaverbeke, & J. West (Eds.), *New Frontiers in Open Innovation*, 135-156, Oxford, Oxford University Press.
- Chesbrough, H. W. 2003. *Open Innovation: The New Imperative for Creating and Profiting from Technology*, Boston, MA, Harvard Business School Press.
- Commission, E. 2014. *SME Performance Review - Small and medium sized enterprises - Enterprise and Industry* [Online]. Brussels. Available: http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/performance-review/index_en.htm.
- Communities, S. O. o. t. E. 2005. *Oslo manual: Guidelines for collecting and interpreting innovation data*, Publications de l'OCDE.
- Fletcher, D., Helienek, E. & Zafirova, Z. 2009. The role of family start ups in the emergence of a small business sector in Bulgaria. *Journal of Enterprising Culture*, 17, 351-375.
- Fogel, G. & Zapalska, A. 2001. A comparison of small and medium-size enterprise development in Central and Eastern Europe. *Comparative Economic Studies*, 43, 35-68.
- Groves, R. M., Fowler, F. J., Jr., Couper, M. P. & e.a *Survey methodology*, Hoboken, NJ, Wiley-Interscience.
- Hagedoorn, J. & Cloudt, M. 2003. Measuring innovative performance: is there an advantage in using multiple indicators? *Research Policy*, 32, 1365.
- Lambrechts, F., Roijackers, N., Voordeckers, W. & Vanhaverbeke, W. 2015. Open Innovation paths of entrepreneurial private family firms in low- and medium-technology industries. Hasselt University.
- Lasagni, A. 2012. How can external relationships enhance innovation in SMEs? New evidence for Europe*. *Journal of Small Business Management*, 50, 310-339.
- Ledwith, A. & O'Dwyer, M. 2009. Market orientation, NPD performance, and organizational performance in small firms. *Journal of Product Innovation Management*, 26, 652-661.

- Leitner, K.-H. 2011. The effect of intellectual capital on product innovativeness in SMEs. *International Journal of Technology Management*, 53, 1-18.
- Leten, B., Vanhaverbeke, W., Rojakkers, N. & Clerix, A. 2012. Orchestrating innovation ecosystems through an IP-based business model: The case of IMEC, a world-class research institute in nano-electronics. *California Management Review*, 55, 51–64.
- Lukács, E. 2005. The economic role of SMEs in world economy, especially in Europe. *European Integration Studies*, 4, 3-12.
- Man, A.-P. & Roijakkers, N. 2009. Alliance governance: balancing control and trust in dealing with risk. *Long range planning*, 42, 75-95.
- Marcati, A., Guido, G. & Peluso, A. M. 2008. The role of SME entrepreneurs' innovativeness and personality in the adoption of innovations. *Research Policy*, 37, 1579-1590.
- Parida, V., Westerberg, M. & Frishammar, J. 2012. Inbound open innovation activities in high-tech SMEs: the impact on innovation performance. *Journal of Small Business Management*, 50, 283-309.
- Peng, M. W. 2001. How entrepreneurs create wealth in transition economies. *The Academy of Management Executive*, 15, 95-108.
- Pfirmsmann, O. & Walter, G. H. 2002. *Small Firms and Entrepreneurship in Central and Eastern Europe*, Springer.
- Ragatz, G. L., Handfield, R. B. & Scannell, T. V. 1997. Success factors for integrating suppliers into new product development. *The Journal of Product Innovation Management*, 14, 190-202.
- Salavou, H. & Avlonitis, G. 2008. Product innovativeness and performance: a focus on SMEs. *Management Decision*, 46, 969-985.
- Spithoven, A., Vanhaverbeke, W. & Roijakkers, N. 2013. Open innovation practices in SMEs and large enterprises. *Small Business Economics*, 41, 537-562.
- Uzkurt, C., Kumar, R., Kimzan, H. S. & Sert, H. 2012. The impact of environmental uncertainty dimensions on organisational innovativeness: An empirical study on SMEs. *International Journal of Innovation Management*, 16, 1-23.
- Van de Vrande, V., De Jong, J. P., Vanhaverbeke, W. & De Rochemont, M. 2009. Open innovation in SMEs: Trends, motives and management challenges. *Technovation*, 29, 423-437.
- Vanhaverbeke, W., Vermeersch, I., and S. de Zutter 2012. Open innovation in SMEs: How can small companies and start-ups benefit from open innovation strategies? *Research Reports*. Belgium.
- Wachtel, P. 1999. Entrepreneurship in the transition economies of Central and Eastern Europe. *Journal of Small Business Venturing*, 14, 417-425.

ⁱ The survey was originally administered to a sample of SMEs in three Eastern European countries: Hungary, Romania, and Slovakia. Despite the sustained effort of local organizations, contributions from Slovakia accounted for less than 5% of the total sample at the end of the collection period. Furthermore, responses from this country generally lack the richness and depth of those from Hungary and Romania and owners/managers were less willing to participate in follow-up discussions (i.e. video calls). Hence, the analyses in the paper are concentrated on the sample of Hungarian and Romanian SMEs.

ⁱⁱ The survey findings - notably the collaboration challenges Hungarian, Romanian, and Slovakian SMEs have described - are used to design and carry out a two-day (Open) Innovation conference in Oradea, Romania. The event, gathering close to 100 members of industry, academia, government, and the civil society, is the first in a series meant to educate SMEs and their owners/ managers with regard to overcoming innovation challenges such as product commercialization, IP issues, creating a culture for innovation, and attracting venture capital for promising projects.

ⁱⁱⁱ It is important to note that collecting sensitive information from SMEs (i.e. information about their innovation projects, strategy and struggles, for example) is an arduous process; more frequently than not, these organizations do not display sufficient information publicly, making direct contact a requirement.

^{iv} Generally speaking, Romanian SME owners/managers tended to be more open to dialogue about their OI practices than their peers in Hungary. This tendency can be attributed to the growing number of innovation management related events in Romania, the establishment of crowd-funding platforms such as www.crestemidei.ro, easier access to innovation management best practice via various online and offline media, a maturing venture capital scene as well as higher workforce mobility.

^v Each participating SME's core area of operation was standardized using the Standard Industrial Classification (SIC) system whereby 'Finance, Insurance, and Real Estate' represents a stand-alone category and does not fall under 'Services'.

^{vi} Although the Oslo Manual differentiates between four major categories of innovations, i.e. significantly improved product (good or service), process, marketing method, or a new organizational method, our survey has inquired only about new product (good or service) innovations. As per our collaborators' feedback, an overly complex questionnaire would have discouraged participation. Hence, the authors have opted for a basic version. Also to be noted is the product/good distinction. The Oslo Manual considers both goods and services as 'products', whereas the survey employs the classic 'product/service' dichotomy.

^{vii} More specifically, the introductory letter (see section one for details), the survey text itself (through guiding footnotes), as well as direct dialogue (between the authors and their partner organizations and the SMEs during data collection) have stimulated participating SMEs from Hungary and Romania to consider three aspects before reporting new product/service introductions. These aspects were: (1) an innovation is characterized, at a basic level, by a *significant improvement* in a product or service; (2) to qualify as an innovation, the respective product or service should have been *implemented* in the period under consideration, and finally (3) the new product or service should be, at a minimum, *new to the firm* (followed by new to the market or even new to the world). Ultimately, the purpose of this exercise was twofold. First, it provided participating SMEs with clarity vis-à-vis the generally accepted meaning (and measure) of innovativeness. Secondly, it served to extract rich, accurate data for further analysis. Participants were very positive about this 'educational' aspect of the study, as it enabled them to think more deeply about the uniqueness of their work. As one health-services company owner/manager remarked: "*(in our organization) new needs are identified on a permanent basis. What others call innovations we call solutions. There is some concern that the models we use are not entirely new in the sense that they probably exist somewhere abroad as well. (...)*" – here, the definition of innovation, and the newness to the firm versus newness to the market are worth highlighting.