

INNOVATION IN SERVICES OR INDUSTRY AND ENTREPRENEURIAL INTENTION

Edited by

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From the Editors

In this issue we present two areas of research in the field of management and entrepreneurship: innovation and entrepreneurial intentions. Innovation is one of the exposed areas of our magazine. This time, the subjects discussed evolve around innovation in services, in industry and in its measurement. In turn, entrepreneurial intentions are presented here in the context of motivation, creativity, and social capital and their influence on development. Innovation and entrepreneurial intentions are related topics. It is expected that the more pro-innovative oriented an organization is, in addition to its culture, the more favorable the conditions are for the creation and development of innovation, and the greater the chance for growth and development of the entrepreneurial intentions of employees in both the service sector and industry.

This issue consists of seven articles, among which, five are related to innovation. The first one written by Torbjørn Lorentzen and Stig-Erik Jakobsen is a good start, explaining the variation between innovative and non-innovative Norwegian companies operating in the construction industry. The authors see the sources of innovation in the financing of R & D, the size of the company and in external regional factors. The added value of the research is in identifying the directions of improvement of innovation policy, linking internal company perspectives with the prospect of a system that focuses on networking and external sources.

The next two articles addressing innovation in the service sector. Alexandre Trigo refers to the role of patients in the health sector, as active users of products and services, developing new solutions from their own treatment. The author examines the involvement of patients, and the close and continuous relationship between patients and doctors, which can lead to permanent cycles of improvement and innovation in health outcomes. On the other hand, Tor Helge Aas's article refers to open innovation: the use of pecuniary and non-pecuniary inflows of knowledge in the process of designing innovative services in tourism. As the author points out, the influence of knowledge is systematically changing with regard to whether the innovation is seen as incremental or more radical. The research gap, in terms of linking innovation with social responsibility, fills the article of Dawid

Szutowski and Piotr Ratajczak, in which the authors examine the impact of socially responsible practices on innovation in the company, depending on the type, stage of development and the affected area. The main areas of interest here are the external factors, the sector, enterprise characteristics, the motives of the company, its performance and its R&D.

These aspects related to innovation, as well as innovation management, are usually operationalized by a given measurement method. An attempt to measure innovation is made by Teresa Kraśnicka, Wojciech Głód and Martyna Wronka-Pośpiech. The authors have proposed a multi-dimensional approach to innovation management with a tool for testing and measuring innovation management, measuring the intensity of these innovations, the relationship between innovation management and organization's performance as well as their technological innovation.

Also in this edition are two articles relating to entrepreneurial intentions. Hernan E. Riquelme and Abdullah Al Lanqawi make the integration of a conceptual and an empirical approach to entrepreneurial intentions, looking especially at the factors motivating entrepreneurs to develop or substitute income. Here, they find that desire is a stronger predictor of intentions for growth-oriented income than substitute-oriented income, and it often mediates the effects of other associated intentions. In the second article, Chien-Ching and Chia Liang Chaoyun consider how entrepreneurial intentions, put in the context of the impact of creativity and social capital on the entrepreneurial intentions of tourism students, are understood to be important elements supporting sustainable practices and business systems.

We would like to thank all the authors and reviewers who have contributed to this issue through their knowledge and experience. Substantive comments from our reviewers have influenced the final shape of this issue, which we hope all our readers from around the world will find interesting and informative.

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Explaining Innovation. An Empirical Analysis of Industry Data from Norway

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Abstract

The objective of the paper is to analyse why some firms innovate while others do not. The paper combines different theories of innovation by relating innovation to internal, firm specific assets and external, regional factors. Hypotheses are derived from theories and tested empirically by using logistic regression. The empirical analysis indicates that internal funding of R&D and size of the firm are the most important firm specific attributes for successful innovation. External, regional factors are also important. The analysis shows that firms located in large urban regions have significantly higher innovation rates than firms located in the periphery, and firms involved in regional networking are more likely to innovate compared to firms not involved in networking. The analysis contributes to a theoretical and empirical understanding of factors that influence on innovation and the role innovation plays in the market economy. Innovation policy should be targeted at developing a tax system and building infrastructure which give firms incentives to invest and allocate internal resources to R&D-activities and collaborate with others in innovation. From an economic policy perspective, consideration should be given to allocating more public resources to rural areas in order to compensate for the asymmetric distribution of resources between the centre and periphery. The paper contributes to the scientific literature of innovation by combining the firm oriented perspective with weight on firm specific, internal resources and a system perspective which focuses on external resources and networking as the most important determinants of innovation in firms.

Keywords: *innovation, region, location, centre and periphery, firm specific and external resources, networking, Norwegian industry, logistic regression.*

INTRODUCTION

Theoretical and applied research in the field of innovation emphasizes different factors in the explanation and the role innovation plays in the economy; Fagerberg (2005) shows how innovation enhances competitiveness

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and productivity in firms. Christensen and Raynor (2003) argue that firms have to innovate in order to adapt and survive in a market economy. Analyses by Audretsh and Feldman (1996, 2003), Porter (2000), Fabrizio and Thomas (2011), Isaksen and Onsager (2010), Laursen, Masciarelli and Prencipe (2012) and Lorentzen and Jakobsen (2015) show how sectorial and spatial differences are an influence on the rate of innovation collaboration. Studies indicate that R&D-activities and major product innovation seem to be concentrated to metropolitan regions (Fritsch, 2003; Simmie, 2003), and that firms in rural areas are often less innovative than firms in other areas (Tödtling & Trippl, 2005). It is also argued that firms in high-tech industries are more innovative than firms in low-tech industries (Tödtling & Trippl, 2007; Trott, 2012).

The referred literature has not explicitly focused on the question *why* some firms innovate and others do not. In this paper we want to answer the question by combining firm- and system oriented approaches in the explanation of innovation, and by using observational innovation-data at firm level in a statistical analysis. The paper contributes to the literature in two ways. Firstly, by *combining* the theories we follow a holistic approach which is more complete and comprehensive compared to explaining innovation by using a single theory or using the theories side-by-side. By combining theories we try to eliminate the problem with reductionism. An argument for combining theories in a holistic way is that it provides us with a better and more complete understanding of the mechanisms involved in the explanation of innovation compared to reducing it to a single factor. Secondly, the paper contributes to the literature by estimating a statistical model which includes explanatory variables which are derived from *both* main theoretical perspectives. By including explanatory variables from both theories in the model we can estimate the effect each variable has on the dependent variable controlled for the potential influence the other variables have on the dependent variable. Therefore the scientific approach makes it possible to test both theories simultaneously. The empirical part of the paper operationalizes concepts derived from both theories, and the logistic regression methodology is applied in analysing how firm-specific factors and regional characteristics in *combination* have an influence on the innovation rate among firms in the Norwegian economy.

The rest of the paper is organized as follows. The next section presents the theoretical framework applied in the analysis. We identify four attributes related to internal, firm-specific characteristics (size of the firm, sector, R&D personnel and own-financed R&D activity) and two are related to external, regional characteristics (the size and the quality of the region). We estimate a single model and test statistically how these various firm and regional characteristics together are an influence on the firms' propensity to innovate.

The empirical methodology and estimation results are presented in the subsequent sections. The concluding section summarizes the findings and presents policy implications. The empirical analysis is based on the Norwegian Community Innovation Survey (CIS 2008) and cover the 2006–2008 period. The statistical analysis includes 8524 firms. This survey was conducted by Statistics Norway as part of the pan-European CIS, and coordinated by Eurostat, the EU statistics agency. The questionnaire is based on definitions of innovation input and output as presented in the OECDs Oslo Manual.

THEORETICAL FRAMEWORK

Schumpeter (1934, 1943) argued that innovations are the fundamental impulses that set and keep the capitalist engine in motion. He defined innovations as new combinations of existing resources, such as new products, methods of production, sources of supply and ways of organizing business, as well as the exploitation of new markets. Firms need knowledge, skills and entrepreneurial abilities to innovate, and according to Schumpeter, not all firms possess these resources (Schumpeter, 1934). He argued that innovations are not “evenly distributed through time” but “appear, if at all, discontinuously in groups or swarms” (Schumpeter, 1934, p. 223). We can derive two important assumptions from these observations. First, disproportionate patterns of innovation can be linked to the fact that firms have different resources and different abilities to innovate; and second, some firms may have more favourable or productive environments for innovation than other firms. The first type of observation reflects the *firm-oriented* and management-inspired perspective in the innovation literature, while the second type of observation reflects the *system-oriented* perspective on innovation. The following section presents the firm- and system-perspective on innovation.

A firm perspective on innovation

In some neoclassical-inspired writings, firms are “black boxes” that only respond to changing market conditions. Firms seek optimal solutions, and their strategies and innovation practices are determined by the market size and conditions they face (Newell, Jaffe & Stavins, 1999). Because of the importance of innovation for economic growth, it is essential to clarify how firms differ and to specify which characteristics make firms innovative. We need to know why some firms have a good record of transforming resources into new goods and services or other innovations that customers are willing to pay for, whereas others seem less able to do this (Lazonick, 2005). Consequently, we have to elaborate on the sources of such inter-firm differences.

A fruitful approach for understanding such firm heterogeneity is the *resource-based* view of the firm. This assumes that firms are diverse, and treats firms as historical entities with unique characteristics (Foss, Knudsen & Montgomery, 1995). The resource-based view has its roots in the work of Penrose (1959) and early strategy theory (e.g., Chandler, 1962). This perspective states that the competitiveness and performance of a company depend on the extent its endowment of resources differentiates it from its competitors (Rangone, 1999). Organizations vary in their resources, and in the capabilities that those resources afford them. Resources become capabilities when they contribute to sustainable competitive advantages, which occur when resources generate differences in efficiency, are difficult to imitate, or are unique (Wernfeldt, 1984). This perspective is focusing on how firms make the most of available resources to be competitive and innovative. In their dynamic resource based perspective, Teece and Pisano (1994) argue that the most important competitive advantage of firms is their ability to reconfigure internal and external competences (see also Teece, Pisano & Schuen, 1997). Lawson and Samson (2001) propose the concept of innovation capability, defined as a firm's ability to continuously transform knowledge and ideas into new products and processes. The theory also assumes that large firms have more resources and more capabilities than small firms, and that those firms in capital- and knowledge-intensive industries have more technological resources and know-how than firms in more traditional sectors of the industry. Consequently, larger firms and high-tech firms are more likely to innovate (Fagerberg, 2009). However, larger firms also face the particular challenge of simultaneously managing existing products and developing new and innovative products (Tushman & O'Reilly, 2002).

Within the resource based view there are also contributions inspired by *evolutionary* thinking focusing on how firms' capabilities evolve over time. According to Nelson and Winter (1982), three features of firms are essential to innovation. The first essential feature concerns the *structural characteristics* of firms, which are associated with the business sector in which the firm does business (type of firm), the size of the firm and its organizational character. Among other things, the latter characteristic concerns whether firms have their own R&D organization and, if so, the higher the number of highly competent R&D personnel they have, the higher is the likelihood of innovation. Highly competent human capital is an important asset for innovation practice. A second feature that is essential to innovation is the core capabilities the firm has developed through time. As pointed out above, such capabilities are essential for differentiating the firm from its competitors. The third essential feature is a firm's strategy, or the broad set of commitments that define its objectives and how it intends to pursue them (Nelson, 1991). These abilities

or features do vary between firms, and they can also vary through time within a single firm. A firm can change from being an innovation leader to an innovation laggard when choices in the past result in technological and organizational rigidity (Njøs, Jakobsen, Fosse & Engelsen, 2016).

A systems perspective on innovation

Whereas the firm-oriented perspective emphasizes a firm's internal resources, the system-oriented perspective focuses on the *environment* or the socio-economic context in which the firm does business. It can be argued that a firm's propensity to innovate reflects characteristics of the firm's environment, i.e., possibilities for networking, infrastructure, regional resources etc. (Cooke, 1992, 2001; Fagerberg, 2005; Fløysand & Jakobsen, 2011; Fløysand, 2012; Lundvall, 1992). Thus, the competitiveness of firms is directly linked to their *location*. The concept of *externalities* is important in this line of thought. The co-location of firms generates economic advantages or positive external effects (Audretsch & Feldman 1996; 2004). Such effects are collectively produced and spill over to spatially proximate firms as "free" goods (Vatne, 2011). There are different types of externalities, and Hoover (1954) distinguishes between "location economies" and "urbanization economies". "Location economies" refers to the co-location of firms that are in the same or related industries. Such specialized industrial milieus are expected to generate technological spill overs between firms and specialized labour markets (Marshall, 1920). "Urbanization economies", or Jacob's externalities, refer to the advantages of being located in larger diversified regions, such as a region with an advanced physical infrastructure and transportation system that affords access to well-developed and comprehensive private and public services. The larger the region, the greater the opportunity for both location and urbanization economies, and the greater are the potential for positive effects on a firm's ability to innovate.

Freeman (1987) and Lundvall (1992) argue that innovation must be understood as an open, dynamic process, involving networking, learning and feedback loops among various types of actors such as R&D institutions and political authorities. Other studies have emphasized the importance of external knowledge sourcing for innovation (Enkel, Gassmann & Chesbrough, 2009; Clausen, 2013). Although Lundvall (1992) focused on national systems of innovation, Cooke (1992, 2001) developed his ideas around the concept of *regional* innovation systems. The emphasis on the regional level is partly based on the observation that externalities, which are essential in processes of interactive innovation, tend to be spatially bounded and decrease with distance. According to Autio (1998) and Tödting and

Trippl (2005), a regional innovation system consists of two subsystems. The first subsystem concerns the exploitation and application of knowledge, and comprises firms and their clients, suppliers, competitors and co-operating partners. The second subsystem concerns the generation and diffusion of knowledge, which involves various institutions engaged in the production and diffusion of knowledge, such as universities, university colleges, research institutions and mediating organizations. In addition, there is a political sphere, which refers to those institutions that formulate, implement and maintain policy instruments. The essence of these lines of thoughts is that regional systems differ in size and structure, and those differences influence a firm's propensity to innovate (Cooke, 2012; Laursen et al., 2012; Malecki, 2012). For instance, some regional innovation systems are characterized by weak institutional structures, and few networks between firms and reactive policies. Thus, the prerequisites for such a regional innovation system are weakly developed. Other regions are characterized by knowledge-intensive industries, intense networking, several R&D institutions and proactive policies (Fløysand, Jakobsen & Sánchez-Hernández, 2014; Isaksen & Trippl, 2014; Jakobsen, et al., 2012; Njøs, et al., 2013; Tödtling & Trippl, 2005). Given a system perspective, it is expected that the latter, regional environment has a greater positive influence on the innovation rate than the former (Fløysand & Jakobsen 2016).

TOWARD AN ANALYTICAL MODEL

We start this section by describing the variables included in the statistical model. Thereafter we present and estimate the model, and finally test and interpret results of the *theory-based hypotheses*.

We are interested in factors that determine: *why some firms innovate while others do not*. According to the objective of the paper we will integrate the firm- and the system-oriented approaches in the empirical analysis. Innovation is the dependent variable in the model and it includes product innovation, process innovation, market innovation, and organization innovation. The application of the term "innovation" is consistent with Schumpeter's definition. Based on the principles of the CIS survey, we categorize firms as innovative if they reported one or more innovations during 2006–2008. About 48% of the firms included in the sample have reported one or more innovations. The construction of the analytical model (see Figure 1) depends upon the variables, definitions and categories in the CIS-survey. Our sample consists of 8524 firms.

The independent variables are attributes or characteristics that, according to the presented theories, influence a firm's propensity to innovate. The

objective is to analyse whether there is a systematic relationship between innovation and one or more of these attributes. Informed by our theoretical discussion, we differentiate between firm characteristics and regional characteristics. We identify four attributes related to firms (firm size, sector, R&D personnel and own-financed R&D) and two regional attributes (size of the region and the quality of the region).

(i) *Firm size*: The firms are grouped into the following five size categories: 5–9 employees, 10–19 employees, 20–49 employees, 50–99 employees, and 100 or more employees. Size of the firm is a proxy variable for different firm-specific factors which influence the propensity to innovate.

(ii) *Sector*: The second firm-specific attribute is the industrial sector the firm is part of. We classified firms into five sub-sectors: primary industry, “low-tech” manufacturing industry, “high-tech” manufacturing industry, trade and transport industry, and knowledge intensive services.

(iii) *R&D personnel*: Firms reported whether they employ R&D personnel, i.e. personnel that are dedicated to do research as an integrated part of the firm’s activity. In line with the definition used by Statistics Norway in the CIS survey, we have restricted the category to personnel with higher education (at least master’s degree or similar).

(iv) *Own-financed R&D*: The variable is a firm-specific characteristic and measures whether the R&D activity in the firm is own-financed or own-funded. The variable is a binary variable where 1 indicates that the firm has funded their R&D by using its financial resources (equity) and 0 if they use external financial resources. In many cases firms combine own-financing with external funding. Firms without own-financing (the value 0) are funding their R&D activity *solely* through external investors or by using economic instruments (public loans or public grants).

(v) *Size of the region*: Firms’ locations were mapped in the survey and represent one of the proxy variables which operationalize external attributes in the explanation of variation in innovation. Jukvam (2002) has used numbers of inhabitants and centrality and divided Norway into the following five different types of regions: the capital region of Oslo (1 million or more inhabitants), metropolitan regions (between 200,000 and 999,999 inhabitants); medium-city regions (between 50,000 and 199,999 inhabitants), small-city regions (between 10,000 and 49,999 inhabitants), and rural regions (fewer than 10,000 inhabitants).

(vi) *The quality of the region*: The variable is the second proxy for what we define as “external attributes” or regional characteristics and it measures the quality of the region where the firms are located. There are distinct territorial variations, and although some firms are located in regions with a high degree of collaboration and networking (i.e. high quality regions), other

firms are located in regions characterized by a lack of co-operating partners and actual network arrangements (i.e. low quality regions).

Figure 1 summarizes the various indicators which we expect have an influence on the innovation process. The arrow indicates the direction of cause and effect. The statistical model which we estimate in the next section is based on Figure 1.

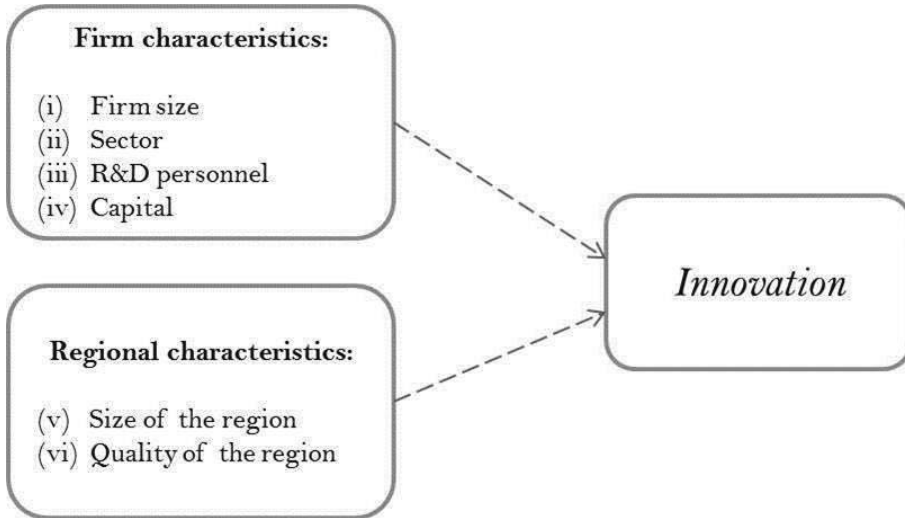


Figure 1. Analytical model

METHODOLOGY AND STATISTICAL ANALYSIS

The following section presents the statistical model applied in the estimation of the relationship between the likelihood of innovation and the set of explanatory variables derived from the theories (see Figure 1). The dependent variable measures whether a firm innovates or not. The independent or explanatory variables are the attributes, i.e. four firm-related attributes (size, industry sector, R&D personnel and own financed R&D) and two regional attributes (size and quality of the region) that we believe, in accordance with the presented theories, influence a firm's propensity to innovate.

We use y_i to denote the dependent variable for firm "i" and assign a value 1 if the firm has registered an innovation and 0 otherwise. The explanatory variables x_j , i.e. the six attributes $j = 1, 2, \dots, 6$ applied in the model are all dichotomous variables. "Innovation" is a general term and it includes product innovation (26%), process innovation (22%), market innovation (26%) and organizational innovation (26%). The number in parenthesis is the percentage

of the total number of registered innovations in the sample. In total, about 48% of the firms in our survey reported one or more of these innovations. The dependent variable y is defined as:

$$y = \begin{cases} 1 & \text{if the firm has registered an innovation} \\ 0 & \text{otherwise.} \end{cases}$$

Because the dependent variable is dichotomous, we used a binary-choice modelling approach, which is also referred to as a qualitative response regression model. The qualitative response model assumes that a firm either innovates or not innovates and that the state depends upon the attributes of the firms and the characteristics of the environment they operate in.

If we have information about the attributes of each firm and whether they have registered an innovation or not in the examination period, we can predict the likelihood of innovation. The primary objective is to determine the probability that a firm or company with a given set of attributes produces a successful innovation. In the section that follows, we estimate a logit model that quantifies the relationship between a set of firm attributes and that the firm successfully innovates.

By estimating the logit coefficients in the model, we are able to evaluate the probability of innovation based on different categories or attributes. The model makes it possible to compare estimated probabilities between categories (both firms and regional characteristics), and we can evaluate, for example, the potential effect private funding has on the likelihood of innovation or the importance of location in a metropolitan area. We can impose restrictions on the coefficients and test similarities between categories. The strength of the attribute effects is important in identifying the most likely combination of categories that contributes to innovation. Table 1 gives an overview of and defines the variables used in the model. The far right column shows the number of observations by category.

The theoretical logit model can be expressed in the following way (Formula 1):

$$z = \log \left[\frac{\text{Pr}(\text{innovation})}{1 - \text{Pr}(\text{innovation})} \right] = \alpha + \sum_{j=1}^k \beta_j x_j + \varepsilon \quad (1)$$

where z measures the logit or log odds ratio of innovation, i.e. the natural logarithm of the ratio between the likelihood of innovation and the likelihood

of non- innovation, $\Pr(\cdot)$ is an abbreviation for the probability or likelihood of innovation, x_j is the innovation attributes $j = 1, \dots, k$ described above (see also Table 1), ε represents the error term and k is the number of explanatory variables in the model.

Table 1. Description of the dependent and independent variables in the model

Type of variable	Dummy = 1	Number of observations by category
y	Firm “ i ” has registered an innovation during the examination period.	4061
Location of the firm		
x_1	Capital region	1982
x_2	Metropolitan region	1831
x_3	Medium-city region	2577
x_4	Small-city region	1545
x_5	Rural region	589
Sector (classification of industry)		
x_6	Primary industry	107
x_7	Low-tech manufacturing industry and mining	6045
x_8	High-tech manufacturing industry	752
x_9	Trade and transport	3566
x_{10}	Knowledge intensive services	1822
Size of the firm		
x_{11}	Employees between 5–9	1722
x_{12}	Employees between 10–19	2080
x_{13}	Employees between 20–49	2499
x_{14}	Employees between 50–99	1243
x_{15}	Employees 100+	980
Regional collaboration with other firms in the innovation process		
x_{16}	Regional collaboration	1172
Capital		
x_{17}	Own-financed R&D	2479
R&D personnel		
x_{18}	Firms with R&D employees	2124
Constant		
α	Benchmark	

Note that we have included a constant term α which measures the effects from the “benchmark” category, and the estimated logit coefficient

has the following interpretation: α is the predicted logit or log odds ratio of innovation by a firm which has the following properties: (a) the firm is located in a rural region, (b) it belongs to the low-tech manufacturing industry, (c) the firm does not own-finance the R&D activity and (d) the firm employs between 5 and 9 persons. Note that the estimated slope coefficient β_j measures the *difference* in the log odds ratio of innovation for a firm with the corresponding attribute x_j *relative* to the base or reference category which is measured by the constant term α . The coefficients in the model are estimated with a maximum likelihood routine. The log odds ratio and likelihood are used interchangeably in the text because likelihood

of innovation can be expressed as $\Pr(y = 1) = \left[1 + e^{-(\alpha + \sum_{j=1}^k \beta_j x_j)} \right]^{-1}$ and increasing (decreasing) value on the estimated coefficients α and β_j , increases (decreases) the log odds ratio and equivalently the likelihood or probability of a defined event $y = 1$.

RESULTS

Attributes' influence on innovation

In this section, we present the results of our statistical analysis which is based on 8524 observations. We will discuss how these various attributes are an influence on firms' propensity to innovate. Table 2 shows the estimated coefficients and statistical properties (asymptotic standard errors and t -values).

In this section, we discuss the results of the unweighted estimated relationship between the likelihood of innovation and the explanatory variables.

Overall evaluation of the model: The likelihood ratio test of the following null hypothesis H_0 : the variables included in the model do *not* have any influence on the likelihood of innovation, i.e. we test the following null-hypothesis; $H_0: \beta_1 = \beta_2 = \dots = \beta_{15} = 0$, and the result of the log-likelihood chi-square test is: $\lambda = 2395$ with 15 degrees of freedom and p -value = 0.00. The null hypothesis is rejected and we conclude that the model has explanatory power. The model predicts correctly 56.1% of the cases where firms actually report one or more innovation, and the model predicts correctly 91.3% where firms actually did *not* register any innovation.

Table 2. Estimated coefficients

Variable name	Estimated coefficient	Asymptotic standard error	Asymptotic t-value (p-value)
X_4 : Small region	$\beta_4=0.199^*$	0.116	1.715 (0.086)
X_3 : Medium region	$\beta_3=0.186^*$	0.110	1.685 (0.091)
X_2 : Metropolitan region	$\beta_2=0.281^{**}$	0.114	2.461 (0.013)
X_1 : Capital region	$\beta_1=0.357^{***}$	0.115	3.111 (0.002)
X_6 : Primary industry	$\beta_6=-0.049$	0.025	-0.195 (0.845)
X_8 : High-tech manufacturing	$\beta_8=0.003$	0.104	0.259 (0.979)
X_9 : Trade and transport	$\beta_9=-0.181^{***}$	0.063	-2.874 (0.004)
X_{10} : Knowledge-intensive services	$\beta_{10}=0.019$	0.077	0.254 (0.799)
X_{12} : Employees 10–19	$\beta_{12}=0.144^*$	0.075	1.915 (0.055)
X_{13} : Employees 20–49	$\beta_{13}=0.234^{***}$	0.073	3.214 (0.001)
X_{14} : Employees 50–99	$\beta_{14}=0.317^{***}$	0.088	3.610 (0.000)
X_{15} : Employees 100+	$\beta_{15}=0.431^{***}$	0.098	4.419 (0.000)
X_{18} : R&D Employees with “high” (academic) education		0.142	1.488 (0.136)
X_{16} : Regional collaboration of innovation	$\beta_{16}=1.023^{***}$	0.100	10.228 (0.000)
X_{17} : Own-financed innovation	$\beta_{17}=2.053^{***}$	0.131	15.668 (0.000)
CONSTANT	$\alpha=-1.141^{***}$	0.116	-9.814 (0.000)

Note: ***, **, * Indicate significance coefficients at the 1, 5 and 10% level in a two-sided t-test, respectively. Critical values for one-sided tests given 10 and 5% significance levels are 1.28 and 1.65, respectively. Software package Shazam is applied in the estimation of the model.

The overall percentage correct prediction (Count- R^2) is 74.6%. The cut value is 0.5. The model has clearly explanatory power and the conclusion is

as well supported by McFadden’s ratio $R^2 = 1 - \frac{L(\beta)}{L(0)} = 0.20$, which is relatively high (Allison, 2012).

$L(\beta)$ is the maximum likelihood of the unrestricted model while $L(0)$ is the maximum likelihood of the restricted model when the coefficients are all zero except the constant term.

Firm size: The size of a firm can play a role in the innovation process and the variable represents a firm-specific attribute. According to the firm-oriented theories, large firms have more differentiated and specialized teams of employees than smaller firms with fewer resources and a more differentiated human capital base which is advantageous for innovation. In addition, we expect that large firms have a greater opportunity to utilize economies of scale and scope. We tested statistically the null-hypothesis H_0 : that the likelihood of innovation does *not* increase with the size of the

firm. The estimation shows that we can reject the null-hypothesis because the estimated logit coefficients for the size variables ($\beta_{12}, \beta_{13}, \beta_{14}, \beta_{15}$) are all significantly different from zero. According to the values of the coefficients the likelihood of innovation increases with the size of the firm. The estimation and associated tests show that the size of a firm plays an important role in the likelihood of innovation. The general conclusion is that the larger a firm is, the more likely it is to innovate.

Sector: Our classification of industry branches is broad, but not so rough that we cannot say something meaningful about the relative rates of innovation. In general, we expect innovation in all groups, but according to theory we expect the “high-tech” manufacturing industry and the knowledge-intensive service sector to generate more innovation than the other groups, especially compared to the reference group which is the low-tech manufacturing industry and mining industry located in rural areas. According to the model the estimated likelihood of innovation in the reference group is (Formula 2):

$$\Pr(y = 1) = \frac{1}{1 + e^{-\alpha}} = \frac{1}{1 + e^{-(-1.1409)}} \approx 0.24 \quad (2)$$

The estimated likelihood of innovation in these sectors is 0.24 which implies that about one out of four firms in this category has innovated.

The estimation shows that the logit coefficients for the high-tech manufacturing industry (β_8) and firms in the knowledge intensive sector (β_{10}) are *not* significantly different from zero even though the value of the estimated logit coefficients are higher. The result implies that the likelihood of innovation in these sectors does *not* differ significantly compared to the likelihood of innovation in the reference group which is about 0.24. On the other hand, the estimated model shows that the likelihood of innovation in the trade and transport sector is lower compared to firms in other groups because the logit coefficient (β_9) is significantly lower than zero. The likelihood of innovation in the trade and transport group (x_9) is as follows (Formula 3):

$$\Pr(y = 1) = \frac{1}{1 + e^{-(\alpha + \beta_9)}} = \frac{1}{1 + e^{-(-1.1409 - 0.18055)}} \approx 0.21 \quad (3)$$

According to both the resource based and the evolution theory of firms, we expect that “high-tech” and “knowledge-intensive” services have a higher likelihood of innovation than the reference category. A closer look at the estimated coefficients shows that the ranking of the industry groups is consistent with theory, but the logit coefficients are not significant.

R&D personnel: R&D personnel are dedicated to research and innovation within the firm, and thus they contribute to innovation. According to the definition applied in the survey, R&D personnel have at least five years of higher education (master's degree or similar). We expect, according to the firm-oriented theories and especially the resource-based view, that firms with dedicated R&D personnel are *more* innovative than other firms. We tested the hypothesis H_0 : The likelihood of innovation within firms with R&D personnel is not different from the reference group. The null hypothesis implies a test whether the estimated logit coefficient $\beta_{18}=0$. The statistical test shows that the null-hypothesis is *not* rejected because the t -value ($t=1.49$ and p -value = 0.14) is lower than the critical value $t^c=1.96$.

Own-financed R&D: According to the firm-oriented theories we expect that firms that are in the position of financing R&D have a higher likelihood of innovation compared to firms which are not in that position. The expectation is evaluated by testing the following null-hypothesis H_0 : $\beta_{17}=0$. The null-hypothesis is clearly rejected (p -value=0.00). The estimation shows that internal funding of R&D has a strong positive and statistically significant effect on the likelihood of innovation. The size of the estimated coefficients and associated asymptotic t -values show that the willingness to use their own capital resources has the largest effect on the likelihood of innovation. According to the firm-oriented perspective on innovation, companies that are willing to spend their own capital resources on R&D also reveal the preference that the expected rate of return on the investment in R&D and innovation is equal or larger compared to the risk-adjusted return on the best alternative allocation of the capital. Further, firms that own-finance the R&D are also in the position of controlling the project and expropriating the economic rent or excess profit generated from innovations. We therefore suspect that the variable "own-financed R&D" is to some extent biased towards high probability of innovation.

The size of the region: According to the regional system-oriented approach to innovation, regions with a high number of people have more human resources, more accumulated knowledge and a "thicker" institutional infrastructure compared to regions with a smaller number of people. We evaluated this assumption by testing the following null hypothesis H_0 : The likelihood of innovation is *not* increasing with the number of people in the region where the firms are located. The null hypothesis implies that we test whether the following logit coefficients in the model are zero, i.e. H_0 : $\beta_4=\beta_3=\beta_2=\beta_1=0$. According to the null-hypothesis we should *not* expect the alternative hypothesis which states that $\beta_4<\beta_3<\beta_2<\beta_1$. The estimation shows not only that the β s actually are significantly different from zero, but the value of the coefficients are increasing in the following way $\beta_4=\beta_3<\beta_2<\beta_1$. Note that

the values of the coefficients β_4 and β_3 are not significantly different from each other. The estimation shows that there is a positive relationship between the size of the region where the firms are located and the firms' probability of innovation. The likelihood of innovation for firms in rural areas (regions with fewer than 10,000 inhabitants) is significantly lower relative to the other four types of regions. The largest likelihood of innovation is estimated for firms in the capital region (i.e. the region with the highest number of inhabitants). In summary the estimation and tests indicate that the likelihood of innovation is significantly greater in the capital region relative to the other regions except for the medium-city area, and that there is a tendency that the likelihood of innovation increases with the size and the endowment of resources in the region.

The quality of the region: Within the system perspective it is argued that networking is important for innovation. Somewhat simplified, it is anticipated that firms can either be located in regions with a high degree of regional collaboration and networking (so-called high quality regions) or be located in regions which lack co-operating partners and network arrangements (so-called low quality regions). We believe that observed regional networking of firms indirectly reflects such qualities of the region. Variable x_{16} in the model measures whether firms cooperate and are an integrated part of a network of firms. We evaluate whether cooperation has any influence on innovation by testing the null-hypothesis $H_0: \beta_{16}=0$. The result of the test rejects the null-hypothesis (p-value = 0.00). The analysis clearly indicates that regional collaboration has a significant positive effect on the likelihood of innovation. Thus, the likelihood of innovation is *larger* for firms that collaborate with regional actors than for firms that are not involved in such collaboration. The reason that the latter are not involved in regional collaboration can either be a lack of potential partners in the region or that the single firm does, for different reasons, not embrace the possibility of such regional collaboration.

DISCUSSION AND CONCLUSIONS

The objective of the paper was to combine different perspectives on innovation and analyse *why* some firms innovate while others do not, i.e., to find out why some firms, but not all, are in the position of generating new products, new methods of production, or developing new ways of organizing the business or exploiting new markets. The review of the theories shows that innovation in firms is critically conditioned on whether firms are endowed with a set of unique resources or assets and are operating in a socio-economic environment which stimulates innovation. In the empirical part of the paper we have integrated different theories of innovation in a

single regression model and tested simultaneously properties based on both theories, rather than applying the theories separately, side-by-side.

From regional system and firm-oriented theories we derived attributes which measure properties and characteristics which influence the likelihood of innovation. Four of these explanatory attributes are firm-related (size, sector, R&D personnel and own-financed R&D) and two are regional characteristics (size and quality of the region which are proxy variables for the endowment of resources in the region). The empirical part of the paper applied data provided by the Community Innovation Survey of innovation among firms in Norway. We applied logistic regression methodology in analysing whether the derived attributes have any influence on the firms' propensity to innovate. The main conclusions from the empirical analysis are as follows:

Size of the firm: The estimation and tests showed that the size of the firm plays an important role and affects the likelihood of innovation. The larger the firm is, the more likely it is to innovate. The finding confirms the firm-oriented theories which emphasize that larger firms have more resources and assets to generate innovation compared to smaller firms.

Sector: The estimated model showed that the likelihood of innovation was similar across categories of industry sectors, except that the likelihood of innovation was significant lower in the trade and transport sector. The estimation shows that innovation rates across industries are almost identical. The finding could in the first place be perceived as a contradiction of the firm-oriented theory of innovation because theory predicts that knowledge and capital-intensive industries have a higher propensity to innovate compared to low-tech, traditional industries. The findings do not support the theory. However, we argue that relatively similar innovation rates are *not* necessarily a falsification of the theory because the *type* of innovation and effort behind it could differ substantially between industries, and we should be open to the argument that comparing innovation across industries could be inconsistent, in the sense that sophisticated, time and capital intensive product innovations are not equal to marginal and low cost incremental innovations. Both are registered as an innovation and treated equally in the survey, even though they could be completely different with respect to effort, spent resources and innovation novelty. These remarks are topics for further research.

R&D personnel: We tested the hypothesis whether firms with R&D personnel are more innovative than other firms. The statistical model showed that firms with R&D personnel have a positive effect on the likelihood of innovation, but the effect is *not* significantly higher compared to other firms. We presented the following remark which could explain the empirical result: The Norwegian Community Innovation Survey does not take into account

that “innovation” is a heterogeneous product or process across industry sectors and the firms’ characteristics, and we argued that firms with R&D personnel work in a field of innovation that is intellectually complicated and capital intensive.

Own-financed R&D: The size of the estimated logit coefficients and associated *t*-values indicate that internal funding of R&D has a large positive effect on the firms’ likelihood of introducing an innovation. The result supports the firm-oriented theory of innovation. We argue, without any empirical verification, that the strong effect could partly be explained that firms are anticipating that investments in these types of innovation projects are exposed to a relatively low economic risk, and partly that firms expect to expropriate a large part of the economic rent or profit generated by the innovation. These explanations could therefore produce biasness toward successful innovation, and statistically a strong result. We could add to this point that firms that are able to fund the R&D are *already* well run, successful firms. Successful innovation makes them even more competitive and profitable which in the next round have a positive effect on the firms’ ability to fund R&D. We can therefore not exclude that there is a positive feedback effect between profitability, ability to fund R&D, and successful innovation. This is a topic for further research and whether these arguments are supported empirically.

The size of the region: The size of the region is a proxy variable for endowment of resources and competence in the region. The estimation showed a significant positive relation between the size of the region where the firms are located and the probability of innovation. The largest likelihood of innovation was estimated for firms in the capital region (i.e. the region with the highest number of inhabitants and variety of institutions), and the lowest for firms located in rural areas (regions with fewer than 10 000 inhabitants). The findings support the regional system-oriented theory of innovation.

The quality of the region: We believe that observed regional networking of firms indirectly reflects the qualities of the region, i.e. whether the milieu is stimulating regional collaboration or not. We found that regional collaboration has a significant and positive effect on the likelihood of innovation. Thus, the likelihood of innovation is larger for firms that collaborate with regional actors compared to firms that are not involved in such collaboration. The result supports the regional system-oriented theory of innovation.

The main objective of the analysis was to combine theories which could provide us with a broader understanding of *why* some firms innovate and others not. The explanation behind “*why*” is based on theoretical and empirical analyses of how firm-specific and regional characteristics are an influencing on a firm’s propensity to innovate. According to the estimated

logit coefficients, a firm's ability to fund R&D is the most important firm characteristic for innovation. Companies that are in a position to use internal resources to fund R&D are much more likely to develop innovations. When a firm is able to fund its own research, it increases the probability of innovation significantly. The sample data also show that there is a positive correlation between the size of the firm and whether a firm has R&D personnel and/or are able to own-finance R&D-activity. Firms with these characteristics are first of all involved in product-innovation. The size of the firm is the second most important firm characteristic linked to a high rate of innovation. The larger a firm is, the more likely it is to innovate. The most important regional characteristic is geographical proximity to innovation partners, i.e. the quality of the regional system with respect to interaction between firms and institutions. Firms that utilize this resource and set up partnerships with other actors in their region are significantly more innovative than firms that lack such regional partnerships. We also found that firms in larger urban regions were more likely to innovate than firms in rural areas.

The analysis has several implications for industrial innovation policies and we will sketch some of these as follows: First, successful innovation is related to internal funding. It implies that the business tax system can be adjusted to give firms stronger incentives to spend its own resources on R&D, for example by using instruments that reduce the exposition of risk associated to a project. Second, there is a significant positive correlation between the size of the firm and financing its own R&D. Since own financing R&D has a positive influence on the likelihood of innovation, it will have implication for the industry policy which aims to stimulate innovation in small firms. Third, public innovation policies should invest in infrastructure and stimulate networking among firms because it increases interaction and contributes to positive economies. The policy should provide small firms with incentives to co-operate with and learn from larger firms located in the same region. In order to increase the expected effect from industrial innovation policies, innovation instruments should be conditional on firms taking part in networking and innovation collaboration with other firms. Fourth, innovation policies should consider allocating relatively more economic resources, human capital and competence to rural areas in order to compensate for asymmetric distribution of resources between the centre and periphery.

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Abstract (in Polish)

Celem artykułu jest analiza, dlaczego niektóre firmy są innowacyjne, a inne nie. Artykuł łączy różne teorie innowacji poprzez odniesienie do innowacji wewnętrznych, aktywów i zewnętrznych czynników regionalnych. Hipotezy są uzyskiwane z teorii i testowane empirycznie za pomocą regresji logistycznej. Analiza empiryczna wskazuje, że wewnętrzne finansowanie B+R i wielkość firmy są najważniejszymi firmowymi i specyficznymi atrybutami udanej innowacji. Zewnętrzne, regionalne czynniki są również ważne. Z analizy wynika, że firmy zlokalizowane w dużych obszarach miejskich mają znacznie wyższe wskaźniki niż innowacyjne firmy zlokalizowane na peryferiach, a firmy zaangażowane w sieci regionalnej są bardziej skłonne do innowacji w stosunku do firm nie uczestniczących w sieci. Analiza przyczynia się do teoretycznego i empirycznego zrozumienia czynników, które mają wpływ na innowacyjność i rolę, jaką odgrywa innowacja w gospodarce rynkowej. Polityka innowacji powinna być ukierunkowana na rozwój infrastruktury systemu podatkowego i budowlanego, które dają firmom zachęty do inwestowania i alokacji zasobów wewnętrznych w działalność R&D oraz współpracy z innymi w zakresie innowacji. Z punktu widzenia polityki gospodarczej, należy zwrócić uwagę na przeznaczenie większych środków publicznych na obszarach wiejskich, w celu zrekompensowania asymetrycznego podziału środków między centrum a peryferiami. Artykuł przyczynia się do rozwoju literatury naukowej z zakresu innowacyjności, łącząc specyficzną, firmową perspektywę z zasobami wewnętrznymi i perspektywą systemową, która koncentruje się na zasobach zewnętrznych i sieci jako najważniejszej determinanty innowacyjności w firmach.

Słowa kluczowe: *innowacje, region, lokalizacja, centrum i peryferia, firmowe i zewnętrzne zasoby, networking, przemysł norweski, regresja logistyczna.*

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Innovation in the Era of Experience: The Changing Role of Users in Healthcare Innovation

*Alexandre Trigo*¹

Abstract

This article provides an extensive literature review on the changing role of users in innovation, with a particular focus on the healthcare sector. Users have been specifically analyzed by many scholars worldwide due to their significant role as a source of innovation beyond the traditional assumption which considers customers as mere passive adopters of products and services. The increasing, but still scarce, number of studies on this topic has demonstrated the benefits of patient involvement and how a close and continuous relationship between patients and practitioners can lead to permanent cycles of improvements and innovation in healthcare outcomes. In addition to a user-centered approach, innovative patients are actively developing new solutions for their own treatments, likewise for other patients with similar diseases.

Keywords: *patient involvement, user innovation, user-centered innovation, interactive innovation, health innovation.*

INTRODUCTION

Innovation is an interactive process based on continuous knowledge flows between the innovative actor and its stakeholders (Chesbrough, 2003, 2011; Lundvall, 1988, 1992; Nelson, 1993). Latest studies have attempted to explain how many firms incorporate ideas, insights and knowledge from outside their own boundaries (Christensen & Lundvall, 2004; Gomes-Casseres, 2003; Gutiérrez-Gracia & Fernández-de-Lucio, 2009; Powell & Grodal, 2005; Vega-Jurado). By providing a narrative review of the literature, this paper aims to explore the changing role of users in innovation, with a particular focus on the healthcare sector. Using a snowball sampling technique, special attention is given to the significance of multi-level collaboration among the manifold economic actors that compose the healthcare industry, especially

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the experiential knowledge and patient involvement along the process of medical research and innovation.

Patients have increasingly played a significant role in healthcare innovation because their experience, practical knowledge and feelings can determine the way healthcare services are provided. Moreover, the new trend of customization of healthcare entails a high level of user involvement and constant information flows between patient and practitioners. The healthcare provision along an integrated patient journey enables practitioners to identify “experience-drivers, value-creating activities and reasons for dissatisfaction and complaints, ideas for service development and innovation” (Echeverri et al., 2013, p. 50).

Despite the steady evolution towards an evidence-based medicine, insufficient attention has been paid in the existing innovation literature to the active performance of users in the public sector and especially in the healthcare industry. This scarcity opposes the statement that the importance of innovation cannot be higher in any other sector than in healthcare since breakthroughs have the potential specific target to improve life quality, cure diseases and save human lives.

In addition to a user-centered approach, innovative patients are actively developing new solutions for their own treatments, likewise for other patients with similar diseases. User innovation also plays a vital role in the healthcare sector as principal source of hope for the treatment of many illnesses, particularly orphan diseases (Habicht, Oliveira & Shcherbatiuk, 2012; Oliveira, Zejnilovic, Canhão & von Hippel, 2015). This evidence emphasizes the major value of experience-based learning embodied in the role of patients as innovators.

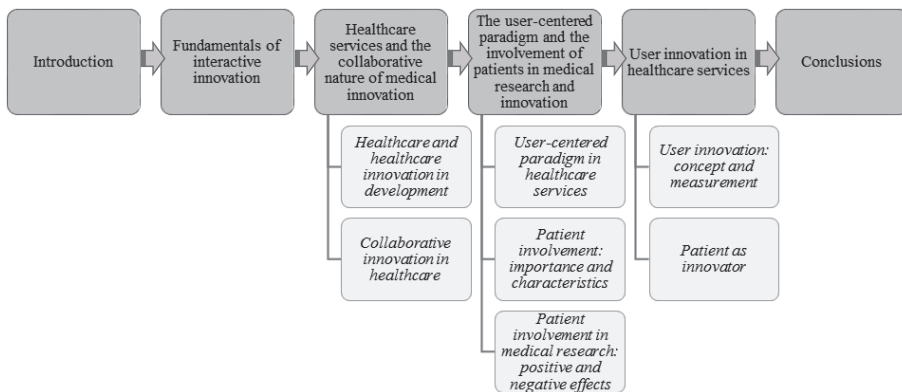


Figure 1. Synthesis of the paper’s structure

As summarized in Figure 1, this paper starts with the fundamentals of interactive innovation and the importance of multi-level collaboration in healthcare services. Among all possible agents implicated in the healthcare delivery system, the subsequent section focuses exclusively on the involvement of patients in medical innovation. In the last section, we discuss the existence of user innovation initiatives, highlighting recent research on patient innovators.

LITERATURE REVIEW

Fundamentals of interactive innovation

Generations of innovation models have shown that innovation today emanates from an interactive, multidimensional, integrated, systemic and open process (Chesbrough, 2003; Chesbrough, Vanhaverbeke & West, 2006; Kline & Rosenberg, 1986; Lundvall, 1988, 1992; Nelson, 1993; Rothwell, 1992, 1994) in contrast to models where interactions are represented on a linear scale (technology-push and demand-pull). From a systemic perspective, innovation consists of a dynamic and interactive process of creative destruction since the relationship with other economic actors, and the knowledge exchange evoked from this interaction, is the heart of any kind of innovation. Empirical studies have demonstrated that enterprises rarely innovate in isolation of the economic system (Christensen & Lundvall, 2004). In this regard, cooperation and extramural knowledge exchange have become the basis of the innovation process in many companies. The traditional research and development activity (R&D) is complementary to many other sources of information such as internal and external partnerships and other types of collaboration which encompass a wide range of actors such as suppliers, customers, universities, technology institutes, government and so forth.

This perspective has caused a significant shift towards a new way of understanding the complex process of innovation. In academia, a new wave of studies has revealed new dimensions including (a) the importance of tacit knowledge (Collins, 1974; Polanyi, 1967), (b) a new generation of dynamic models of innovation (Kline & Rosenberg, 1986; Rothwell, 1992, 1994), (c) the concept of techno-economics networks (Callon, 1991), (d) the conception of core competence (Leonard-Barton, 1992; Prahalad & Hamel, 1990), and especially (e) the role of lead users and customer-centered innovation (von Hippel, 1988; von Hippel, 2005; de Jong & von Hippel, 2009). As a result, new elements have emerged such as (1) the involvement of multiple agents along the innovation process, (2) the access to new knowledge through collaboration, (3) the important role of user experience and (4) the customer as co-creator.

This new configuration has conditioned the design of new theoretical frameworks for economic and innovation policies such as (a) the evolutionary perspective (Nelson & Winter, 1982), which describes economic growth as dynamics and evolutionary process of knowledge accumulation and diffusion, (b) system failures (Metcalfe, 1995, 2003), understood as barriers to the innovation, (c) National System of Innovation (Edquist, 1997; Freeman, 1987a, b, 1995; Lundvall, 1992; Nelson, 1993), which applies a holistic approach to the innovation process, laying emphasis on the interaction among different economic actors at the hub of the analysis, (d) the Triple Helix model of knowledge creation (Etzkowitz & Leydesdorff, 1997, 2000; Leydesdorff & Meyer, 2006) which focuses on the importance of interaction and communication among enterprises, universities and governmental institutions, and more recently (e) the Open Innovation Paradigm (Chesbrough, 2003; Chesbrough, Vanhaverbeke & West, 2006), which accentuates the increasing relevance of external (in addition to the internal) flows of knowledge as enhancement of internal innovation and commercialization of new ideas.

The change from a linear to multi-actor perspective points up the interactive and systemic nature of innovation as well as alternative modes of innovation based on learning by doing, using and interacting (e.g., Jensen, Johnson, Lorenz & Lundvall, 2007). This mode of innovation differs from the traditional understanding of an innovation process based highly on advancements and improvements derived exclusively from science and technology. While the former mode of innovation lays great emphasis on implicit, tacit knowledge and experience-based learning, the latter one put the accent on explicit, codified knowledge and on formal structures of knowledge transfer. The experiential expertise underlines the value of implicit, tacit knowledge and the process of learning by doing, using and, in the healthcare context, suffering. The user experience plays the role of a third element of a puzzle composed of two more types of knowledge: propositional knowledge (“knowing that”) and procedural knowledge (“knowing how”) (Caron-Flinterman, Broerse & Bunders, 2005). The next section goes into some critical factors that have influenced the development of healthcare activities and the way innovation has been conceived in this industry.

Healthcare services and the collaborative nature of medical innovation

Healthcare and healthcare innovation in development

Several aspects have been transforming traditional medicine research and healthcare provision over the last few decades. The productivity crisis faced in the healthcare industry is certainly a key factor. Despite the rising share

of national output (% of GDP), productivity in the healthcare sector did not grow at the same pace, in part caused by the low level of standardization and the labor-intensive nature of its output (Baumol, 1967; Chesbrough, 2011; Folland, Goodman & Stano, 2007). In the pharmaceutical industry in particular, the decline in R&D productivity is mainly a consequence of diminishing returns in the knowledge production function, more challenging therapeutic targets and excessive bureaucracy (LaMattina, 2011; Munos, 2009; Pammolli, Magazzini & Riccaboni, 2011). The productivity crisis in this sector, and especially in the pharmaceutical realm (Hara, 2003), entailed innovation in multiple facets including incremental changes in internal and external R&D management, alternative drug development as well as the development of personalized, stratified and regenerative medicine (Mitra, 2016).

Another factor refers to the market access strategies and the patent conflict principally in pharmaceutical industry. As a critical instrument for intellectual property protection in several high tech industries, the patent system has played a pivotal role in healthcare, respectively in pharmaceutical R&D and innovation (Folland, Goodman & Stano, 2007; Grabowski & Vernon, 1990; Grabowski, 2003). In the context of developing countries however, patents had made the prices of new drugs unaffordable. To ensure access to medicines in these countries, differential pricing has been ascribed as a possible approach to attend the needs in both high and low income markets in different countries (Danzon & Towse, 2003) and within-country via market segmentation (Yadav, 2010).

A third aspect is related to the common practices of mergers and acquisitions (M&A) over the last decades in the pharmaceutical industry, which have shattered the R&D activities (LaMattina, 2011; see also Brown, Werling, Walker, Burgdorfer, & Shields, 2012, for M&A in the hospital industry). By studying the dynamics of drug innovation since 1950, Munos (2009) demonstrated that the number of new drug approvals is directly correlated to the number of firms involved. His results indicated that “M&A are not an effective way to promote an innovation culture or remedy a deficit of innovation” (Munos, 2009, p. 961).

Other dominant trends encompass the progress of medical technologies (Spekowiak & Wendler, 2006), the volatility of the healthcare market (Lebrecht, 2015), the patient’s perspective of healthcare (World Health Organization, 2007, 2013), the increase in collaborations and partnerships (Consoli & Ramlogan, 2009; Consoli & Mina, 2009), among others. In the next subsection we will focus on the collaborative nature of innovation in healthcare.

Collaborative innovation in healthcare

The literature on innovation in the healthcare industry has highlighted the increasing importance of external mechanisms of knowledge integration and interfirm R&D collaboration between pharmaceuticals firms, universities and hospitals (Liebeskind, Oliver, Zucker & Brewer, 1996; Oliver, 2001; Orsenigo, Pammolli & Riccaboni, 2001; Quéré, 2004; Powell, 1990; Powell, Koput & Smith-Doerr, 1996; Powell, White, Koput & Owen-Smith, 2005; Rai, 2005; Shaw, 1998; Swan et al., 2005; Weigel, 2008) as well as in the context of biotechnology innovation (Broerse & Bunders, 2000; Roijackers & Hagedoorn, 2006; Vence, Sánchez, Rodil, 2013). This evidence endorses the hypothesis that innovation, regardless of industry, relies to a great extent on the continuous and unbounded interaction among an array of actors.

Medical innovation is a valuable example of where interactivity is represented at a multidimensional level in order to discover or improve treatments, therapies and drugs for a wide range of diseases. This collaborative character has increased significantly over the last decade, turning healthcare innovation into an extremely networked system (Consoli & Ramlogan, 2009). The literature aimed to stress that the role of collaborations and networks in the healthcare industry has become more widespread during the last decades (Cambrosio, Keating, Mercier, Lewison & Mogoutov, 2006; Consoli & Mina, 2009; Consoli & Ramlogan, 2009; Liebeskind et al., 1996; Oliver, 2001; Orsenigo, Pammolli & Riccaboni, 2001; Powell et al., 2005; Powell, 1990; Powell, Koput & Smith-Doerr, 1996; Quéré, 2004; Rai, 2005; Ramlogan, Mina, Tampubolon & Metcalfe, 2007; Shaw, 1998; Swan et al., 2005; Weigel, 2008).

Consoli and Mina (2009) described the health innovation system as a structure composed of the health delivery system and the science and technological system. The constant interaction between both systems and the continuous flow of knowledge represents the basis of the innovation dynamic in this sector. The health delivery system consists of the service provision and the direct relationship between practitioner and patients. The science and technological system, on the other hand, is composed of the technological market, which is responsible for developing new drugs and medical devices, and the scientific community. Among all actors involved in healthcare provision and innovation, the next section considers exclusively the information and knowledge exchange between healthcare providers and patients in medical research and innovation.

The user-centered paradigm and the involvement of patients in medical research and innovation

User-centered paradigm in healthcare services

Over the last decades, a new consumer-centric paradigm – where the users play an active and major role as co-developers and co-innovators – has questioned the real scope of the traditional manufacturing-active model (Baldwin & von Hippel, 2011; von Hippel, 1978a,b, 1986, 1988, 2005; von Hippel & Katz, 2002; von Hippel & de Jong, 2010). Among all economic agents involved in the innovation process, users have been specifically analyzed due to their remarkable role as source of innovation contributing with original ideas and experiential wisdom (von Hippel, 1988). Many authors have singled out the major value of experience-based learning and the value of users as an innovation source in several industries (Bower, 2005; Caron-Flinterman et al., 2005; von Hippel, 1988, 2005; Jensen et al., 2007; Lundvall, 1985, 2006, 2007; Rabeharisoa, 2003; Smits & Boon, 2008). Nevertheless, an overview of these examples leads us to question whether user-centered innovation can also flourish in an industry such as healthcare whose innovation mode is highly based on science and technology. Empirical results show that clinicians can play a major role as lead users via field discovery. Demonaco, Ayfer and von Hippel (2006) have empirically confirmed that a significant number of drug therapy innovations were discovered by clinical practice, bridging practical experience with patients and the Science & Technology system.

In the patient context, the user-driven innovation paradigm implies that the role of patients has changed from a passive subject of research to an active partner along the innovation process (Mitra, 2016). When the patient is involved, the relevance, the pragmatism as well as the benefits of the research in terms of usefulness, effectiveness and practical efficacy increase. However, evidence reveals that this involvement has mostly been focused on the decisions and the management of chronic illnesses than on research, development and innovation (Echeverri et al., 2013). Additionally, several health professionals are still averse to a closer doctor-patient relationship in certain areas including decision making and choice (Lester, Tait, England & Tritter, 2006; European Commission, 2012).

The patient involvement in healthcare innovation was proved to be not only a buzzword but a challenging, though profitable, task (Kielstra, 2009; Trivedi & Wykes, 2002). The expert knowledge required and the patient' low purchasing power have traditionally differentiated patients from consumers in other sectors. However, this panorama is gradually changing and the current evidence demonstrates that they can significantly influence innovation in

health services. Patients' purchasing power has increased and they have become more concerned and knowledgeable about their own treatment and healing (Røtnes & Staalesen, 2009).

The conception of patient-centered healthcare systems in collaboration with other economic and societal actors can strengthen the prevention of lifestyle-related illnesses such as cardiovascular disease, cancer or diabetes (Echeverri et al., 2013). Besides, the fruitful implementation of patient-focused care entails cooperation between providers, health plans, and policymakers (Reed, Conrad, Hernandez, Watts & Marcus-Smith, 2012). The alliance of several societal actors became a key strategy to stimulate and implement ideas and improvements derived from the close patient-practitioner interaction. Indeed, a group of experts, in discussion on the future of healthcare in Sweden, have proposed the creation of a national incubator for patient innovation (Echeverri et al., 2013). Its responsibilities would include the compilation of innovation ideas from different healthcare organizations, assistance during the planning and implementation phase, as well as the link between private entrepreneurs and healthcare organisms. This proposal runs in parallel with the creation of a formal body of governance to operate all kind of initiatives including innovation instruments, knowledge management and dissemination of eHealth as well as social media. The following subsection describes the main attributes of patients that can determine the level of engagement.

Patient involvement: importance and characteristics

A recent qualitative survey performed across fifteen European Member States underlines that the concept of involvement is not entirely clear for both patients and practitioners, commonly seen as a mere compliance of treatments (European Commission, 2012; see also Sahlsten, Larsson, Sjostrom & Plos, 2008). User involvement in healthcare comprises different aspects compared to other traditional industries. Thanks to this fact, patient-centered healthcare tends in general to integrate and involve patients instead of letting the patients lead the process (Røtnes & Staalesen, 2009). For particular disturbances such as stroke, however, lead user methods have been vastly applied to better comprehend how patients experience healthcare (Echeverri et al., 2013).

The engagement and the close cooperation with treatments were demonstrated to be more effective with enlightened and instructed patients. Particularly in hospitals, more than a few patients felt more comfortable to share their experience with nurses, whose relationship "is more likely to be characterized by trust and equality" (European Commission, 2012, p. 37).

Besides, the involvement is expected to be more intensive with chronically ill patients and those with orphan (rare) diseases (a small and specific market widely neglected by the pharmaceutical industry due to a lack of financial incentives). For these cases, patients are more aware of several aspects of the disease and more experienced in self-monitoring. Additionally, patients with chronic diseases are in general more conscious of alternative treatments (European Commission, 2012), which makes the experiential knowledge a major source of hope for the treatment of many illnesses. The patient's age and likewise the patient's socioeconomic status also contribute to the level of involvement. Empirical results reveal that younger patients with greater income and with greater educational skills are more likely to use touch screen technology, as a way to collect patient feedback data (Zarghom, Fonzo & Leung, 2013). The positive and negative outcomes from patient involvement in medical research are discussed in the next subsection.

Patient involvement in medical research

The experiential knowledge has grown to be a key contribution of patients to medical research (Caron-Flinterman et al., 2005), providing expert information based on daily experience of their own diseases. This involvement certainly leads towards significant changes in the focus, in the design and also in the content of the research (Trivedi & Wykes, 2002). Pioneering initiatives in Nordic countries stress the emergence of new innovation trends toward the adoption of a user-led innovation in the entire public healthcare system, also in hospitals (Røtnes & Staalesen, 2009; Echeverri et al., 2013). In Sweden, most of the research councils have implemented research and innovation initiatives with a close patient involvement, involving an increase of patient value and costs reduction (Echeverri et al., 2013). Recent health studies and reports put emphasis on the increasing patients' involvement in diagnosis, treatments, therapies and cure of diseases derived from (bio)medical research activities and clinical trials (National Institute for Health Research [NIHR], 2009). Patient-reported outcomes (PROs) is becoming a key element for clinical research, by providing physicians with different types of data and information such as "physical functions, symptoms, global judgments of health, psychological well-being, social well-being, cognitive functioning, role activities, personal constructs, satisfaction with care, health related quality of life [and] adherence to medical regimens" (Deshpande, Rajan, Sudeepthi & Abdul Nazir, 2011, p. 137).

A significant impact of experiential knowledge of patients was shown in different stages of the medical research, including the development of the grant application, the research design, the data analysis as well as the

dissemination of research findings (National Institute for Health Research [NIHR], 2010; see also Trivedi & Wykes, 2002). The following table summarizes the consecutive phases of medical research in which patients could be involved, and their possible contribution.

Table 1. User involvement in medical research

The stages of medical research	The involvement of users can help:
The development of the grant application	To discuss the research idea and help to focus the question to one that reflects patients’ needs and will benefit patients. To review the research proposal and offer suggestions from a patient perspective. To help identify where users could be involved in other areas of the research project. To be named as a co-applicant for funding and ethics approval.
The research design	To identify areas where users could be involved in the research. Inform the design of communication materials to better suit participants, for example: by helping to make patient information sheets and consent forms more understandable, by reviewing questionnaires and other data collection methods. To identify possible participant recruitment strategies. To consider the ethical implications of the research and help researchers to understand patient concerns and suggest ways to address these. To provide an idea of what it is like to take part in research.
The research management	To identify ways to resolve problems in relation to recruiting or retaining participants, for example where to advertise and in what format.
The undertaking of the research	To undertake data collection.
The analysis of the research data	To suggest gaps in the data which can help identify further research questions. To provide their interpretation of the data which may be different to that of the research team.
The dissemination of research findings	To advise and develop reports on the research findings that are understandable to the public. To provide suggestions on where to disseminate the findings; who will be interested, how to reach them and in what format. For example, there may be a website forum where you can make your research known, or a patient group you could present to. To participate in presenting the findings of the research and talk about their experience of being involved in the process.

Source: Own elaboration based on NIHR (2010).

Many authors have underlined numerous benefits from this close partnership among patients, practitioners and researchers. This involvement permits patients to improve their knowledge and research skills (Buckley, Grant, Firkins, Greene, & Frankau, 2007; Clark, Glasby & Lester, 2004; Griffiths, Jorm & Christensen, 2004), converting sick people into proto-professionals

(Caron-Flinterman et al., 2005), as well as to strengthen patient' esteem and confidence (Clark, Glasby & Lester, 2004; McCormick, Brody, Brown & Polk, 2004; Minogue, Boness, Brown & Girdlestone, 2005). The benefits for patients also include a better understanding of the nature and purpose of the research carried out (Donovan et al., 2002) and the capacity to introduce real needs into the research's objectives (Kent, 2002; Kent & Oosterwijk, 2007; Wootton, Wood & Cook, 2008). The advantages also embrace a wider diffusion of findings and, evidently, an increased relevance of the research as well as the results obtained and the methods of analysis (Ali, Roffe & Crome, 2006; Hanley, Truesdale, King, Elbourne & Chalmers, 2001; McCormick et al., 2004; Rose, 2003). In addition to the patient-centered care discussed hitherto, the next section examines the user innovation literature in the sphere of healthcare.

User innovation in healthcare services

User innovation: concept and measurement

In several industries, best practices in business have increasingly demonstrated that profitable novel or enhanced products, processes and services were originally developed by users, so-called "lead users". This class of users is composed not only of expert, senior professional advisors, but also amateur devotees, passionate insiders, customers and end-users, who are simply aiming to find solutions for their own needs. They are experience-based experts with strong unsatisfied needs (von Hippel, 1986; Urban & von Hippel, 1988).

To date, most of the empirical literature on user innovation has been based on in depth and thorough case studies. The list of examples is increasingly extensive and many empirical studies over the last few years have highlighted the existence of user innovation in different contexts such as printed circuit CAD software (Urban and von Hippel, 1988), pipe hanger hardware (Herstatt & von Hippel, 1992), new medical equipment technology or devices (Biemans, 1991; Lüthje, 2003; Lettl & Gemünden, 2005), outdoor consumer products (Lüthje, 2004), sport equipment (Franke & Shah, 2003; Franke, von Hippel & Schreier, 2006; Lüthje, Herstatt & von Hippel, 2002), off-label drug therapies (Demonaco, Ayfer & von Hippel, 2006), games and toys (Stockstrom, Lüthje & Antorini, 2010) as well as banking services (Oliveira & von Hippel, 2011). All these studies have proved that users can modify existing products and services but also create new ones and provide profitable ideas.

The first question that arises from these wide-ranging examples is whether user innovation is a ubiquitous phenomenon. Other cross-industry

studies observe how user innovation at firm-level varies widely across sector. They also make patent sectoral differences with regard to the levels of user innovation (e.g., Flowers, Sinozic & Patel, 2009). Hence, although all the aforementioned empirical studies suggest a significant share of user innovation over the total of innovation developed in their respective areas, the presence of innovative users seems to be more predominant in certain sectors than in others like in the healthcare industry. The high level of industrial aggregation in certain studies, and the mere absence of the healthcare sector in others obscure the understanding of the scope of users' integration in healthcare innovation. In the next subsection we provide some examples of patient innovations described in the literature.

Patient as innovator

Recent case studies have corroborated that even patients can innovate and promote better health practices. An exploratory empirical analysis identified several cases of patient innovation classified into three main categories: rare conditions (including rare or orphan diseases), strong constraint on daily life and dead end situations (Habicht, Oliveira & Shcherbatiuk, 2012). A chest percussion with electrical percussion, electronic trousers ReWalk and External Aortic Root Support are some examples of innovations developed by patients dealing with adverse health conditions. Indeed, 8% of patients with orphan (rare) diseases have developed new to the world innovations (Oliveira et al., 2015). Orphan diseases have been widely neglected by the pharmaceutical industry due to a lack of financial incentives to work in this small and specific market. Therefore, patient solutions have not only alleviated and improved the health deficiencies of the self-innovators but also those of other patients with similar diseases. A recent empirical research pointed out that approximately 88% of those patients who shared their self-developed solutions shared them with other patients, contrasting, however, with only 6% reported to their doctors and clinicians (Oliveira et al., 2015). In this sense, patient innovation plays a vital role in the healthcare sector being, in certain cases such as orphan diseases, the principal source of hope for the treatment of many illnesses.

The internet and new technologies have become the ideal platforms for patients to share their experience of existing and original treatments. Besides health communities, crowdsourcing sites and smartphone applications (in particular healthcare apps) have all become very popular and available on different platforms. Apart from individual app developers and pharmaceuticals manufacturers, patients have been recognized as important innovators of medical smartphone applications. Health apps developed by

patient organizations typically provide emotional support and other patient success stories but present only limited functionality such as information, social media connections and physician recommendations (IMS Institute for Healthcare Informatics, 2013). A recent empirical study based on the top 500 apps in Germany, US and UK demonstrated that patient-developed apps, as well as applications created by healthcare professionals, have been better rated than apps developed by companies or individual developers (Goeldner & Herstatt, 2016). In most cases, patients had no external support and generated the solutions with their own IT Knowledge. However, most of the identified patient-developed apps did not consider regulations. All health apps aimed at providing information on a disease or other condition are treated as a medical device and subjected to FDA (U.S. Food and Drug Administration) regulations (Food and Drug Administration, 2015).

CONCLUSIONS

The objective of this paper is to synthesize part of the existing literature on the changing role of users in innovation, with a particular focus on the healthcare sector. The so-called user-centered approach suggests a remarkable revolution in the way innovation has been conceived. User-centered innovation practices have been widely influencing the way new products and services are developed in several industries over the last two decades. However, the traditional mode of innovation performed by the healthcare industry, which is predominantly based on science and technological improvements, casts doubt on whether patient-centered innovation can successfully thrive as it does in other economic activities. The overdue consideration of the value of user involvement - and also of the existence of innovative users - in the referred industry could be ascribed to the research-based model that shaped innovation in life sciences for a long time.

The increasing, but still scarce, number of studies dedicated to this topic coincides with a new trend where patients play a key role in innovation process in both private and public healthcare systems. Experts have demonstrated that the close and continuous relationship between patients and healthcare professionals can lead to permanent cycles of improvements and innovation in healthcare outcomes, including diagnosis, shared decision-making, patient-centered medical care and patient control. In the context of medical research, patients contribute, with their valuable practical experience of dealing daily with the effects of certain diseases, to the research design, the analysis of research data as well as the dissemination of research findings.

In spite of that, the definite benefits from a deeper patient engagement are still unclear to patients and practitioners in several countries, as proved by the Eurobarometer qualitative survey, recently published by the European

Commission. Also, patient involvement has mostly been confined to the decision making process and the management of chronic diseases, rather than a direct cooperation on R&D and innovation projects.

Multi-level collaboration between the healthcare system and other economic and societal actors are vital to consolidate a patient-focused care. Instead of singular and punctual programs, a fruitful patient-centered model would benefit from a multi-level body of governance to operate all kind of initiatives including innovation instruments, knowledge management and dissemination of eHealth as well as social media. These mechanisms should also encourage patient innovation in addition to the diffusion of innovative solutions developed by users. The Swedish case cited throughout this article is a successful reference in this field.

This paper also aimed to draw attention to a complementary view, which contemplates the user as innovator. There are already numerous examples of profitable products, processes and even services originally developed by users with different backgrounds and expertise. Although research on lead users has been presented over the last three decades, recent publications on healthcare have revealed pertinent examples of innovative patients. In healthcare, innovative patients are actively developing new solutions for their own treatments, likewise for other sick individuals with similar diseases. We recommend further research on alternative instruments from public and private sectors to stimulate patient innovation mainly in the context of orphan diseases, usually overlooked by the pharmaceutical industry due to a lack of financial incentives. A shift in the producer-centered innovation approach of public policy for healthcare is also needed.

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Abstract (in Polish)

Artykuł zawiera obszerny przegląd literatury na temat zmieniającej się roli użytkowników w zakresie innowacji, ze szczególnym naciskiem na sektor opieki zdrowotnej. Użytkownicy zostali szczegółowo przeanalizowani przez wielu badaczy na całym świecie ze względu na ich istotną rolę jako źródła innowacji, wykraczającą poza tradycyjne założenie, które postrzega klientów jako zwykłych i pasywnych użytkowników produktów i usług. Zwiększająca się liczba, ale wciąż niewystarczająca, wielu badań na ten temat, wykazała korzyści z zaangażowania pacjenta oraz jak bliski i stały związek między pacjentami a lekarzami może prowadzić do trwałych cykli ulepszeń i innowacji w zakresie skutków zdrowotnych. Oprócz podejścia zorientowanego na użytkownika, innowacyjni pacjenci aktywnie rozwijają nowe rozwiązania dla ich własnego leczenia, podobnie jak w przypadku innych pacjentów z podobnymi chorobami.

Słowa kluczowe: zaangażowania pacjentów, innowacyjność użytkownika, innowacja zorientowana na użytkownika, interaktywne innowacje, innowacje zdrowotne.

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Open Service Innovation: The Case of Tourism Firms in Scandinavia

*Tor Helge Aas*¹

Abstract

Most empirical research investigating open innovation has focused on the development of new physical products in manufacturing industries, whereas open service innovation has not been researched correspondingly. Services have some characteristics that distinguish them from physical products, which may affect the types of open innovation practice utilised during service innovation processes. Tourism services comprise a subset of services that is particularly distant from tangible products. Therefore, the exploration of how tourism firms utilise different types of open innovation practice offers a valuable opportunity to learn about the nature of open service innovation practices. Thus, this paper addresses the following research question: what types of open innovation practice are utilised during the development of new tourism services? A qualitative case study approach was used to answer the research question. The findings suggest that pecuniary and non-pecuniary inflows of knowledge are utilised during service innovation processes in tourism. However, the stage of the innovation process at which inflows of knowledge are utilised varies systematically with respect to whether the innovation is perceived to be incremental or more radical. The findings also indicate that tourism firms reveal knowledge to other tourism firms in non-pecuniary outbound open innovation processes. However, no example of a pecuniary outbound open innovation practice was identified in this study. Implications for management and further research are discussed in the paper.

Keywords: *service innovation, new service development, open innovation, tourism management.*

INTRODUCTION

Innovation is a critical factor for the generation of financial performance and competitive advantage in manufacturing (Adner & Kapoor, 2010) and service (Aas & Pedersen, 2010) firms. Therefore, the search for appropriate practices and strategies to organise and manage innovation activities is the focus of an ongoing stream of research. In a broad sense, empirical results of this

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research have confirmed that the characteristics of service innovation differ from those of product innovation (Droege, Hildebrand & Forcada, 2009). Research results have also suggested that innovation practices differ among service subsectors (Kuester, Schuhmacher, Gast & Worgul, 2013). Sectorial differences relate to the conceptual complexity of innovation (den Hertog, 2000), the innovation processes (de Brentani, 2001), and the resources needed to carry out these processes (Nijssen, Hillebrand, Vermeulen & Kemp, 2006). The observed differences are often explained by the fact that services have, to varying degrees, specific characteristics such as intangibility, heterogeneity, inseparability, perishability (Zeithaml, Parasuraman & Berry, 1985), and co-creation of value (Vargo & Lusch, 2004), which in turn affect innovation practices.

In recent years, the potential of involving external actors in firms' innovation processes, often referred to as 'open innovation', has received much attention from researchers and business managers (Dahlander & Gann, 2010; Huizingh, 2011). To date, however, most open innovation research has focused on manufacturing firms developing new physical products; open innovation practices of firms developing new services have not been researched correspondingly (e.g., den Hertog, van der Aa & de Jong, 2010; Huizingh, 2011; Mina, Bascavusoglu-Moreau & Hughes, 2014; West & Bogers, 2014). Thus, our knowledge of open *service* innovation practices is limited (Huizingh, 2011). This literature gap is concerning, as service industries in most developed countries account for greater proportions of GDP and employment than do manufacturing industries (Spohrer & Maglio, 2008), and due to the importance of innovation to firm-level success in service industries (Evangelista & Vezzani, 2010).

To contribute to filling this literature gap related to open service innovation, Chesbrough recently published a book (Chesbrough, 2011a) and a series of conceptual articles (e.g., Chesbrough, 2011b) in which he discussed the relevance of open innovation in services. Using success stories from product innovation, he argued conceptually why open innovation may be beneficial also for innovation in services, and he concluded that 'open innovation accelerates and deepens services innovation' (Chesbrough, 2011b, p. 15). Empirical studies investigating Chesbrough's (2011b) proposition remain scarce, but a few exist. Some of these studies focus on particular subsectors, such as business services (e.g., Mina et al., 2014) and banking services (e.g., Gianiodis, Ettlé & Urbina, 2014), whereas others focus on the service sector as a whole (e.g., Mention, 2011). On the whole, the results of these empirical studies support Chesbrough's (2011b) proposition.

Despite these significant contributions, open service innovation remains a relatively unexplored area of research (Mina et al., 2014). In particular, more empirical insight is needed to understand more deeply the types of open innovation processes used during new service development. To contribute to filling this literature gap, we performed an in-depth qualitative study on a subset of services that is particularly distant from tangible products: tourism services (e.g., Hjalager, 2010). These services are arguably characterised by high degrees of intangibility, inseparability, perishability, and heterogeneity (Zeithaml et al., 1985), in part because tourism firms often add experiential components to their core offerings in the form of ‘comprehensive living adventures’ (Stamboulis & Skayannis, 2003, p. 38). Thus, this qualitative examination of how tourism firms exploit different types of open innovation practice when they develop new services will provide valuable new insight on the broader topic of open service innovation. This study examined the following research question: *what types of open innovation practice are utilised during the development of new tourism services?*

The article is structured as follows. In the next section, we review the (product) innovation management literature on different types of open innovation practice. Based on the findings of previous empirical studies, service innovation in tourism is then distinguished from product innovation to (theoretically) suggest why such types of open innovation practice may, or may not, be relevant for service innovation activities in tourism. Thereafter, we describe the case study research method. In the following section, we report the research findings, describing the types of open innovation practice that were utilised during service innovation processes in our cases. The paper ends with a discussion of practical and theoretical implications and suggestions for further research.

THEORY

Types of open innovation

The term ‘open innovation’ refers to ‘the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and to expand the markets for external use of innovation, respectively’ (Chesbrough, Vanhaverbeke & West, 2006, p. 1). Chesbrough (2003, p. 24) argues that ‘open innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as firms look to advance their technology.’ The first mechanism in this definition, i.e. the use of inflows of knowledge, is often called ‘inbound’ open innovation, whereas the second mechanism, i.e. the use of outflows of knowledge, is often called

'outbound' open innovation (Huizingh, 2011). Based on a review of the literature, Dahlander and Gann (2010) also distinguish between pecuniary and non-pecuniary types, and consequently suggest four types of open innovation: 1) non-pecuniary inbound open innovation (sourcing), 2) pecuniary inbound open innovation (acquiring), 3) non-pecuniary outbound open innovation (revealing), and 4) pecuniary outbound open innovation (selling).

The research literature discusses benefits and disadvantages of these four types of open innovation. For example, the ability to buy external ideas or expertise (inbound pecuniary open innovation) has many benefits, as it may provide a firm with valuable resources that it would not have been able to obtain in other ways (Dahlander & Gann, 2010). Research indicates, however, that the acquisition of knowledge that is too close to what the firm already knows may reduce the positive effects (Dahlander & Gann, 2010). Inbound non-pecuniary open innovation may also be beneficial, as it provides opportunities for firms to benefit from the ideas of outsiders to generate new products or services (Dahlander & Gann, 2010). As there are cognitive limits to how much individuals working within firms can understand, however, firms may risk relying too much on external sources of innovation, which may be a disadvantage (Laursen & Salter, 2004). Furthermore, outbound pecuniary open innovation may have advantages, as firms can benefit more effectively from their investments in R&D (Chesbrough et al., 2006), but a disadvantage is that significant transaction costs are often involved (Gambardella, Giuri, & Luzzi, 2007). Outbound non-pecuniary open innovation enables firms to build upon each other's work and may result in increased innovativeness (Nuvolari, 2004), but the obvious disadvantage of revealing knowledge and ideas renders the capturing of benefits difficult (Helfat, 2006).

Recent literature reviews (Dahlander & Gann, 2010; Huizingh, 2011; West & Bogers, 2014), however, reveal that the open innovation research in which these advantages and disadvantages are discussed has investigated a limited sample of industries and sectors. According to a review by Aas and Pedersen (2016), research in this area has focused predominantly on the software, telecommunications, chemical, electronics/semiconductors, pharmaceutical, fast-moving consumer goods, aerospace, bioscience, sports goods, and apparel sectors. Thus, the four-type framework of Dahlander and Gann (2010) is based to a large extent on investigations of physical product innovation, and its relevance for new service development remains uncertain.

The specificities of service innovation in tourism

Some scholars have argued that innovation management research in general has been concerned primarily with the management of physical product

innovation processes (e.g., Droege et al., 2009), and not the management of service innovation processes (Drejer, 2004; Adams, Bessant & Phelps, 2006; Nijssen et al., 2006; Spohrer, 2008), and that this skewed focus has resulted in the status that 'current theory and understanding of the strategies and tactics for developing new services is inadequate' (Menor & Roth, 2007, p. 825). Although this claim remains true to a certain degree, scholars are increasingly examining the characteristics of service innovation management, and how they differ from those of product innovation management (Johns & Storey, 1998; Johnson, Menor, Roth & Chase, 2000; Menor, Tatikonda & Sampson, 2002).

A main topic in this research stream is the types of resources or capabilities firms need to succeed with new service development (e.g., den Hertog et al., 2010). Researchers have found, for example, that the involvement of front-line employees (Lages & Piercy, 2012) and internal experts (Hydle, Aas & Breunig, 2014), as well as the establishment of cross-functional teams, is often associated with successful implementation of service innovation projects (e.g., Droege et al., 2009). The research results also suggest that relevant training and assignment of innovative roles are critical success factors (de Jong & Vermeulen, 2003).

The extant service innovation literature also suggests that external resources are important in service innovation processes (Williams & Shaw, 2011). In particular, the involvement of (prospective) customers is often highlighted as an important source of innovative ideas and co-creators of new services (e.g., Carbonell, Rodríguez-Escudero & Pujari, 2012; Gustafsson, Kristensson & Witell, 2012). A few studies also highlight the importance of other types of external actor. Tsou (2012), for example, suggested that firms need competence for collaboration with external firms to succeed with service innovation. Research has also shown that service firms rarely carry out traditional R&D internally (e.g., Meyer, 2010), although the implementation of R&D-embodied technology is often a source of innovation in services, and in tourism services in particular (e.g., Orfila-Sintes et al., 2005).

Although the importance of external collaboration has been discussed to some degree in the service innovation literature, explicit exploration of the types of open innovation practice, according to Dahlander and Gann (2010)'s framework, that are utilised in new service development processes is largely missing (Aas & Pedersen, 2016). We argue that the empirical exploration of open innovation practices related to the development of new tourism services constitutes a particularly relevant context with which to build knowledge in this area, as these services represent a subset of services far removed from tangible products (Stamboulis & Skayannis, 2003; Zeithaml et al., 1985; Zomerdijk & Voss, 2011).

In a broad sense, innovation in the tourism sector may be defined as ‘the generation, acceptance and implementation of new ideas, processes, products or services’ (Hall & Williams, 2008, p. 5). As noted by several authors, however, distinction among process, product, and service innovation in service industries can be difficult because ‘new services often go together with new patterns of distribution, client interaction, quality control and assurance, etc.’ (de Jong, Bruins, Dolfsma & Meijgaard, 2003, p. 17). Therefore, ‘service innovation’ is often used as a generic term referring to many different types of innovation in service firms. In this paper, we thus base our exploration on a broad definition of service innovation suggested by van Ark, Broersma and den Hertog (2003, p. 16): ‘a new or considerably changed service concept, client interaction channel, service delivery system or technological concept that individually, but most likely in combination, leads to one or more (re)new(ed) service functions that are new to the firm and do change the service/good offered on the market and do require structurally new technological, human or organisational capabilities of the service organisation.’

The specific characteristics of services in general, and tourism services in particular, may be expected to affect the types of open innovation practice that are relevant when new (tourism) services are developed. As indicated by extant research (e.g., Buhalis, 2000; Carbonell et al., 2012; Hall & Williams, 2008), the inseparable nature of these services may, for example, imply that inbound open innovation practices in which knowledge from customers is used to accelerate innovation may be highly relevant for tourism firms. This proposition is also supported by empirical research. For example in a study of experience-based tourism Stamboulis and Skayannis (2003) found that first movers among the customers were an important source of knowledge during the innovation processes.

However, whether the intangible and perishable nature of these services implies that knowledge from other external actors is less relevant in these innovation processes is an open question. It could be argued that the knowledge of external actors not directly involved in the co-creation of services is too limited to contribute during innovation processes in tourism, and research has for example confirmed that tourism firms seldom use knowledge from universities and research laboratories during their innovation processes (Hjalager, 2010). However, in the recent times tourism firms have implemented much new technology both to streamline the internal processes and to improve the services provided (Hjalager, 2010), and it has been suggested that knowledge is embedded in this technology, implying that the implementation of new technology indirectly involves the transfer

of knowledge from technology suppliers to tourism firms (Evangelista, 2000; Hjalager, 2000).

One may also question whether the intangible and perishable nature of tourism services also implies that outbound open innovation is less relevant. Research has indicated that an important characteristic of successful outbound open innovation is that it is possible to separate systems in specific modules of knowledge that can be sold or shared to other actors during innovation processes (Henkel, 2006). The intangible and perishable nature of tourism services may complicate modularization of tourism services, and this may reduce the applicability of outbound open innovation in tourism (Aas & Pedersen, 2016). To explore these open questions about open service innovation practices in tourism and provide an initial view of how these practises look, relative to open innovation practices in manufacturing, we conducted an exploratory study focusing on tourism services.

RESEARCH METHOD

A qualitative case study approach (e.g., Yin, 2003) was chosen, as qualitative research arguably has advantages when the phenomenon to be studied is not well understood and when the variables remain unknown (e.g., Johnson & Harris, 2003). To enable selection of case organisations that offered opportunities to learn and build theory, and to obtain a preliminary overview, two preliminary short interviews were conducted with managers of two Scandinavian networks of tourism firms. These informants were asked to identify firms in different subsectors of the tourism industry (e.g., accommodation, transportation, dining, and attractions) that had recently developed and commercialized new services. 15 tourism firms in Scandinavia were suggested in these interviews, and we decided to select all 15 firms as case organisations. All firms were members of at least one network focusing on business development and innovation, also indicating their interest in and focus on innovation. Two firms – one amusement park and one ski resort – provided purely experiential services. Six firms – two airlines, two cruise and transport shipping firms, one airport operation firm, and one railway firm – provided personal transportation services. Six firms (all hotel chains) provided accommodation and dining services. One firm, an independent hotel, provided accommodation services only, and one firm, an independent restaurant, provided dining services only. Firm size varied, with the number of full-time employees (FTEs) ranging from 11 (the independent hotel) to approximately 13,000 (a hotel chain).

Data were collected mainly in in-depth interviews with employees involved with innovation in the case organisations. We approached the firms' representatives in the business networks, in practice often the CEOs, and asked whether they were interested in their firms' participation in the study. Representatives of all 15 firms responded positively to our request. They were asked to indicate preferred employees to be interviewed about the firms' innovation practices. These informants were CEOs in five cases and other members of the top management groups (e.g., CMOs, CTOs) in the remaining cases. During interviews with the appointed key informants, we also identified other relevant informants in the firms. These additional informants were interviewed at a later stage. As a result, one to five informants from each firm (30 in total) were interviewed. Table 1 lists the key characteristics of the sample.

Based on the framework of Dahlander and Gann (2010), we developed a semi-structured interview guide (Appendix A). During the interviews, the informants were asked to select a few new services that the firms had introduced recently. To capture inbound open innovation practices, informants were asked questions related to the sources of the new service ideas and to external collaboration during the innovation processes. To capture practices related to outbound open innovation, the informants were asked to describe the introduction of new services by other firms, in which their firms had participated. All interviews were recorded and transcribed, and the data were coded and mapped onto the four open innovation dimensions reflected in the framework of Dahlander and Gann (2010).

FINDINGS

Informants provided numerous examples of new or improved services introduced by the sampled firms during the interviews. Some were perceived to have high degrees of newness, whereas others were perceived to have lower degrees of newness (Table 1). Hereafter, we refer to innovations perceived by the informants to have high degrees of newness as 'radical', and those perceived to have low degrees of newness as 'incremental', although we realise that informants' perceptions are not necessarily aligned with more formal definitions of these terms (e.g., Henderson & Clark, 1990; Gallouj & Weinstein, 1997). We report our empirical findings according to the four dimensions of Dahlander and Gann's (2010) framework.

Table 1. The sample of tourism firm representatives

Firm	Type	FTEs	Informants	Innovation examples (in brackets: degree of newness [high/low] as perceived by the informants)
A	Accommodation and dining (hotel chain)	2700	CEO, hotel manager	Improvements of food concept (low), improvements of bed/pillow quality (low), establishment of new hotels at spectacular locations (high), new experiential services (high)
B	Accommodation and dining (hotel chain)	12000	CEO, CMO	New food concept (low), new marketing concept (low)
C	Accommodation and dining (hotel chain)	2000	CEO, CMO, sales manager, hotel manager	Upgrading of hotel rooms (low), new conference concept (high)
D	Accommodation and dining (hotel chain)	13000	CEO, CMO, HR manager, revenue manager, hotel manager	New mobile check-out service (low), new food concept (low), improved revenue management system (high), new housekeeping procedures (low)
E	Accommodation and dining (hotel chain)	1250	CEO, CMO, two hotel managers	New food concept (low), new check-in concept (high), establishment of a new hotel in a new location (low)
F	Accommodation (independent hotel)	11	Chairman of the board (owner)	New concept for affordable hotel accommodation (high)
G	Dining (independent restaurant)	29	CEO	New food concept (high)
H	Experiential services (amusement parks)	160	CEO	New themed accommodation concept (high), new dining concept (low)
I	Experiential services (ski resorts)	950	CTO, director of one ski resort, innovation expert	New ski park for children (high), improvements of ski parks (low), new lift capacity/quality (low), new booking system (high), improved preparation of ski slopes (low)
J	Personal transportation	5700	Director of sales	New experiential travelling packages (high)
K	Personal transportation	13000	Director of revenue management	Improved loyalty programme (high)
L	Personal transportation	1800	CMO, innovation expert	New experiential travelling packages (high)
M	Personal transportation	2600	Director of communications	New experiential travelling packages (high)
N	Personal transportation	8700	COO	New experiential travelling packages (high)
O	Personal transportation	3000	R&D director	Improvement of safety (low), new design of service facilities (high)

Non-pecuniary inbound open innovation (sourcing)

New service ideas were often ‘born’ outside the borders of the firms in our sample. Incremental ideas, often related to the improvement of existing services, typically came from existing customers and were often identified by front-line employees of the firms, or through surveys or other digital social media channels. Examples of incremental innovations that emerged from customer input/ideas are the establishment of a new dining concept (firm H), the upgrading of accommodation facilities (firm C), and the improvement of ski parks (firm I). Purposive inflows of knowledge from customers in the early stages of the innovation process typically had a non-pecuniary nature. The following statements from two informants, from firms C and I respectively, illustrate this practice:

‘All our customers are given a questionnaire after they have visited us, and we get lots of insights on how to improve our products from their answers. (...) We are also working right now on how we can establish a better dialogue with our customers via different social media.’

‘We have direct dialogue with our customers in the ski park all the time. I will say that we to a high degree have developed the park based on ideas from the users. In particular we involve customers that use our facilities often, for example cottage owners that spend much time here.’

External actors were also involved during the early stages of the development of more radical innovations, but this involvement was typically more indirect. For example, when reflecting on the early stages of the development of a new concept for themed accommodation (which he perceived to be a radical innovation), the CEO of firm H stated:

‘When we work with innovation and development we pay attention to what is happening around us, we always look at what other firms are doing and we contact and visit the attractions that have what we believe are the best in the world in our industry, and we try to learn from them. (...) The idea to build themed accommodation as an extension of the experiences we already offer is in many ways my personal idea based on such visits to other parks.’

A similar practice may be illustrated by the following statement from our informant in Firm K when he reflected on the early stages of a new loyalty programme (which he perceived to be a radical innovation):

‘We have made a new and very specific vision for frequent travellers and this innovation project is about reaching this new vision. (...) The new vision was made by the top management, it was a top-down initiative, but of course we got input from different departments during the early process and we were also inspired by an actor in another industry who had a similar vision (...).’

Thus, our empirical findings indicate that external actors were often sources of inspiration during the early stages of more radical innovation processes in the case organisations, but that direct and *purposive* knowledge transfer from an external actor to the innovating firm seldom took place at this stage. In later stages of radical innovation processes, however, we identified purposive non-pecuniary inflows of knowledge in several of the examples presented during the interviews. During the development of the themed accommodation concept mentioned above, for example, firm H decided to involve existing and prospective customers as participants in focus groups. This involvement was valuable and affected the final service design in many ways, as explained by the firm's CEO:

'After we had decided to invest in this project, after the initial conceptual phase, we travelled around in Norway to present our new concept to invited focus groups. The focus groups consisted of an existing customer base and some who had not been customers before. Between 12 and 20 people participated at each location (...). And first I presented what we had planned to do (...). Then I said to the focus group members: now you can have five minutes to tell why you think this is great (...). Thereafter we spent an hour together to discuss what was wrong with the concept. (...) And the results of this exercise were very informative. The results made me change the design of the apartments (...), in part because I realised that a lot of single parents travel alone with their children (...). The changes I made were a direct consequence of the focus group interviews (...).'

Although non-pecuniary inflows of knowledge during these processes seemed to come most commonly from customers, informants also provided a few examples of such inflows from other firms in the value network. Our findings suggest that this often happened when collaboration with other firms was necessary to deliver the new service. For example, the informant from firm M (cruise and transport shipping firm) explained how they developed a new experiential service (perceived to have a high degree of newness) together with another firm:

'I can mention an example of a new experiential service we have developed for the German market. (...) To increase the number of German travellers we decided to collaborate with [anonymised], and we developed a new experiential service together that we called [anonymised]. (...) Our partner provided us with a lot of insight about their customers, which we used during the development of this new experiential service.'

The CEO of Firm A (hotel chain) provided another example illustrating a similar practice when they developed a new experiential service (perceived to have a high degree of newness):

'After we decided what concept we wanted to offer, we sat down with a partner, in this case the provider of the specific experience product, and then we discussed how this concept could be realized in practice. (...) In this dialogue the partner came up with concrete ideas, while we came up with many requirements related to availability, service quality, safety and so on (...). Our requirements can often be a challenge for smaller players (...).'

The practices related to non-pecuniary inflows of knowledge during incremental new service development processes differed somewhat from those related to inflows during more radical service development. Although the incremental processes were very open in the early idea search stage, as described above, they were more closed during the development and implementation stages. For example, when explaining how firm E had developed a new food concept (perceived to have a low degree of newness), one of the firm's hotel managers stated:

'After we had decided to go for this new food concept, the course and conference manager, the chef, the restaurant manager and I worked together. Only the four of us worked on it. (...) We talked about it and the chef made some suggestions, and we tasted and adjusted. But we did not involve anyone else during this process. Not until the new concept was launched (...).'

Pecuniary inbound open innovation (acquiring)

During the interviews, informants provided some examples of purposive pecuniary inflows of knowledge. In some innovation processes that were perceived to be radical, knowledge was acquired from suppliers, consultants, and research institutions to solve explicit problems during the development process. For example when we asked the CEO of firm H how they were able to find members for the focus groups used during the development of the previously mentioned new themed accommodation concept, he stated:

'We did this in cooperation with a consultant named [anonymised]. He was an expert in loyalty development (...). So, he was given access to our customer databases (...) and based on the information in the databases he was able to identify a sample of customers who should be invited to participate in focus groups (...).'

Firm E also acquired external knowledge when they developed a new conference concept. A hotel manager explained:

'When the new concept gradually began to be pretty clear, we came to the conclusion that we needed to collaborate with an external party which can in a way certify us and give us advice (...). And then we decided to make an agreement with [anonymised], and we have had a good collaboration with them (...).'

Strikingly, few pecuniary inflows of knowledge of this kind were identified in innovation processes that informants perceived to have low degrees of newness.

Non-pecuniary outbound open innovation (revealing)

Our findings suggest that tourism firms occasionally purposively revealed internal knowledge to external actors, with the intention to accelerate these actors' innovation. This practice may be illustrated with the following statement from the informant from firm M:

'Since a lot of the tourists that come to Norway travel with our ships we have a lot of detailed insight about what tourists travelling to Norway need and request. We are very willing to share this information with firms that are providing experiences for tourists in Norway so that these firms are able to improve their products and services. We believe that in the long run both we and they will benefit from this since better experiential services will generate more satisfied customers which in turn will result in more repurchase.'

In the examples identified during our interviews, firms sharing knowledge with external parties were not paid directly. However, informants expressed the expectation that the sharing of knowledge would result in increased sales for both parties in the long term. This may be illustrated with the following statement of the same informant from firm M:

'We do not share what we know with everyone. We have to be sure that the party receiving the knowledge is able to use this knowledge to actually innovate and improve its products. If we are not sure about this we will neither share nor collaborate. We do not want our brand to be associated with firms that do not deliver what the customers expect.'

Pecuniary outbound open innovation (selling)

We identified no example of a tourism firm in our sample selling knowledge to an external party.

DISCUSSION

We started this paper by asking the research question: *what types of open innovation practice are utilised during the development of new tourism services?* Based on a review of the open (product) innovation literature, Dahlander and Gann (2010) identified four types of open innovation practice: 1) inbound non-pecuniary, 2) inbound pecuniary, 3) outbound non-pecuniary, and 4) outbound pecuniary.

In our interview data, we identified the first three types of open innovation, but we were not able to identify an example of outbound pecuniary open innovation. Research has suggested that outbound pecuniary open innovation is an important opportunity for manufacturing firms that aim to benefit from their R&D activities (Huizingh, 2011). However, traditional service firms have seldom been included in empirical studies of outbound pecuniary open innovation. Previous empirical research has suggested that the intangible nature of services complicates modularisation (de Brentani, 2001; Aas & Pedersen, 2013), and conceptual research has suggested that this implies that the identification of tangible knowledge modules that may be sold in outbound pecuniary open service innovation processes may be difficult (Aas & Pedersen, 2016). Thus, given the characteristics of services in general, and tourism services in particular, it may not be surprising that we are unable to find examples of outbound pecuniary open innovation in tourism. In fact, our findings confirm the ideas of prior conceptual research (e.g., Aas and Pedersen, 2016). Thus, we offer proposition (P) 1:

P1: It is difficult for tourism firms to sell outflows of knowledge to external actors in pecuniary outbound open innovation processes.

However, we found several examples of non-pecuniary outflows of knowledge in our cases. In particular, our findings indicate that tourism firms decided to share internal knowledge with other tourism firms when both parties would benefit in the long run. Previous researchers have argued that the existence of incentives is a success factor for outbound non-pecuniary open innovation (Henkel, 2006; West & Gallagher, 2006). Although the relevance of outbound non-pecuniary open innovation has been given limited attention in prior tourism innovation research, research has suggested that tourism firms in a given region typically have natural interdependencies because they share the same customers (Fosse & Normann, in press). Thus, from a conceptual viewpoint it may be argued that tourism firms in this network often have long-term incentives for sharing knowledge with each other, even when the allocation of a monetary value to a specific knowledge outflow may be difficult. Our findings contribute to the current understanding by providing empirical evidence to this conceptual idea. Hence, we offer P2:

P2: Tourism firms reveal knowledge to other tourism firms when the firms providing the knowledge and those receiving it will both benefit in the long run.

Our findings suggest that the tourism firms in our sample utilised pecuniary and non-pecuniary inflows of knowledge during their service innovation

processes. This finding confirms the findings of prior empirical research on innovation in tourism (Hjalager, 2010). However, our findings also supplement the findings of prior research considerably by showing that the stage of the innovation process at which inflows of knowledge were used varied systematically with respect to whether the innovation process was perceived to be incremental or more radical. We used informants' perceptions of whether innovations were radical or incremental, although more formal definitions of these concepts exist in the innovation management literature (Henderson & Clark, 1990; Gallouj & Weinstein, 1997). Gallouj and Weinstein (1997), for example, define a radical new service as a simultaneous change in the service, technical, and competence dimensions. Whether all innovations perceived to be radical by our informants comply with such a strict definition is questionable. Nevertheless, we argue that the informants' perceptions reflect whether specific innovations had high or low degrees of newness.

External sources were utilised to some degree in the early idea-identification stages of the innovation processes perceived to be radical, but very indirectly, as sources of inspiration. Concrete ideas and opportunities were specified internally in most cases. Thus, firms in our sample rarely utilised *purposive* inflows of knowledge at the front ends of innovation processes perceived to be radical. Compared with previous research, this finding is somewhat surprising. Previous reports have suggested that external actors, such as users (Skiba, 2009), can be sources of radical new ideas in the service sector. We suspect, however, that our finding may be explained by the specific characteristics of tourism services, which are arguably always co-created (Zeithaml et al., 1985; Gustafsson et al., 2012). Thus, the development of radically new ideas may require possession of in-depth insight about internal firm characteristics, such as employees' skills and the firm's vision and financial resources, as well as about market and customer characteristics. Internal firm employees may be more likely than external actors, such as customers, to possess this combination of insights.

However, in the later stages of (perceived) radical development processes, our findings suggest that firms often made use of purposive inflows of knowledge. Detailed insight and knowledge from existing and prospective customers, as well as external firms (e.g., consultancy firms), were used to design and develop radical new services. This practice may be explained by the concrete and tangible nature of the external knowledge needed during the development process, compared with that needed at the front end; such knowledge can be acquired from or revealed by external actors. Inflows of knowledge from other firms (e.g., consultants) were typically pecuniary, whereas those from customers were typically non-pecuniary. The reason for this difference may be that customers have 'self-interest' in participating in

the development process, as they are future users of the new service. We thus offer P3:

P3: When radical new tourism services are developed, pecuniary and non-pecuniary purposive inflows of knowledge are utilised more typically during the development stage than at the front end of the innovation process.

Inflows of knowledge were also used during innovation processes perceived to be incremental. However, our findings indicate that knowledge from external parties was typically utilised at the front end of incremental service innovation. This finding is perhaps not surprising, as customers are particularly qualified to make suggestions for improvement of the services they are experiencing. As customers have ‘self-interest’ in service improvement, the typically non-pecuniary nature of these inflows of knowledge is not surprising. We found limited use of inflows of knowledge in the later stages of incremental service innovation processes, perhaps due to the low complexity of existing service improvement compared with the development of a completely new service. We thus offer P4:

P4: When new incremental tourism services are developed, non-pecuniary purposive inflows of knowledge are typically utilised at the front end of the innovation process.

The four propositions are summarised in Table 2.

Table 2. The utilisation of open innovation types during new tourism service development

	Inbound	Outbound
Pecuniary	Utilised in the development stage of radical innovation processes (P3)	Difficult to utilise (P1)
Non-pecuniary	Utilised in the development stage of innovation processes (P3, P4) and at the front end of incremental innovation processes (P4)	Utilised when the actors providing and receiving the knowledge benefit in the long term (P2)

CONCLUSIONS

This paper has empirically explored the types of open innovation practice utilised during service innovation processes in tourism. The findings suggest that pecuniary and non-pecuniary inflows of knowledge are utilised. However, the stage of the innovation process during which inflows of

knowledge were utilised varied systematically with respect to whether the process was perceived to be incremental or more radical. The findings also showed that tourism firms reveal knowledge to other tourism firms in non-pecuniary outbound open innovation processes. No example of pecuniary outbound open innovation was identified in our study. Thus, we argue that pecuniary outbound open innovation may be difficult for tourism firms to utilise. These findings may be of assistance for managers of tourism firms aiming to utilise open innovation, as they may aid decisions about what types of such innovation to implement.

We believe that we were able to identify typical open innovation practices implemented by tourism firms by purposely selecting innovative tourism firms and by using a qualitative in-depth approach. Tourism represents the subsector of service delivery characterised by intangibility, heterogeneity, inseparability, and perishability, and we believe that the findings are applicable to other firms delivering services with the same characteristics. Nevertheless, due to the limitations with qualitative studies we were not able to test this suggestion. Due to this limitation, and due to the fact that recent research has indicated that the characteristics of services, as well as those of innovation practices, differ considerably among service subsectors (Kuester et al., 2013), we suggest that future research examine the propositions offered in this paper empirically in other service subsectors. Continued exploration of different types of service firm and empirical examination of the propositions offered in this paper will enhance our understanding of open service innovation practices.

Another more general limitation with non-experimental research, such as this study, is that it is only able to describe and evaluate present practice (e.g., Gerring and McDermott, 2007). Thus, based on our study we were not able to discuss whether alternative open innovation practices would be more beneficial for the case organisations. We therefore suggest that future research should investigate whether firms could also benefit from the implementation of other types of open service innovation practices than identified in our study.

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Appendix A – Interview guide

- 1) What are your background and your role in the organisation?
- 2) Please give some examples of new or improved services introduced recently by your firm.

- 3) Can you please select two new services introduced recently by your firm, and for each service explain a) where the idea came from (internal or external; if external, did you pay for it?), b) why the firm decided to invest in the development of the new service, c) how the development process was organised (did you collaborate with external parties?), d) what kinds of tool were used during the development process (e.g., social media, ICT tools), and e) how you measured the results of the development process?
- 4) Are the managerial practices related to the processes described in the previous question typical for the management of innovation processes in your organisation?
- 5) If possible, please give some examples of new or improved services introduced lately by other firms, where your firm has participated in the development.
- 6) Can you please select two new services introduced by other firms, where your firm has participated during the development process, and for each new service explain a) why you participated, b) how you participated (what was your role?), c) whether the innovating firm paid for your assistance, d) what kinds of tool were used (e.g., social media, ICT tools), and e) how your was participation evaluated?
- 7) Are the practices described in the previous question typical when your firm participates in other firms' innovation processes?

Abstract (in Polish)

Większość badań empirycznych związanych z otwartymi innowacjami koncentruje się na rozwoju nowych produktów fizycznych w branżach produkcyjnych. Natomiast innowacyjność otwartych usług nie została odpowiednio zbadana. Usługi mają pewne cechy, które odróżniają je od produktów fizycznych, które mogą mieć wpływ na rodzaje praktyki otwartej innowacji wykorzystywanych w procesach innowacyjnych usług. Usługi turystyczne obejmują podzbiór usług, który jest istotnie różny od produktów materialnych. Dlatego badanie, jak firmy wykorzystują różne rodzaje turystyki w praktyce otwartej innowacji oferuje cenną możliwość poznania charakteru praktyk innowacyjnej usługi otwartej. Tak więc, artykuł ten odpowiada na następujące pytanie badawcze: jakie rodzaje praktyki otwartych innowacji wykorzystywane są w trakcie opracowywania nowych usług turystycznych? Jakościowe podejście z wykorzystaniem studium przypadku użyto tutaj, aby odpowiedzieć na pytanie badawcze. Odkrycia sugerują, że materialne i niematerialne napływy wiedzy są wykorzystywane w procesach innowacyjnych usług w turystyce. Jednakże etap procesu innowacji, w którym zostały wykorzystane wpływy wiedzy zmienia się systematycznie w odniesieniu do tego, czy innowacja jest postrzegana jako przyrostowa lub bardziej radykalna. Wyniki wskazują również, że firmy turystyczne ujawniają wiedzę innych firm turystycznych wywodzących się z niematerialnych, otwartych procesów innowacyjnych. Jednak żaden z przykładów praktyki otwartej innowacji o charakterze niematerial-

nym nie został zidentyfikowany w tym badaniu. Implikacje dla zarządzania i dalszych badań są omówione w artykule.

Słowa kluczowe: *innowacje usług, rozwój nowych usług, otwarte innowacje, zarządzanie turystyką.*

Biographical note

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The Relation between CSR and Innovation. Model Approach

Dawid Szutowski¹ and Piotr Ratajczak²

Abstract

The paper attempts to fulfil the research gap concerning the mutual relation between company innovation and its corporate social responsibility practices, by determining the conditions in which the innovation/CSR relation appears and develops. The research was based on systematic literature studies performed using SALSA and backwards-snowballing methods. The data was examined with the use of the meta-synthesis approach. The authors' model explaining the studied relation was proposed. The research suggested that the impact of innovation on the CSR practices depended on the type of innovation and degree of novelty involved; while the way CSR affected innovation depended on such CSR features as: type of reaction, degree of development, and field of activity. The relation was also moderated by a series of six exogenous factors: external factors, industry, company characteristics, attitude, performance, and R&D.

Keywords: *innovation, corporate social responsibility, CSR.*

INTRODUCTION

The growing importance of corporate social responsibility (CSR) and its impact on a company's value is perceived as a shift in a management paradigm (Porter and Kramer, 2011). Fatemi and Fooladi (2013) went further, arguing that companies, which did not take into account the needs of all stakeholders, experienced a gradual destruction of their market value. Linking the financial performances of different companies with CSR has already been introduced in the literature in the 1980s and less explicitly even earlier (Carroll, 1999). Nevertheless the relation between CSR and innovation has gained academic attention only over the last decade (Rexhepi, Kurtishi & Bexheti, 2013). Innovation was made a key to understanding the linkage between CSR and a company's social and financial performance (Visser, 2010). Nidumolu,

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Prahalad and Rangaswami (2009) pointed out conclusively that CSR is a fundamental driver of innovation. European Commission (2006) argued that CSR may contribute to sustainability development and simultaneously increase corporate competitive potential by stimulating innovation.

Scientific evidence exists, that companies strong in CSR compliance were in most cases highly innovative. Moreover Rexhepi, Kurtishi and Bexheti (2013) argued that nowadays CSR and innovation are the foundation of business competencies. Despite the growing academic attention to the relationship, there is still a substantial lack of knowledge on the conditions in which the innovation/CSR relation appears and develops. Although the positive impact of environmental mandatory regulations on innovation was well studied and proven, the relation between CSR (embracing all its aspects - not only environmental and obligatory) and innovation was not documented (Lockett, Moon & Wayne, 2006). Wagner (2010) indicates that from a theoretical standpoint many academics accept the existence of the relationship between CSR and innovation but empirical research is rarely available and covers only one direction, i.e. the effect of CSR on innovation. MacGregor and Fontrodona (2008) recognized the relationship as a vicious circle that eventually leads to the firm integration between CSR and innovation in the path of a company's maturity.

The theoretical approach towards the corporate social responsibility evolved for at least several decades becoming a multidimensional concept. This is one of the reasons why the link between CSR and a company's value is so ambiguous. Moreover, the evolutionary direction of the CSR concept indicates that CSR and innovation should be studied together. The relevance of the relation between CSR and innovation streams from the public sector (European Commission, 2001, 2006, 2011; Norwegian Ministry, 2009) which corresponds to the broader academic discussion about interdependencies between sustainability performance, business competitiveness and economic performance.

There are theoretical, as well as empirical, papers concerning innovation and CSR although the research indicated that there are only a few models explaining the studied relation. Therefore the present study aimed at determining the conditions in which the innovation/CSR relation appears and develops.

The research was based on a systematic literature review with the use of SALSA - Search, Appraisal, Synthesis, Analysis (Booth, Papaioannou & Sutton, 2012) and backwards-snowballing (Jalali & Wohin, 2012) methods. The data was integrated using the meta-synthesis approach (Walsh & Downe, 2005). The method's interpretative (rather than aggregating) character resulted in translating by each other the data streaming from studied publications.

As a result of the present research, the conceptual model was proposed. It represents the mutual relation between CSR and innovation. The model covers such endogenous variables as innovation type and degree of novelty involved, and such CSR features as: type of reaction, degree of development, and field of activity. At the same time, it contains six moderating variables: external factors, industry, company characteristics, attitude, performance, and R&D. The R&D variable has an effect only when the impact of CSR on innovation is considered. The model is delivered in graphic form. It may constitute a conceptual framework for further empirical studies.

The paper is structured as follows: the conceptual framework is focused on innovation, CSR and their relation. The methodology section presents the methods and approaches used in the research. The results section summarises the findings and delivers the model. The paper terminates with a discussion and conclusion.

LITERATURE REVIEW

Today's companies operate in a rapidly-changing environment (Gunday, Ulusoy, Kilic & Alpkın, 2011). Such a background forces them to constantly seek for new solutions guaranteeing gaining or maintaining a competitive advantage. In light of this, innovation is crucial and inevitable for every entity. Also nowadays companies seem to favour socially responsible solutions. According to scientific evidence social responsibility positively influences a company's performance inter alia by improving its reputation (Lou & Bhattacharaya, 2006). Therefore it seems essential for companies to stimulate the synergic effects between the two concepts.

Nowadays, the notion of innovation refers to the process of implementing positive and new ideas into business practice (Szutowski, 2016). Innovation represents a significant component of a company's strategy as it determines the direction of the firm's evolution (Siguaw, Enz, Kimes, Verma & Walsh, 2009). Furthermore its role in stimulating market value increase is well documented (Rubera & Kirca, 2012). The definition of CSR was formulated as "the responsibility of enterprises for their impacts on society" with the aim of "maximising the creation of shared value for their owners/shareholders and for their other stakeholders and society at large" (European Commission, 2011, p. 6). Thus the connection between the two concepts seems to be established based on the value maximization principle.

In relation to the previous definitions of CSR (European Commission, 2001) the most important shift lies in the purpose of CSR that appears to be value maximisation achieved by the introduction of innovative products, services and business models. By and large the scientific community seems

to reject a philanthropic or marketing attitude to CSR and follows the trend developed in recent years that CSR needs to be linked to the modification of business models and concentration on innovation (Visser, 2010). In other words, companies should implement innovative production to transform the impact of its business activities on society.

Innovation may occur in every field of business activity, which results in its strong diversity. The most common approach of classifying innovation is perhaps the one proposed in the Oslo Manual (OECD & Eurostat, 2005). It covers four types of innovation: product, process, organisational and marketing, each of which is marked by socially responsible aspects differently. While the principal benefit of new socially responsible products seems to be increased consumer satisfaction, the main advantage of new socially responsible processes manifests through the reduced use of resources and cost cutting (Tidd, 2001). Also new organisational structures, which involve improved working conditions, are better received by the staff. The second basic classification of innovation covers the degree of novelty involved in it. Such classification consists of three categories: incremental, new to the company and radical innovation (Tidd, Bessant & Pavitt, 2005). From the point of view of social responsibility radical innovation seems to entail most advantages as its effects spread over both the company and its surroundings.

Although the classifications of CSR tend to be strongly diversified, the tendency to highlight the importance of innovation is strongly marked in the contemporary papers. Halme and Laurila (2008) concluded that there are three types of CSR: philanthropic, integration and innovation. The philanthropic type of CSR puts the emphasis on sponsorships, charity and employee voluntarism. The integration type concentrates on conducting existing business operations more responsibly. The innovation type underlines the meaning of new business models for solving social and environmental problems. Even though on the semantic level only this type refers to innovation, philanthropic and integration CSR may both entail innovative solutions improving their efficiency. Furthermore, Visser (2010) described five stages of CSR: defensive, charitable, promotional, strategic and systemic. The presence of innovation as a driver of CSR, concerns mainly the strategic and systemic CSR stages. Company systematic dedication to social responsibility impacts strongly on innovation, for it entails regular and orderly improvements supported at the strategic level. Torugsa, O'Donohue and Hecker (2013) distinguished reactive and proactive CSR. In relation to innovation, proactive CSR constitutes the clue as it concerns improvements in company principal activity. Reactive CSR on the other hand involves minimizing negative effects, which rarely is the core activity and constitutes a necessary burden.

On the one hand the growing importance of CSR and innovation is reflected through the growing number of reports on social, environmental and research activities. On the other hand the relation between a company's corporate social responsibility and its innovation performance seems to be the domain of academia, rather than business practice. The development of synergic effects through the conduct of CSR and innovation activities seems to be impeded by the lack of knowledge on the conditions in which the innovation/CSR relation appears and develops. That is one of the reasons why modelling the link between CSR and innovation is of vital theoretical and practical importance.

The first important research gap concerns the conditions in which the innovation/CSR relation appears and develops. It seems that in the current state of knowledge further advancements are impeded by the lack of firm conceptual elaboration on the studied relation. The second one concerns the lack of a comprehensive, conceptual model presenting the relationship between innovation and CSR. Despite fragmentary evidence, performed in different contexts and only indirectly referring to it, a firm attempt to model the relationship seems to be still missing. There is scarce conceptual and empirical evidence of the existence of the relationship. In this context it seems necessary to continue the scientific discussion on the innovation/CSR mutual relation.

RESEARCH METHODS

The present research is aimed at determining the conditions in which the innovation/CSR relation appears and develops. Moreover it attempts to model the relationship between innovation and CSR. The research relied on the systematic literature review performed using the SALSA method (Booth, Papaioannou & Sutton, 2012). Moreover the use of a backwards-snowballing approach (Jalali & Wohin, 2012) enabled the inclusion of breakthrough and influential works. The meta-synthesis approach (Walsh & Downe, 2005) underpinned the synthesis and analysis of the data. The search encompassed Scopus – a comprehensive scientific database covering academic articles published in nearly 22000 journals. The search strategy was determined in a preliminary study (Szutowski & Ratajczak, 2016). The whole procedure is presented in Figure 1 accompanied by a descriptive component.

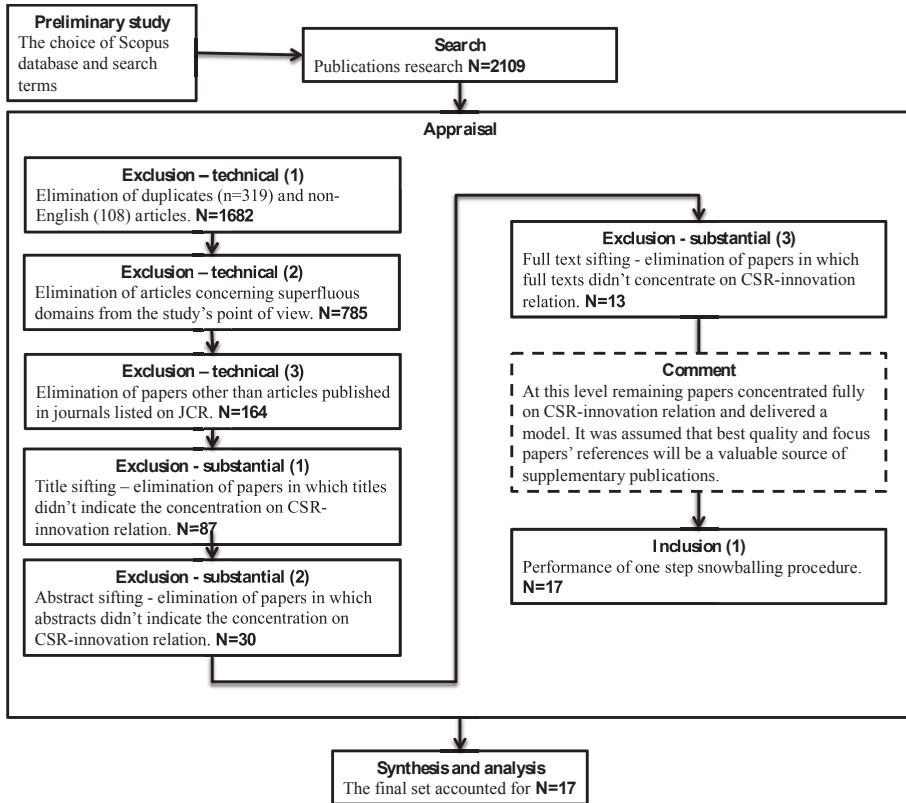


Figure 1. The strategy of literature review

The database was searched using different combinations of the following terms: innovation, novelty, improvement, social responsibility, CSR and sustain. The research was limited to papers published between January 2000 and August 2016 (inclusive) and to the subjective areas of social science, business, management and accounting, and economics, econometrics and finance. Both English and American spellings were complied. Search terms were researched in titles, keywords and abstracts. The procedure resulted in identifying 2109 papers.

The appraisal procedure was divided into two parts: exclusion and inclusion. The first part aimed at choosing the papers most suitable for research from the set. The second part aimed at supplementing the set of chosen articles by the influential works named in the reference sections.

The exclusion procedure was divided into two parts – technical and substantial. It was performed to assure the suitability of individual studies for

the research. Firstly the duplicates and non-English papers were eliminated (n=427). Secondly, all papers from the domains beyond the authors' interest were eliminated (n=897). The remaining publications belonged to such domains as: business, management, accounting, economics, econometrics, finance, and general social science (eliminated ones included computer science, medicine, engineering etc.). Thirdly, only publications released in journals listed on Journal Citation Report by Thomson Reuter's were taken into consideration. At this step of the literature review 164 papers remained.

The substantial part consisted of three siftings: title sifting, abstract sifting and full text sifting. Firstly, the titles were reviewed to eliminate publications that do not concentrate on the studied relation (n=77). Secondly, in-depth sifting based on the abstracts was performed eliminating unsuitable papers (n=57). Thirdly, the full text of the remaining papers was studied in detail. At this step, 17 papers were eliminated, leaving 13, which fully concentrate on the studied relation, for further analysis.

In order to fully exploit the determined set of articles, a check of references was performed using the procedure of one-step backwards snowballing (Jalali & Wohin, 2012). It was assumed that the references of the papers will be a valuable source of supplementary publications as (1) widely accepted publications should include good quality references and (2) the 9 texts concentrated on the studied relation. The procedure allowed incorporating 4 supplementary publications described as breakthrough and influential works. Thus finally the set of analysed papers counted for 17 publications.

The last steps of the literature study relied on content analysis. The relations between innovation and CSR reported in particular papers were compared, and explained one by the other using the meta-synthesis approach (Walsh & Downe, 2005). The data was synthesised in a table form. The breakdown into dependent and independent variables was delivered. The analysis of the research material allowed the indication of the determinants of a company's CSR-driven-innovation and innovation-driven-CSR as well creating the model explaining the relation between a company's CSR policy and its innovativeness. The last two steps in the SALSA method are described in detail in the next part of the paper.

ANALYSIS

As a result of the systematic literature review, 17 papers with models containing innovation and CSR variables were identified. However, only eleven papers delivered a clear breakdown into dependent and independent variables, and could be included in the meta-synthesis. Further investigation concentrated on these eleven papers. The data was synthesised and presented in the Table 1.

Table 1. Models explaining the innovation/CSR relation

Author (s)	Model type	Independent variables	Dependent variables
Husted & Allan (2007)	Mathematical	NGO salience, Government salience, Social responsibility orientation, Progressive decision-making orientation, Employees number, Industry	Social strategic positioning, Social strategic planning
Gonzalez-Padron, Hult & Calantone (2008)	Mathematical	Ethical climate	Entrepreneurial innovation
Wagner (2010)	Mathematical	Corporate social performance, R&D, Tobin's Q, Sales, Quality management system	Innovation with high social benefits
Alvarez, Lorenzo & Sanchez (2011)	Mathematical	CSR practices, Sector, Company's size and risk (1 st model);	Innovation (1 st model);
		Innovation, Sector, Company's size and risk (2 nd model)	CSR practises (2 nd model)
Bocquet, Le Bas, Mothe & Pousing (2013)	Mathematical	CSR profile, Plans to adopt CSR, Organizational innovation, R&D activity; Employees number and education level, Product length of the life cycle, Market competition, Sector, Presence in the group	Product innovation, Process innovation
McWilliams & Siegel (2000)	Mathematical	Financial performance	CSR, Size, Risk, Industry, R&D expenditures, Advertising intensity in the industry
Kim, Brodhag & Mebratu (2014)	Mathematical	CSR dimensions, Company's age, Employees number, Sales, EBITDA, Enterprise value, Stakeholder effect, Industry, Region (1 st and 2nd model);	Capex (1 st model);
		Capex, R&D, Company's age, Employees number, Sales, EBITDA, Enterprise value, Stakeholder effect, Industry, Region (3 rd model)	R&D (2 nd model); CSR (3 rd model)
Miles, Munilla & Darroch (2008)	Visual	Product, Process, Strategy, Domain and business model innovation	Social accountability, Economic performance, Environmental management
Pana (2013)	Descriptive	Planning, a study of the field, resources, competencies, consultations, anticipation of obligatory steps, periodical evaluation, anticipation of critical points, risk factor, flexible strategies, elaborated models, results, forecasting outcomes, planning the continuity of innovation	Social efficacy
Hoivik & Shankar (2011)	Descriptive	Implementing CSR as a network-based approach, cooperation in cluster, competition in cluster	Innovation
Alvarez, Mariluz & Macias (2015)	Descriptive	Flexibility, ability to adjust to unforeseen circumstances, openness and communication efficiency	CSR policies

Eleven studied papers delivered 14 models explaining the studied relation. All the models included both innovation or CSR dependent and independent variables. As the models were different, but interrelated, a method of data integration was necessary. In the present research the whole set of variables was integrated using the meta-synthesis approach (Walsh & Downe, 2005). The method's interpretative (rather than aggregating) character resulted in translating the models by each other. The procedure allowed the identification of six exogenous moderators of the relation between innovation and CSR: external factors, industry, company characteristics, attitude, performance, and R&D (which moderates only the impact of CSR on innovation). Moreover, the performed literature studies indicated that the analysis of the relation under investigation should cover not only exogenous, but also endogenous factors. Therefore it was confirmed that specific features of the innovation and CSR themselves affected the studied relation.

The meta-synthesis confirmed that the relation between innovation and CSR is mutual. Thus, both variables have an influence on each other. The procedure resulted in affirming that the relation is determined by the features of innovation and CSR themselves and moderated by a set of exogenous factors. The results of the analysis can be visualised on the graphic model – Figure 2.

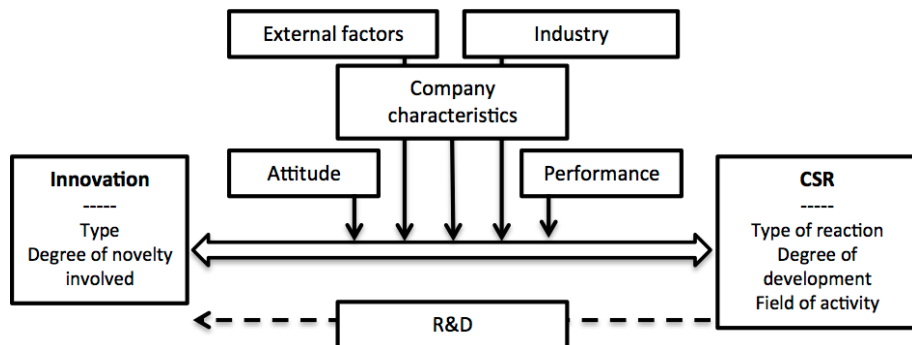


Figure 2. The model of innovation-CSR relation

The above model represents graphically the relation between innovation and CSR. It introduces the multi-typology analysis. Five exogenous factors moderate the relation in both directions, and the R&D variable has an effect only when the impact of CSR on innovation is considered. The group of endogenous variables includes two basic features of innovation and three basic features of CSR.

The endogenous features of innovation were represented by its type (I_T) and degree of novelty involved (I_DNI). Such division resulted from previous research (Szutowski, 2016). First, the innovation should be divided into five separate groups covering product, process, marketing, organisational and distributional innovation. Second, three groups should be extracted: radical (new to the market), new to the company, and incremental (minor improvements) innovation.

The endogenous features of CSR covered the type of reaction (CSR_R), degree of development (CSR_D), and field of activity (CSR_F). The first variable divides CSR activities into proactive and reactive. This typology reflects whether a company acts to prevent some harmful events connected with the environment or society or reacts after they happen. The second variable consists of five separate types of CSR covering defensive, philanthropic, marketing, strategic and systemic CSR (Visser, 2010). The second typology reflects a way of development that a company can go through in terms of CSR. The third variable reflects the fields of CSR activity and embraces social, environmental, ethical, human rights and consumer concerns (European Commission, 2011).

As it was stated above, the model includes such six exogenous factors: industry, company characteristics, performance, attitude, external factors, and R&D; all of which may be operationalized in different ways. Therefore the main explanations of the consecutive variables delivered in the studied set of articles are presented below:

The industry variable (IND) stood for the industry in which a company operates.

Company characteristics (CHA) included four variables: a company's size, age and such soft qualities as ability to plan efficiently the continuity of change and ability to adjust to unforeseen circumstances.

Company performance (PER) covered three variables: EBITDA, the value of sales, and company's market value.

The attitude variable (ATT) represented either a company's attitude towards innovation, or towards CSR, depending on the direction of the relation under investigation.

External factors (EXTF) included three variables: the market competition, membership in a group of companies and competition in cluster.

R&D intensity (R&D) was a unique variable, which affected the relation in only one direction (when the CSR affected innovation), and was represented by the company's R&D spending divided by its sales.

The model implied that the innovation-driven-CSR and the CSR-driven-innovation depend on different endogenous variables, and slightly different exogenous factors. Despite the graphic form, innovation and CSR can be

presented as functions of the abovementioned variables. Therefore the two functions, which represent the model, were proposed:

$$I = f(\text{CSR_R}, \text{CSR_D}, \text{CSR_F}, \text{EXTF}, \text{IND}, \text{CHA}, \text{ATT}, \text{PER}) \quad (1)$$

$$\text{CSR} = f(I_T, I_DNI, \text{EXTF}, \text{IND}, \text{CHA}, \text{ATT}, \text{PER}, \text{R\&D}) \quad (2)$$

Model 1 can be empirically estimated using the following equation:

$$I_i = \beta_0 + \beta_1 \text{CSR_R}_i + \beta_2 \text{CSR_D}_i + \beta_3 \text{CSR_F}_i + \beta_4 \text{EXTF_MC}_i + \beta_5 \text{EXTF_G}_i \\ + \beta_6 \text{EXTF_CC}_i + \beta_7 \text{IND}_i + \beta_8 \text{CHA_S}_i + \beta_9 \text{CHA_A}_i + \beta_{10} \text{CHA_P}_i \\ + \beta_{11} \text{CHA_U}_i + \beta_{12} \text{ATT}_i + \beta_{13} \text{PER_EBITDA}_i + \beta_{14} \text{PER_S}_i + \beta_{15} \text{PER_MV}_i$$

Model 2 can be empirically estimated using:

$$\text{CSR}_i = \beta_0 + \beta_1 I_T_i + \beta_2 I_DNI_i + \beta_3 \text{EXTF_MC}_i + \beta_4 \text{EXTF_G}_i + \beta_5 \text{EXTF_CC}_i + \beta_6 \text{IND}_i \\ + \beta_7 \text{CHA_S}_i + \beta_8 \text{CHA_A}_i + \beta_9 \text{CHA_P}_i + \beta_{10} \text{CHA_U}_i + \beta_{11} \text{ATT}_i \\ + \beta_{12} \text{PER_EBITDA}_i + \beta_{13} \text{PER_S}_i + \beta_{14} \text{PER_MV}_i + \beta_{15} \text{R\&D}_i$$

Where:

I – company's innovativeness, *CSR* – company's CSR intensity, *I_T* – innovation type, *I_DNI* – innovation's degree of novelty, *CSR_R* – type of reaction, *CSR_D* – degree of development, *CSR_F* – field of activity, *EXTF_MC* – market competition, *EXTF_G* – being part of a group of companies, *EXTF_CC* – cluster competition, *IND* – industry in which company operates, *CHA_S* – size, *CHA_A* – age, *CHA_P* – ability to plan, *CHA_U* – ability to adjust, *ATT* – company's attitudes towards innovation or CSR, *PER_EBITDA* – EBITDA, *PER_S* – company's sales, *PER_MV* – company's market value, *R&D* – company's R&D intensity.

In the analytical form, the model was conveyed into two functions representing innovation-driven-CSR and the CSR-driven-innovation. The operationalization of the included variables was not imposed. As the authors' model resulted from the extensive literature studies, it contains the theoretically-related variables, but can still be a subject of the scientific discussion.

DISCUSSION

The research aimed at determining the conditions in which the innovation/CSR relation appears and develops. As a result of the meta-synthesis it was confirmed that the relation is moderated by a set of six exogenous factors: industry, company characteristics, performance, attitude, external factors and R&D. At the same time the research indicated that the relation depends on the group of endogenous variables covering innovation and CSR features.

The mutual relation between CSR and innovation was confirmed. The assumption that CSR is an innovation driver seems to be broadly accepted

(European Commission, 2006, 2011). Also, innovation is assumed to be the driver of CSR policy (Norwegian Ministry, 2009).

The inclusion of the industry variable in the models is a common practice, as a division on innovative and non-innovative as well as CSR-intensive and CSR-non-intensive industries was often mentioned in the literature. It remains relevant because the social problems and innovative opportunities in different industries can vary widely. For the purposes of this particular research, the authors divided industries twofold, e.g. service and manufacturing companies or controversial and non-controversial industries. Furthermore Husted and Allen (2007) and Alvarez, Lorenzo and Sanchez (2011) divided industries more precisely, taking into consideration numerous different industries. The reason for such a difference results from the focus of the particular paper.

The company characteristics were represented by company size, age and such soft qualities as ability to plan efficiently the continuity of change and ability to adjust to unforeseen circumstances. The impact of company size and age on its innovativeness or CSR activities is intuitive. Yet, companies change over time in terms of many features. As far as innovation is considered, it is worth taking notice of Pavelin and Porter (2008) which proved the positive relationship between the probabilities of innovation and firm size. Company size and age are widely used in studies concerning CSR and innovation (Lopez, Perez & Rodriguez, 2009). Although size and age of the company are the predominantly used operationalizations due to the inclusion simplicity, it seems worthy to consider different proxies as well. One of the examples is the company's risk (Alvarez, Lorenzo & Sanchez, 2011). The ability to plan efficiently the continuity of change and the ability to adjust to unforeseen circumstances indicate that the company is able to continuously realise innovation and CSR strategies regardless of threats and inconveniences.

The performance variable was represented by the company's financial results such as EBITDA, value of sales, and the company's market value. The relationship between CSR and financial performance was the subject of numerous researches (Curran, 2005). The same variables are commonly used when investigating the relationship between innovation and financial performance (Kim, Brodhag & Mebratu, 2014; Husted & Allen, 2007). According to Curran (2005) the performance variable could be represented by market measures (e.g. share price, dividend rate, etc.) or accounting measures (e.g. return on equity, net income, sales growth). Günther and Hoppe (2010) showed that about half of the studies concerning CSR and financial performance used market-based measures, one-fifth accounting-based measures and a further fifth applied a mix of measures or other

measures. The authors' model does not impose which performance variables should be used.

The attitude variable was represented either by the company's attitude towards innovation, or towards CSR. Variable inclusion was supported by literature indicating that innovation and social responsibility are mainly caused by corporate culture and management attitude (Abugre, 2014). Also, firms, which take a strategic orientation toward CSR, are more innovative (Herwina, Shamsul & Nuryusmawati, 2013). Midttun (2009) claims that a very important role in the CSR–innovation relation is played by the company's orientation towards the burning political issues of the day, e.g. climate change, alleviation of poverty, pollution or human rights.

External factors included in the model were represented by the market competition, membership in a group of companies and competition in cluster. Literature confirming that having presence in the group influences the relation between CSR and innovation is scarce. As far as market competition is considered it is the factor fostering corporate social responsibility (Flammer, 2013). Cluster internal competition stimulates both innovativeness and R&D intensity, for it forces companies to search for a competitive edge.

The R&D intensity variable is presumed to moderate the one direction of the relation when CSR affects innovation. This is because R&D intensity has a direct effect on innovation. Moreover it is often equated with innovation or treated as its proxy. The exclusion of the R&D variable from the opposite direction of the relation where innovation affects CSR is postulated in the literature, but it seems that the definitive consensus was not reached yet (Sanzo, Alvarez, Rey & Garcia, 2012).

The model presented in the articles consisted of variables that were identified in the literature focusing on the relation between CSR and innovation. The literature denying the inclusion of any of the variables was not identified. The set of variables included in the model remains open; the model was not intended to contain all the possible variables, but only the most significant ones.

CONCLUSIONS

The growing importance of both company innovation and company CSR practices, results from the high competition faced by entities operating in the contemporary market. Moreover, constant development, in association with taking into consideration the needs of all stakeholders, seems an absolute necessity. However, the interdependence between innovation and CSR still constitutes an important research gap. Therefore the purpose of the present research was to determine the conditions in which the innovation/CSR

relation appears and develops. The research relied on systematic literature studies and the meta-synthesis approach.

First, the procedure allowed the identification of six exogenous factors moderating the mutual relation: external factors, industry, company characteristics, attitude, performance, and R&D intensity (the latter only moderates the impact of CSR on innovation). Second, two main features of innovation determining their effects on CSR were indicated: type and degree of novelty involved. Third, three features of CSR important in the light of its impact on innovation were pinpointed: type of reaction, degree of development, and field of activity. Finally, the relation was presented in the graphic and functional models with a descriptive component.

The purpose of the research was achieved to a large extent. However, the study was not free of limitations. The main limitation was that the research did not indicate how to customize the variables' operationalization in order to achieve the highest informative value. The technical limitation concerned the article selection, which confined the set to the papers written in English. Moreover, the model was built on the evidence from empirical researches. However, its final form was not tested empirically. Therefore the model constitutes a starting point for in-depth studies. Further research should concentrate on the models' verification in the business environment.

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Abstract (in Polish)

W artykule podjęto próbę wypełnienia luki badawczej dotyczącej wzajemnych powiązań pomiędzy innowacjami a społeczną odpowiedzialnością przedsiębiorstw, w szczególności w zakresie warunków, w jakich ta zależność zachodzi. W badaniu posłużono się systematycznym przeglądem literatury zgodnie z metodą SALSA. Syntezę i analizę publikacji przeprowadzono przy wykorzystaniu meta-syntezy. W rezultacie opracowano autorski model przedmiotowej zależności. Wskazano, że wpływ innowacji na społeczną odpowiedzialność biznesu zależy od typu i stopnia nowatorstwa innowacji, podczas gdy wpływ społecznej odpowiedzialności biznesu na innowacje zależy od typu reakcji, stopnia zaawansowania i obszaru podejmowanych działań społecznie odpowiedzialnych. Ustalono również, że zależność pomiędzy innowacjami a społeczną odpowiedzialnością przedsiębiorstw moderowana jest przez czynniki zewnętrzne, branżę, cechy przedsiębiorstwa, motyw wydziałania, efektywność operacyjną oraz skalę działalności badawczo-rozwojowej.

Słowa kluczowe: *innowacja, społeczna odpowiedzialność biznesu, CSR.*

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Management Innovation and Its Measurement

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Abstract

The aim of this paper is to explain the nature of management innovation, as well as to propose its measurement instrument. The paper offers a review of key publications on management innovation published in research journals within the last two decades. The critical analysis – primarily focused on definitions, the proposed dimensions of management innovation and the scales used for their measurement – has allowed for the development of an original tool for measuring management innovation (MI). Five dimensions of management innovation are proposed, namely, strategic dimension, structural dimension, employee motivation and development dimension, interorganisational relations and partnership dimension, and ICT dimension. Using survey data of 301 employees from different companies in Poland, the validation of the management innovation measurement instrument was conducted. Internal consistency analysis (Cronbach's alpha) and factor analysis, used to test the statistical reliability of the tool, yielded satisfactory results. The findings of this study contribute to advancing innovation research, particularly the state of knowledge on management innovation. Implications for both research and managerial practice are also presented. The proposed five-dimension management innovation model can be used to measure the scope of management innovation in further research and develop the knowledge about links between MI and an organisation's performance or its impact on technological innovativeness. In addition this study uncovers a wide range of information on management innovation issues for interested parties and for future research.

Keywords: *innovation, management innovation, measurement.*

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INTRODUCTION

Nowadays, it is recognized that the success of an organisation and its survival, in particular a knowledge-based one, depend on creativity, innovation, and inventiveness (Martins & Terblanche, 2003). Accordingly, innovation has become the key goal of many organisations because of its potentially significant impact on organisational performance (Lee, 2008). This recognition embraces not only technological innovations, but also non-technological – organisational, marketing (Oslo Manual, 2005) and, finally, management innovations (Hamel, 2006). Management innovation is one particular type of innovation (Damanpour & Aravind, 2011), and refers to the development and implementation of new managerial practices, processes or structures (Birkinshaw, Hamel & Mol, 2008). In contrast to technological innovation, management innovation (MI) affects the “social” rather than the physical technologies of a firm (Nelson & Sampat, 2001).

Although in recent years a number of publications on management innovation have been released, the observation made in 2006, that “despite its importance, management innovation remains poorly managed and poorly understood”, is still relevant (Birkinshaw & Mol, 2006). One reason may be scarce scientific research that would not only account for the emergence of management innovations, but above all confirm their significance for and impact on technological innovations and a firm’s financial performance. Research should focus on the role of top management who probably do not have a direct influence on technological innovations (Elenkov & Manev, 2005), but they contribute to an organisation’s increased innovativeness through the development of new solutions in management.

Management innovation consists of changing a firm’s organisational form, practices and processes in a way that is new to the firm and/or industry and results in leveraging the firm’s technological knowledge base and its performance in terms of innovation, productivity and competitiveness (Volberda, Van Den Bosch & Heij, 2013). The issue of conceptualizing and operationalising management innovation is not concluded.

Therefore, a number of reasons encourage research into MI, in particular the attempts at its operationalisation and the development of a measurement tool. This paper aims to fill the gap in the existing innovation theories by creating a multidimensional approach to innovation in the area of enterprise management and proposing its dimensions, which will allow for the development of a management innovation measurement tool. This will offer an opportunity to study management innovation and its impact on the performance of enterprises in a transition economy, such as Poland.

LITERATURE REVIEW

Innovation and innovativeness in an organization

Innovations are perceived to be an important factor affecting an organisation's performance and its competitive position as well as a stimulus to economic growth. As a result, innovation has become a priority not only for corporate executives, but also for state governments and the European Union (Mothe & Thi, 2010). The significance of innovation for economic development was already recognised by Schumpeter. Although he had a comprehensive understanding of innovation and did not limit it to new products, for many years attention has been mainly focused on product or technological innovations, as highlighted by many researchers (Birkinshaw et al., 2008; Damanpour & Aravind, 2011). This has changed, however, and now most innovation researchers define innovation as the implementation of meaningful changes in an organisation, which improve not only products/services and technological or administrative processes, but also business procedures, programmes and models, which create new value for an organisation's stakeholders (Timmerman, 2009). Relatively recently, other forms of innovation, often referred to as organisational (Rahimi, Damirchi & Seyyedi, 2011), non-technological (Mothe & Thi, 2010) or soft innovation (Sundbo, Gallina, Serin & Davis, 2006), have also been recognised. The confirmation that the definition of innovation has been expanded can be found in modern definitions of innovation (Crossan & Apaydin, 2010, Adams, Bessant & Phelps, 2006) and its numerous typologies (Oslo Manual 2005, Mayle (ed.), 2006; Sundbo et al., 2006; Wickham, 2006).

Accordingly, innovativeness as a capability to generate, adapt and implement innovation (Garcia & Calantone, 2002) embraces not only technological (product and process) innovation, but also non-technological innovation understood commonly as organisational innovation and, increasingly more often, innovation in management (Mothe & Thi, 2010). The definition of innovation in management emphasises its comprehensive meaning, including management innovation. Moreover, some researchers argue that the old paradigm of industrial innovation, with technological innovation at its core, will be replaced by the new paradigm of innovation research, recognizing the importance of non-technological innovation (Volberda et al., 2013). Management innovation includes new solutions implemented in the management process, methods or structure. It is essentially the manifestation of the innovativeness of top management, i.e. their ability to generate, adapt and implement new solutions in an organisation's management.

Definitions of management innovation and their role in organizations

Our literature review concerning the interpretation of the management innovation concepts is based on the three-step approach developed by Tranfield, Denyer and Smart (2003): planning, execution, and reporting. Therefore, our methodology is that of a systematic review, the aim of which is a conceptual consolidation across a fragmented field. It uses systematic data collection procedures, descriptive and qualitative data analysis techniques, and theoretically grounded synthesis. Based on the adopted methodology, we compiled the definitions of management innovation presented in literature from 1994 in Table 1. It must be stressed, however, that the notion of management innovation itself and innovation in management under different terms appeared in literature much earlier. Our literature review confirms that:

- MI was studied under different terms (organisational, administrative) (Damanpour & Aravind, 2011; Meuer, 2013) in the past and continues to be included in other research areas, e.g. as organisational innovation (Crossan & Apaydin, 2010);
- MI definitions according to different authors seem to draw on a commonly accepted definition from Birkinshaw, Hamel and Mol (2008); according to these authors, management innovation means the invention and implementation of a novel management practice, process, structure, or technique; such innovations should aim to improve a firm's performance (Vaccaro, Jansen, Van Den Bosch & Volberda, 2012; Mothe & Thi, 2010);
- MIs are meaningfully new solutions, i.e. they have not been implemented in a particular enterprise; they can be adapted (e.g. management methods already in use in other organisations) or developed exclusively to meet the needs of a given organisation;
- attempts are undertaken to combine the two approaches – one proposed by Birkinshaw, Hamel and Mol (2008) and the other developed by the European Commission (Innobarometer, 2009), included in the third edition of the Oslo Manual (2005); this point of view is represented by Hecker and Ganter (2013), who argue that both these conceptions can be considered consistent.

Table 1. Compilation of chosen definitions of management innovation (published 1994-2014)

Original definition of management innovation	Type of innovation	Source
Pervasive and embracing process which includes research, development, and implementation of new ideas and behaviours.	OI	Damanpour (1996)
Innovation that leads to new administrative procedures, policies, and organisational structures.	AI	Gosselin (1997)
Embodying the adoption of administrative programs, processes, or techniques new to the adopting organisation.	AI	Ravichandran (2000)
New ways to organise business activities such as production or R&D, and innovations that have to do with the organisation of human resources.	OI	Edquist, Hommen & McKeilvey (2001)
Multifaceted concept that admits different interpretations and terms, such as innovation or innovative behaviour in organisations, new combinations.	MI	Lam (2005)
The implementation of a new organisational method in the firm's business practices, workplace organisation or external relations. (...) The distinguishing features of an organisation innovation compared to other organisational changes in a firm are the implementation of an organisational method (in business practices, workplace organisation or external relations) that has not been used before in the firm and is the result of strategic decisions taken by management.	OI	Oslo Manual (2005)
Innovations that refer to disembodied technology such as unpatented know-how, property rights, and management and organisation. They are new, novel organisational entities, which can be an industry structure, a firm's structure, a production form or process, or an institution in general.	OI	Sanidas (2005)
Innovation that relates to changes in how managers set directions, make decisions, coordinate activities, and motivate people.	MI	Hamel (2006)
A marked departure from traditional management principles, processes, and practices or a departure from customary organisational forms that significantly alters the way the work of management is performed.		
MI refers to an organisation adopting new technologies, new ideas and processes to change or implement in a managerial section such as computer based administrative innovations or new employee reward/training schemes.	MI	Vijande & Gonzalez (2007)
The generation and implementation of a management practice, process, structure, or technique that is new to the state of the art and is intended to further organisational goals.	MI	Birkinshaw et al. (2008)
Innovations that are related to management activities and are connected with the organisation's social system.	AI	Tanninen, Jantunen & Saksala (2008)

Original definition of management innovation	Type of innovation	Source
New or significantly improved organisational structures (e.g. knowledge management, workplace organisation or external relations).	MI	DG Enterprise and Industry (2009)
Administrative innovations are indirectly related to the basic work activity and more directly related to its managerial aspects such as organisational structure, administrative process, and human resources.	AI	Crossan & Apaydin (2010)
Implementation of a management practice, process, or structure that is new to the adopting organisation. New practices, processes, and structures that change the nature of managerial work at the firm level.	MI	Vaccaro et al. (2012)
New approaches to devise a strategy and structure in the organisation, modify the organisation’s management processes, and motivate and reward its employees.	MI	Walker, Damanpour & Devece (2011)
Innovation that reflects a functionally flexible division of labour. Within this definition, an example of organisational innovation in the workplace is the implementation of activities that increase employees’ autonomy in decision-making.	OI	Cavagnoli (2011)
MI assumes that key individuals within organisations deliberately introduce new practices, processes, or structures, in order to improve the organisation’s performance.	MI	Vaccaro et al. (2012)
MI refers to innovation in management systems, knowledge management, and supporting activities.	MI	Kraus, Pohjola & Koponen (2012)
Organizational innovation is a new or significantly improved knowledge management system intended to better use or exchange information, knowledge and skills within the enterprise, implement a major change to the organization of work, i.e. changes in management structure or integrating different departments or activities, or implement a new or significant change in relations with other firms or public institutions, i.e. through alliances, partnerships, outsourcing or subcontracting.	OI	Gallego, Rubalcaba & Hipp (2012)
The introduction of new management practices is a form of MI. This form of MI implies a change in organisation, and thus a degree of evolution.	MI	Perello-Marín, Marin-García & Marcos-Cuevas (2013)
Change in the firm’s organizational and management practices that marks a significant departure from the status quo – organisational change that is new (at least to the firm), intended to further organisational goals, and the result of strategic decision making.	MI	Hecker & Ganter (2013)

Key: AI – administrative innovation, MI – management innovation, OI – organisational innovation.

Innovations in the area of management may be one of the key factors affecting the performance and development of modern organizations,

operating in a turbulent environment. In the new era of innovation, when, characteristically, firms co-create new solutions with consumers and acquire resources from the outside (Prahalad & Krishnan, 2010), innovation management will become one of the necessary conditions for the survival of firms or an improvement in their market position, as it shapes a firm's innovation orientation (Wood, 2007; Dobni, 2010) and, consequently, allows for its implementation by developing new structural solutions and designing organisational processes and human resources management systems (Ahn-Sook, 2004), as well as looking for resources outside an organisation. We are convinced that the role of management innovation will gain in importance in the knowledge-based economy which, in the increasingly difficult conditions of globalised economies, will require firms to seek entirely new sources of competitive advantage. This involves an ability to find new business models, develop networks (also with consumers) or use new communication tools, which are perceived as an organisation's new competencies (Kraus et al., 2012). In a constantly changing environment organisations need to develop new competencies, such as adaptability, a capability to integrate and reconfigure internal and external skills and resources, referred to as dynamic competencies (Eisenhardt & Martin, 2000). Many scholars emphasise that under global competition management innovation may contribute to building sustained competitive advantage, as it is more difficult to replicate (Volberda et al., 2013). In the resource-based view, sustained competitive advantage stems from valuable, rare, inimitable and non-substitutable resources.

Innovations in the area of management – three trends

The literature review, including the definitions in Table 1, indicates that management innovation as a new management practice, process, structure, or technique (Birkinshaw et al., 2008) is not always labelled as MI. This is confirmed by Damanpour and Aravind (2011), who describe all three approaches accounting for innovation in the area of management (organisational innovation, administrative innovation and management innovation) and they use the term “managerial innovation”.

Originally, the term “organisational innovation” was used mainly by economists in order to differentiate it from technological innovation, but it also appeared in the area of management studies (Williamson, 1975; Chandler, 1962). Chandler (1962), for example, distinguished between new products and processes from a firm's new organisational structures. Edquist, Hommen and McKelvey (2001) defined organisational innovation as new ways of organizing business activity such as production or R&D, which affect the coordination of human resources. Organisational innovation defined this

way embraces, first of all, changes in organisational structures or procedures, facilitating change and growth of an organisation.

It should also be noted that the methodological findings of OECD specialists, acknowledged by many researchers (Gallego, Rubalcaba & Hipp, 2012; Hecker & Ganter, 2013; Camison & Villar-Lopez, 2014), played an important role in defining organizational innovation and understanding its meaning. The fact that organisational innovation is identified as separate from technological innovation means that its role is recognized as not only a response to technological change, but as “a necessary pre-condition for technological innovation” (Lam, 2004), which to some extent is confirmed by research results (Camison & Villar-Lopez, 2014).

At the same time, publications featured administrative innovation, which were set apart from product innovation and technological innovation, related to changes in products and production systems, implemented in order to meet the needs and expectations of customers. Administrative innovation was defined as oriented towards the effectiveness and efficiency of processes and systems used to manage an organisation (Damanpour & Evan, 1984). Bantel and Jackson (1989) emphasize that it has a positive effect on how an organisation operates and a management decision-making process works.

It is only recently that the term “management innovation” has attracted significant interest amongst scholars. The critical date was probably 2005, when Birkinshaw, Hamel and Mol (2005) published an article on such innovations in the *Advanced Institute of Management Working Papers*. Hamel classifies management innovation as a departure from traditional management principles, processes and practices or a departure from solutions universally used in organisations, which has a considerable effect on how organisations operate (Hamel, 2006). In other words, management innovations are changes in how managers work.

The change in the approach to non-technological innovation and the recognition of the role played by innovation going beyond a wide scope of technological innovation (product and process innovation, primarily concerning manufacturing technologies) are clearly illustrated by the consecutive editions of the *Oslo Manual*. In the second edition (1997) organisational and non-technological innovation are already included in the annex, while the third edition includes marketing and organizational innovation as a distinct form of innovation in a firm (*Oslo Manual*, 2005).

Dimensions of management innovation in literature

Working on the operational definition of management innovation we encounter major difficulties. The most frequently quoted definition,

proposed by Birkinshaw, Hamel and Mol (2008), can be a good example of operationalisation, presented by these scholars, who distinguished four elements (dimensions): management practices, management processes, organisational structures and techniques, reflecting different aspects of principles, rules and routines in an organisation. However, they admitted that the differences between practices, processes, structural aspects and techniques were neither conceptually nor empirically clear (2008). The precise definition of these terms (management practices, processes and methods/techniques) remains a serious challenge. Therefore, studies on management innovation and the empirical testing of developed models involve various ways of operationalisation, both in the management innovation approach (Walker et al., 2011; Birkinshaw et al., 2008) and when research deals with this type of innovation, but is conducted within a wider framework of organisational or non-technological innovation (Elenkov & Manev, 2005; Mothe & Thi, 2010). Selected examples of dimensions of management innovation and organisational innovation (including innovation in management) are presented in Table 2.

Table 2. Selected examples of dimensions of innovation in management – the last 10 years

Author	Proposed dimension	MI	OI	EV
Wang & Ahmed (2004)	Innovativeness: – strategic – process – behavioural – market – product		X	Yes
Elenkov & Manev (2005)	– new human resources development programmes – new planning systems – new control systems – created organisational units or positions – new approaches to capital resources allocation – new management information systems		X	Yes
Birkinshaw et al. (2008)	– management practices – processes – organisational structures – management techniques	X		No
Mothe & Thi (2010)	– management practices – approaches to production organisation – external relations		X	Yes
Terziovski (2010)	– innovation strategy – formal structure – customer and supplier relationships – innovation culture – technological capabilities		X	Yes

Author	Proposed dimension	MI	OI	EV
Walker et al. (2011)	– IT technologies – administrative dimension, embracing new management systems and processes	X		Yes
Damanpour & Aravind (2011)	Dimension pairs: – strategy vs. structure – innovations in forms and in procedures – information technology and administrative dimension – exploratory vs. exploitative innovations	X		No
Vaccaro et al. (2012)	– management practices (setting new rules and ensuing procedures) – management processes (changes in routine) – structures (communication methods, a scope of autonomy and decision-making competencies)	X		Yes
Hollen, Van Den Bosch & Volberda (2013)	– setting objectives – motivating employees – coordination – decision making	X		No
Hecker & Ganter (2013)	– innovation in the firm’s workplace organization – innovation in the firm’s knowledge management – innovation in the firm’s external relations	X		Yes
Camison & Villar-Lopez (2014)	– organizational innovations in business practices – innovations in workplace organization – new organizational methods in external relations		X	Yes

Key: MI – the concept is strictly related to management innovations; OI – the concept clearly embraces management innovations, which, however, belong to a wider category of organisational innovations; EV – empirical validation of the model developed by a particular author/team.

The review shows that in the last 10 years the subject has attracted a lot of interest from scholars, who unanimously indicate the necessity not only to recognize management innovation as separate from technological innovation, but also to continue research into this emerging field (Volberda et al., 2013). This, however, entails a number of problems, such as a methodological difficulty in reconciling the management innovation concept with the principles included in the Oslo Manual. Table 2 shows attempts made by some authors to combine these two approaches (Hecker & Ganter, 2013). On the other hand, as Volberda, Van Den Bosch and Heij indicate (2013), most researchers tend to apply four dimensions proposed by Birkinshaw, Hamel and Mol (2008), while empirical studies are based on different operationalisations. This is confirmed by our English-language literature review, which has identified only a few examples of empirical research into MI. Table 3 shows some examples of management innovation operationalisation and measurement, which were conducted under the term “management innovation”.

Table 3. Operationalisation of management innovation applied in empirical studies in the last 10 years (2004-2014) – identified research results/cases

Author/s	Dimensions of MI	Variables were measured using items
Mol & Birkinshaw (2009)	1/ the introduction of new management practices	1/ implementation of advanced management techniques within your firm e.g. knowledge management, 2/ implementation of new or significantly changed organisational structures e.g. diversification, 3/ changing significantly your firm's marketing concepts/ strategies e.g. marketing methods
Walker et al. (2011)	1/ information technology 2/ administrative procedures	1/ two statements concerning: - new information technologies and - new information systems for management purposes. 2/ three statements concerning: - new approaches to planning and budgeting services, - new approaches to streamlining an organisation (e.g. reengineering, TQM, quality management), - new management procedures (e.g. new job descriptions, new employee teams).
Vaccaro et al. (2012)	1/ management practices 2/ management processes 3/ organisational structure	Research tool – six items: 1/ two questions on changes in managers' activities – establishing new principles or procedures; 2/ two questions on the ways to undertake action in an organisation - changes in principles and work methods (changes in management systems) and the issue of remunerating employees; 3/ two questions on an organisational structure and the way in which organisations approach communication and information flow.
Hollen et al. (2013)	1/ setting objectives 2/ motivating employees; 3/ coordinating activities; and 4/ decision making.	1/ new-to-the-firm management activities associated with setting objectives 2/ new-to-the-firm management activities associated with motivating employees 3/ new-to-the-firm management activities associated with coordinating activities 4/ new-to-the-firm management activities associated with decision making
Hecker & Ganter (2013)	1/ innovation in the firm's workplace organisation 2/ innovation in the firm's knowledge management 3/ innovation in the firm's external relations	1/ new practices concerning the division and coordination of labour, structuring activities, and distributing responsibilities and decision making among employees. 2/ improvements in internal learning, knowledge sharing, and organizational practices evolving from the use of modern information and communication technology. 3/ new ways to organize collaboration with other firms and public institutions

METHODS AND RESULTS

Measurement of management innovation – our proposal

The starting point for the development of the management innovation operationalisation, and its dimensions and measures, may already be mentioned in a definition of management innovation created by Birkinshaw, Hamel and Mol (2008). We assume that MI embraces the management of an entire organisation or its significant areas and its effects go beyond a particular functional area (they are not restricted to one functional area, e.g. logistics or finance). Finally, we assert that this type of innovation can contribute to the increased technological innovativeness of an organisation and its improved performance (Volberda et al., 2013).

We assumed that management innovation is a multidimensional construct comprising of five dimensions, the choice of which is based on a number of modern theories concerning an organisation's innovativeness and the identified MI conceptualisations and operationalisations (Table 3). Accordingly, management innovation as a multidimensional construct comprises:

- a strategic dimension, which describes new development and competition strategies, including innovation, in particular technological (new products/services), new business models, new innovation sources;
- a structural dimension, determining a scope for the implementation of new solutions in an organisational structure, providing flexibility and adaptiveness to the conditions in which an organisation operates; new structural forms;
- employee motivation and development – the dimension concerning new methods, practices and programmes aimed at boosting employees' motivation and developing their skills and competencies (including their innovative activity);
- interorganisational relations and partnerships – the dimension describing the development and use of new forms of cooperation with different entities in the environment: suppliers, customers/ consumers, competitors, scientific institutions, etc.; the creation of open innovation models;
- an ICT dimension, which defines the scope and depth of changes implemented in the sphere of acquiring, collecting, processing and transferring information and knowledge; a new intra- and interorganisational communication tool.

Each dimension indicates the solutions that are new to an organisation and have not been used in its management so far. Below, the grounds for the choice of these dimensions are presented in more detail.

I. Strategic dimension

A number of concepts concerning organisational innovativeness inspired the choice of the strategic dimension of management innovation and its operationalisation. Walker, Damanpour and Devece (2011) emphasised that management innovation was a new approach to the development of an organisation's strategy, the design of an organisational structure, the modification of management processes and employee motivation and remuneration. The MI strategic dimension draws heavily on the Organisational Innovativeness Construct, developed by Wang and Ahmed (2004). The authors distinguish five dimensions of innovativeness: product, process, market, and behavioural and strategic innovativeness. Their concept assumes that strategic innovativeness occurs when an organisation carries out a fundamental reconceptualisation of its core business, which, in turn, leads to a dramatically different way of operating. Wang and Ahmed (2004) argue that strategic innovativeness can be linked with the development of new competition strategies, creating value for an organisation.

The choice of the strategic dimension is also supported by the typology of management innovation presented by Damanpour and Aravind (2011). The authors point out that so far no universal typology of managerial innovation has been adopted and their proposal includes, among others, strategy and structure innovation (precisely speaking, they present innovation in an organisation's strategy vs. innovation in its structure). The results of studies indicate that radical changes in a structure follow radical changes in a strategy (but not the reverse). According to Damanpour and Aravind (2011), the distinction between structural and strategic innovations may contribute to a better understanding of managerial innovations in an organisation's conduct and performance. Dobni (2010), in turn, focuses on a strong link between a strategy and innovation and points out that, developing innovation competencies, acquiring innovation-related resources and incorporating innovation goals into a strategy should be considered crucial to an organisation's innovativeness. Innovative organisations need strategies that are externally oriented – concentrated on clients, customisation and enhanced quality. The inclusion of the strategic dimension in management innovation is also partly supported by the theoretical model of the innovativeness of small and medium enterprises (SMEs) proposed by Terziovski (2010). His model comprises independent constructs of innovation strategy, formal structure, customer and supplier relationships, innovation culture, and technological capabilities, which may affect the performance of firms (Terziovski, 2010). In his model of innovativeness, an innovation strategy is an independent variable, a key driver of innovation, positively affecting a firm's performance (2010). Akman and Yilmaz (2008) on the other hand,

define an innovation strategy as a multidimensional construct, comprising, for example, an organisation's aggressive attitude towards emerging market opportunities, a capability to analyze and monitor the environment in search of opportunities, orientation towards the future, predicting future opportunities, planning innovation and others.

II. Structural dimension

The literature review reveals that a number of conceptualisations propose new organisational structures as a dimension of management innovation (Birkinshaw et al., 2008; Vaccaro et al., 2012; Walker et al., 2011). Organisational structures as a dimension of management innovation refer to how they align and harness the efforts of their members (Volberda et al., 2013). Changes in the organisational structure are perceived as the creation of new units/departments or positions (Elenkov & Manev, 2005), as the shifts in the division of tasks and responsibilities (Vaccaro et al., 2012) or other changes in communication flows or rules and procedures within an organisation (Vaccaro et al., 2012). On the other hand Hecker and Ganter (2013) refer to the Oslo Manual methodology for researching management innovation and they embrace innovations concerning workplace organisation, defined as new practices involving the division and coordination of work, the structuralisation of operations, the delegation of responsibilities and decision-making competencies to employees. In another approach, Hollen, Van Den Bosch and Volberda (2013) also account for coordinating activities, defining this dimension of management innovation as new-to-the-firm management activities associated with coordinating activities.

III. Employee motivation and development dimension

Innovations in organisations predominantly rely on the activity of their employees, both R&D specialists and other staff. It is commonly viewed that it is innovative leaders who possess the skills that foster the commitment of companies and individuals to be innovative and to innovate. Innovative managers are able to motivate the internal workforce to be innovative and to discover new products, services, processes or ideas (Cavagnoli, 2011). The importance of this concept means that many scholars interested in management innovation research, recognise the necessity to seek new solutions in the area of employee motivation and development, both in order to increase the firm's effectiveness and find new sources of competitive advantage. In their four-dimensional model of management innovation, Mol and Birkinshaw (2009) propose that management practices embrace such

components as setting objectives and associated procedures, arranging tasks and functions, and developing talent.

In their studies on the contribution of top management to organisational innovation, Elenkov and Manev (2005) classify new programmes for human resource development as organisational innovations, whereas the conceptualisation proposed by Hollen, Van Den Bosch and Volberda (2013) incorporates four management activities, including new-to-the-firm management activities associated with motivating employees, which draw on the concepts developed by Birkinshaw and Goddard (2009) and Birkinshaw (2010).

Finally, in the conceptualisation proposed by Vaccaro et al. (2012), the dimension of management processes in management innovation is measured with two items, which relate to how work is performed and include changes articulated in routines that govern the work of people as well as how compensation is set up. This may be illustrated by changes in management systems or changes in what is expected of people, which outcomes and behaviour are rewarded and which are not, which relate to the way people are compensated.

IV. Dimension of interorganisational relations (partnerships)

From the perspective of building the innovativeness of an organisation, the role and significance of effective forms and types of interorganisational relations are universally recognised. Birkinshaw, Hamel and Mol (2008) explicitly conceptualise management innovation as taking place between interacting organisations; also other scholars identify the organisational-cooperation mode as a particularly prominent one for non-technological innovation (Meuer, 2013). It can be assumed that building new, open innovation models including organisations in a firm's environment (customers, suppliers, scientific institutions, etc.) is an important manifestation of MI. Meuer (2013) argues that four distinct archetypes of inter-firm relations lead to the implementation of MI.

In his methodology for researching a firm's innovativeness, Terziovski (2010) also recognises the dimension of creating new configurations of interorganisational relations and building new forms of cooperation between a firm and other entities in its environment. His innovation constructs (i.e. independent constructs) contain "customer and supplier relationships" (Terziovski, 2010). Hecker and Ganter, drawing on the Oslo Manual methodology (2008), suggest that innovations in external relations with entities in the environment should be operationalised as new ways of organizing cooperation with other firms and public institutions (Hecker

& Ganter, 2013; Camison & Villar-Lopez, 2014). The role of different forms of cooperation between an organisation and other external entities in the innovation process is also recognised by Lee (2009), who indicates differences in how advanced the relations existing between an organisation and its customers, suppliers and other entities are. Finally, the development of global innovation networks, considered in terms of their structural aspects and knowledge management, also play a significant role (Horn & Brem, 2012).

V. ICT dimension

Numerous studies confirm the important role of modern information and communication technologies (ICT) not only in management processes, but also in speeding up innovation in several sectors and facilitating communication over long distances, which contributes to transformations in entire industries and, as a result, advances the globalisation of the world economy (Lundvall & Nielsen, 2007).

The review of literature on management innovation and its operationalisations indicate that many scholars and research teams recognise the IT dimension (Walker et al., 2011; Shieh & Wang, 2005). Elenkov and Manev (2005) also include this dimension as new management information systems in their considerations on the influence of top management (leadership) on organisational innovation (Shieh & Wang, 2005).

The proposal of management innovation measurement and its empirical validation

Based on the analysis of the management innovation operationalisations (or organisational innovation), presented in literature, and the research tools that have been used so far, we developed 17 items broken down into the five dimensions (Table 4). The assessment of these items should reflect a level/scope of management innovations, generated and implemented in a particular enterprise. Accordingly, the following way of measuring management innovations is proposed:

- 1) the items describe the scope of meaningful changes/new solutions implemented in the area of management within the last three years (not used so far);
- 2) each item is assessed on a 7-point Likert scale (7 – Strongly agree to 1 – Strongly disagree).

The validation of the management innovation measurement instrument was conducted in enterprises based throughout Poland in 2014. In 8 provinces, a random sample of firms was generated from companies registered in the Central Statistical Office database. While in terms of 8 provinces the screening

criterion was the number of registered enterprises, choice of enterprises was random, nonetheless proportionate. A total of 301 questionnaires were returned for an overall response rate of 30%. A variety of industries were represented including manufacturers, trade, services and mixed companies. Top or middle managers in those enterprises (who expressed their consent to participate in the survey) received the questionnaire directly from a pollster and answered it in his/her presence. This is consistent with the approach suggested by Selltitz, Wrightsman and Cook (1976) and Nunnally (1978) that the subjects used should be those whom the instrument was intended. The empirical validation of the measurement tool was in Polish, that is, the questionnaire was distributed to managers in their native language.

The first stage of the statistical analysis involved testing the reliability of the tool applied. For this purpose the internal consistency analysis with the use of Cronbach's alpha and the exploratory factor analysis was conducted. Table 4 presents the values of Cronbach's alpha for five dimensions of management innovation and for particular items.

Table 4. Cronbach's alpha for particular items and management innovation dimension

Dimensions	Cronbach's alpha
Strategic dimension	
In the last three years in our firm we have implemented significant changes:	
1. in the competition strategy, orienting it towards new markets and/or opening new market space	0.787
2. in the corporate development strategy so that innovations could be an important/main source of competitive advantage	0.757
3. in the ways of monitoring the environment in order to seize opportunities for developing (and/or adapting) innovations (product, technological, marketing)	0.759
4. new management methods/systems facilitating the implementation of strategies (e.g. Strategic Score Card, TQM)	0.830
Structural dimension	
In the last three years in our firm we have introduced:	
5. meaningful/radical changes in principles and procedures	0.818
6. changes in the scope of tasks and responsibilities of our employees and the ways of coordinating assignments	0.826
7. new organisational solutions in the communication systems in divisions (branches, subsidiaries) and between them	0.817
8. new forms of organisational structures, new branches/units/positions	0.853
Employee motivation and development dimension	
We have introduced entirely new and considerably modified	
9. remuneration systems promoting employee innovative behaviour and increased productivity	0.733
10. systems/methods for task planning and employee/team performance control	0.740
11. practices/programmes aiming at human resource development (e.g. promotion, training, mentoring, coaching systems)	0.677

Interorganisational relations (partnership) dimension In the last three years in our firm we have created	0.82
12. unique relations with customers aiming to identify their needs, respond to these needs more quickly and retain customer loyalty	0.714
13. new forms of cooperation with suppliers in order to streamline operational efficiency, develop new technologies, etc.	0.638
14. forms of cooperation with our competitors in order to reduce costs of radical innovations †	0.702
15. new forms of cooperation with experts/consultants, R&D centres, higher schools, in order to implement innovations and seek solutions to problems †	0.751
ICT dimension In the last three years in our firm we have implemented new or heavily modified	0.77
16. IT systems supporting managerial decision-making processes	0.697
17. IT systems and other communication tools or practices in order to acquire and collect information and knowledge and disseminate them among employees (e.g. Intranet, knowledge bases)	0.743

The next step involved the exploratory factor analysis, which allows for the reduction of a large number of variables to a few mutually uncorrelated factors or principal components. Prior to the factor analysis, the adequacy of the selected variables was tested with the Kaiser-Meyer-Olkin statistic. The K-M-O analysis yielded the value of 0.970, allowing the application of the exploratory factor analysis. Table 5 presents the values of statistics for the factor analysis.

Table 5. Values of statistics for the factor analysis

Factor/ dimension	Own value	Variance explanation	Cumulative own value	Variance explanation
1	7.225	48.168	7.225	48.168
2	1.343	8.952	1.343	57.120
3	1.206	8.043	1.206	65.163
4	0.874	5.827	0.874	70.990
5	0.703	4.687	0.703	75.677

In order to determine the number of factors Jolliffe’s criterion was used, which allowed us to distinguish five factors. This corresponds with the five dimensions of management innovation assumed in the model. However, relying on results obtained from factor analysis, we decided to remove two items (14 and 15) from Dimension 4, due to a lack of consistency shown within the assumed dimension. Based on the cumulative percentage of variance explained by the factors we show that the model consisting of the five constructed dimensions of management innovation accounts for 75.7% of the total variability in this aspect.

DISCUSSION AND CONCLUSIONS

The objective of our study was to develop a management innovation concept taking into account its five dimensions, which could better explain the nature of this kind of innovation, as so far it has been studied a lot less than technological innovation. The literature review confirms that the theme of innovation in management is relatively poorly researched and innovations of this type are not represented enough in the existing innovation theories/models. A consistent management innovation concept that would explain the sources of management innovation, its antecedents and effects, has yet to be developed. This gap in knowledge is observed by a number of scholars (Vaccaro et al., 2012; Birkinshaw et al., 2008; Volberda et al., 2013). Another gap, which we aimed to fill, was the lack of a management innovation measurement tool. We developed a five-dimensional MI construct, which was tested for reliability and adequacy. Statistical methods verified its high reliability measured with Cronbach's alpha and validated the constructed dimensions. The tool consists of 15 items, which can be used to measure management innovation in business enterprises and other organisations (e.g. public institutions). Our management innovation measurement instrument is much more complex than those used by others (summarized in the Table 3) and includes those aspects of the MI that have been subject of various studies, however in dispersion. In our opinion, the proposed instrument is therefore more accurate and integrates those dimensions of management innovation, which have been suggested by other researchers, but never before in such a configuration.

Our study also shows that the classification in the Oslo Manual (2005) could be expanded to embrace the fifth type of innovation – management innovation. This would require the re-definition of organisational innovation (which could, for example, concern new solutions in the area of particular functions: logistics, marketing, etc.) and management innovation (as new solutions in the management of an entire organisation). To conclude, further research into this field can be considered as fully justified.

Limitations

The presented research results have their limitations. The management innovation measurement scale draws only on the exploratory factor analysis and the subjective choice of Jolliffe's criterion as a criterion for factor analysis. Moreover, the way of measuring MI is based on the subjective assessment made by top managers (self-reported survey data), who express their opinion on the implementation of significant/radical changes in their firm's management within the last three years. Basically, they have to

evaluate their own innovative activity, which may be problematic due to a natural tendency to overestimate our own actions. Another limitation of our research concerning literature review is a selective choice of papers – inevitably authors are doomed to make choices, which is always at risk of missing an important source. The next limitation might be the fact that our study focuses on the Polish context only, as a lack of studies on this issue in our country was observed. Since there has been little empirical research on management innovation practices reported in the extant literature, it is difficult to know how industry classification or industry size might bias the results.

Future research

Our research results confirm that the measurement of innovation in general (Adams et al., 2006), and the measurement of management innovation in particular, is complex and difficult. However, it is essential in evaluating the effectiveness of innovation activity. What is more, the presented MI model and its measurement scale, encourage further research into links between management innovation and a firm's performance, technological innovation or organisational culture, as well as focusing on the moderator effect of some variables on the culture-innovation relationship. The latter is considered by researchers to be a particularly important factor influencing the level of innovativeness in enterprises (Dobni, 2008; Dobni, 2010; Choudhary, 2014). The management innovation field, in our opinion, should be recognised as an important factor in stimulating innovativeness in enterprises while they aim to boost their competitive advantage. We also agree with the opinion expressed by many researchers that "innovation is an essential condition of economic progress and a critical element in the competitive struggle of both enterprises and nation state" (Beaver & Prince, 2002; Brem, 2011).

Obviously, our study should encourage further research into improvements and modifications of this tool for measuring management innovation. Generally speaking, future studies should address the above-mentioned limitations and could include testing on another sample in Poland (i.e. replication after a given period of time) or testing on the same sample in different transition economies. The latter is especially important due to the issue of cultural bias and a generally low level of innovation awareness in Poland. Indicating future research areas concerning management innovation, it should be born in mind that management innovation should be analysed by taking into account its dynamic prospects, offered mainly by complexity theories (Amagoh, 2008).

Managerial implications

Our literature review and research results lead to a number of conclusions useful for managers and business practice. First of all, managers need to bear in mind the importance of various types of innovation, besides technological innovation, as well as the necessity to create an adequate organisational culture, which may play a vital role in advancing organisational innovativeness. Furthermore, the presented management innovation model and its measurement scale may be used in order to diagnose the level of management innovation and to assess its effectiveness, costs and benefits. The measurement instrument can be used by practitioners – managers in charge of an enterprise – not only to assess their own innovative activity, but also to look for new sources of competitive advantage.

In conclusion, it should be emphasized that in the past, issues related to technological innovation significantly dominated research on innovation in organisations. Recent changes in global markets and the necessity to seek new sources of competitive advantage justify paying increased attention to management innovation. In response to this challenge we made an attempt at conceptualizing management innovation and developing a scale for its measurement. The proposed five-dimension management innovation model can be used to measure the scope of management innovation in further research and develop the knowledge about links between MI and an organisation's performance or its impact on technological innovativeness. Previous research results regarding these relationships, although promising (Kraus et al., 2012; Hecker & Ganter, 2013), do not provide a definite answer concerning relations between variables, which additionally justifies further studies using the more sophisticated MI measurement proposed by us. It can also be used as a diagnostic tool to determine the innovativeness of a firm's management and compare it with other organisations, for example, in a given industry.

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Abstract (in Polish)

Celem artykułu było wyjaśnienie istoty innowacji zarządczych i zaproponowanie narzędzia ich pomiaru. W artykule dokonano przeglądu kluczowych pozycji czasopism naukowych z ostatnich 20 lat, dotyczących tematyki innowacji zarządczych. Krytycznej ocenie poddano zwłaszcza definicje, proponowane wymiary innowacji zarządczych, oraz stosowane skale ich pomiaru. Na tej podstawie zaproponowano wielowymiarowy konstrukt innowacji zarządczych i stworzono autorskie narzędzie służące do badania/mierzenia innowacji zarządczych. Uwzględniono w nim następujące wymiary: strategiczny, strukturalny, wymiar motywowania i rozwoju pracowników, wymiar więzi międzyorganizacyjnych oraz wymiar ICT. Narzędzie zostało poddane weryfikacji statystycznej z wykorzystaniem analizy zgodności wewnętrznej (test alfa Cronbacha) oraz analizy czynnikowej – w oparciu o badania przeprowadzone w 301 polskich przedsiębiorstwach. Uzyskano zadawalające wyniki, pozwalające na podjęcie badań

tego typu innowacji. Przeprowadzone studia przyczyniły się do rozwoju wiedzy na temat natury innowacji zarządczych. Ponadto w artykule przedstawiono konkretne implikacje teoretyczne i praktyczne, w szczególności podkreślając, że zaproponowany pięciowymiarowy model innowacji zarządczych może być wykorzystany do pomiaru natężenia tych innowacji oraz w dalszych badaniach związków pomiędzy innowacjami zarządczymi a wynikami przedsiębiorstw czy ich innowacyjnością technologiczną. Przeprowadzone badania pozwoliły także na wskazanie dalszych kierunków badań, dostarczając zainteresowanym tą problematyką bogatej wiedzy o innowacjach zarządczych.

Słowa kluczowe: *innowacje, innowacje zarządcze, pomiar.*

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The Desire that Propels Entrepreneurial Intentions

Hernan E. Riquelme¹ and Abdullah Al Lanqawi²

Abstract

The purpose of this paper is to integrate conceptual and empirical work on the prediction and explanation of entrepreneurial intentions. Specifically, it tests a model that accounts for the motivation of the entrepreneur, a salient factor commonly omitted in current theories of entrepreneurial intentions. We test the role of entrepreneurial desire (a distinct concept from desirability) as a determinant of two distinctive entrepreneurial intentions. This research corroborates recent findings that highlight the importance of identifying intentions to start a business with an orientation for growth as opposed to income substitution. Further, while the role of emotions has become an important factor in entrepreneurship, anticipated emotions have received very little attention in the prevailing literature. Using a sample from Kuwait, this paper finds that desire is a stronger predictor of growth-oriented intentions than income-substitution intentions. Also, entrepreneurial desire partially mediates the effects between attitude, anticipated emotions and entrepreneurial intentions.

Keywords: *Entrepreneurship, intentions, desire, attitude, anticipated emotions.*

INTRODUCTION

The extant literature refers to two dominant theories or models to analyse entrepreneurship as intentional behavior, namely, the Theory of Planned Behavior (TPB) and the Shapero Entrepreneurial Event (SEE) model (Bird, 2015; Van Gelderen, Kautonen & Fink, 2015). Despite the efficacy of both models in predicting intentions (variances have been reported between 21% and 40% (Krueger, Reilly & Carsrud, 2000; Schlaegel & Koenig, 2014), predictors of intention in the TPB theory do not provide sufficient or necessary reasons for the formation of intention (Bagozzi, 1992; Fazio, 1995). Similarly, the predictors included in the SEE model omit the motivational component of intention, a critique that has been voiced recently in the context of

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entrepreneurship (van Gelderen et al., 2015). Attitudes towards a behavior in the TPB, or the 'perceived desirability' construct in the SEE model, are evaluative appraisals of an action and as such only reflect an individual's preference but, unless accompanied by a desire to act, an intention will not be forthcoming (Perugini & Bagozzi, 2001). The perceived desirability concept rests on the valence of an action's end state, that is, the value ascribed to alternative wants and wishes at a pre-decisional phase (Gollwitzer, 1996; Gollwitzer, Heckhausen & Steller, 1990). Ergo, there is no commitment towards a goal as yet. Desire, however, is "a state of mind whereby an agent has a personal motivation to perform an action or to achieve a goal (Perugini & Bagozzi, 2004, p. 71)". The motivation derives from an integration of various sources of appraisals, for example, evaluative, social and emotional. It should be noted that the relationship between desires and intentions is acknowledged by philosophers (Davis, 1984), yet it has seldom been tested in the prevailing literature. Only studies that follow goal-directed behavior models appear to examine this salient relationship (Bagozzi & Dholakia, 2006; Perugini & Bagozzi, 2001). The desire concept, in particular, has gained traction more recently in entrepreneurship literature. A comment from McMullen and Dimov (2013, p.1481) appears to suggest this: "if anything remains constant throughout the journey of entrepreneurship, it is the desire intention for profit" (emphasis added).

In a meta-analysis of empirical studies on entrepreneurial intentions, Schlaegel and Koenig (2014) acknowledged that the desirability concept, in either the TPB or the SEE model, does not carry motivational content; therefore, they borrow the concept of 'goal-desires' from the goal-directed behavior model and integrate it into their model. The authors, however, do not analyse the concept of desirability (Bird, 2015) and state the concept is comparable with the perceived desirability construct in the SEE model defined as "the degree to which an individual feels attracted to become an entrepreneur and reflects individual preferences for entrepreneurial behavior (Schlaegel & Koenig, 2014, p. 294)". This definition, without a doubt, reflects an attitude rather than a concept of desire as intended in the goal-directed behavior model. Desire is distinct from attitude, as will be discussed in a later section. Importantly, prevailing models of entrepreneurial intentions appear to disregard this difference, and omit the desire-intentions relationship altogether.

While some studies on entrepreneurial intentions acknowledge the absence of the volitional component of intentions (e.g., (Krueger, et al., 2000; Schlaegel & Koenig, 2014), a construct that accounts for the motivational component of intention is still lacking in the relevant literature. Early studies tried to account for this omission and included the concept of

perceived desirability and propensity to act (Krueger, 1993; Krueger et al., 2000; Schlaegel & Koenig, 2014). These studies however, have not so far distinguished desirability as an attitude from desires as a motivation. Also, existing models of entrepreneurial intentions fail to account for the emotional reactions to a contemplated action, an important omission considering the growing interest of emotions in the field of entrepreneurship (Cardon, Foo, Shepherd & Wiklund, 2012). Finally, Bird (2015) has called for studies of entrepreneurial intentions that predict more than just business formation, and that investigate alternative entrepreneurial actions, for instance, growth intentions. Our goals in this research are to address the aforementioned issues. In particular, we build a model of entrepreneurial intention that extends the TPB. For this purpose, we draw on the Goal-Directed Behavior model to justify the inclusion of desire and anticipated emotions in the TPB. Hence, our article provides an in-depth conceptualization and analysis of the variables forming entrepreneurial desire as a mediator of attitudes, anticipated emotions, subjective norms and behavioral control on intention. This paper then explores more specific predictions of entrepreneurial intentions. We accomplish this by drawing on recent work from Douglas (2013) who distinguishes entrepreneurs that start a business with an orientation for growth from those that form a business for the sake of income substitution.

LITERATURE REVIEW

In this section, we review two critiques of the TPB. Drawing from the Goal-directed Behavior model (Perugini & Bagozzi, 2004), we expand the TPB by adding the concept of Anticipated Emotions (positive and negative) and Desire as a mediator of attitudes, subjective norms, anticipated emotions, and perceived behavioral control on intentions.

According to the TPB, entrepreneurial intentions are formed by the attitude (appeal or personal attractiveness) towards behavior, social norms (the sense of 'ought-ness' internalized by individuals and imposed upon them by the social environment), and perceived behavioral control (Ajzen, 1985). Although parsimonious, the TPB has been criticized for disregarding personal motivation to achieve certain goal outcomes in predicting intentions (Perugini & Conner, 2000). Several modifications to the theory have been suggested, for example, incorporating self-identity, moral norms, anticipated emotions, desires, and clarifying the distinction between self-efficacy and behavioral control in TPB model (Perugini & Bagozzi, 2001). The assumption that attitudes influence intentions directly has been questioned (Bagozzi & Dholakia, 2006). Attitudes are not expected to affect intentions, and when they have done, it has been in conjunction with social support (an interaction

effect – and not an additive effect as proposed in the TPB), also known as ‘contingent consistency’ (Andrews & Kandel, 1979). Further, individuals may elicit a positive attitude towards an object or action, yet they may not have the intention to act, even in the presence of social pressures (subjective norms) and perceived behavioural control (Perugini & Bagozzi, 2004). Hence, attitude can contribute to an intention if “certain social psychological conditions are either co-present or forthcoming as accompanying instigators of intentions” (Bagozzi, 1992, p. 184). For instance, Grube and Morgan (1990) found that an interactive effect between attitude and perceived social support increased the prediction of adolescent smoking, drinking and drug use. Also, the entrepreneurial intentions literature appears to overlook the relationship between motivation and intentions. Shapero’s entrepreneurial event (SEE) model posits that entrepreneurial intentions could be predicted using three variables: perceived desirability, perceived feasibility and propensity to act. The latter construct is an acknowledgement that intentions are necessary but not sufficient to carry out an action. According to Krueger et al. (2000), without the propensity to act, significant action may not be taken. However, the inclusion of this variable in SEE models is problematic, since the measures used to proxy for ‘propensity to act’ (e.g. the illusion of control scale found in Kueger and Carsrud (1993) or the Seligman’s learned optimism scale used in Krueger et al. (2000)) are similar to measures of perceived behavioral control in the TPB, and perceived feasibility in the SEE. These measures, thus, overlap, create ambiguity and diminish potential inferences about intentions from both models (Schlaegel & Koenig, 2014).

The role of desire and entrepreneurial intentions

To account for the missing motivational link in the attitude-intention relationship of the TPB, Bagozzi (1992) proposes a construct called ‘desire’, akin to the concept of wants or wishes as found in Gollwitzer’s action phase model (Bagozzi & Dholakia, 2006), or ‘volitive desire’ (Davis, 1984). According to Bagozzi, (1992, p. 184) the desire to do something implies a “motivational commitment to do it.” Intentions, by themselves, do not carry this commitment but entail desires to do so, for instance, if a person intends to eat, s/he must want to do it (Davis, 1984). Desires represent the motivational state of mind and have the capacity to transform appraisals and reasons (e.g. the attitudes, subjective norms, and perceived desirability) to act into a motivation to do so (Perugini & R. Bagozzi, 2001). Later studies by Bagozzi and others refer to these desires as ‘implementation desires’ (Bagozzi, Dholakia & Basuroy, 2003). In new developments of attribution theory, Malle and Knobe (1997) also recognize the importance of the desire construct and

conclude the attribution of intention requires, among other factors, that the subject has a desire for an outcome. Note that desires are distinct from intentions: desires are psychological states that reflect what one wants or wishes, whereas intentions are what one plans to do (Mellers & Chang, 1994).

Volitive desires do not lead directly to action, but influence intentions – the conscious commitment to act (Miller and Pasta, 1995). Earlier we claimed that desires, or volitive desires, are distinct from an attitude. Volitive desires are based on reasons, and are influenced by value judgements (attitudes). If an individual believes something is good, valuable, right or just, s/he will tend to want it to exist (Davis, 1984). Attitudes act as a catalyst to release a hidden desire (Bagozzi, 1992). The desire-intention sequence of causality has been hypothesized and tested in various contexts. Childbearing desires have been found to be the primary determinant of childbearing intentions (Mellers & Chang, 1994), bodyweight regulation, and effort spent studying (Teasdale & Barnard, 1993). With respect to the domain of entrepreneurship, the concept of perceived desirability (an attitude) to creating a new business has been examined in the prevailing literature and used in model formulations (Fitzimmons & Douglas, 2011; Krueger, 1993; Krueger et al., 2000). In all cases, perceived desirability has played an important role in entrepreneurial intentions.

Recent meta-analyses of entrepreneurial intention have referred to entrepreneurial intentions as the “intention of an individual to start a new business” (Schlaegel & Koenig, 2014) or “desires to own or start a business” (Bae, Qian, Miao & Fiet, 2014). Bird (2015) has suggested researchers further refine their research of entrepreneurial intentions, since it is now well established in the literature that two types of entrepreneurs exist. ‘Opportunity entrepreneurs’ are those who start a business to exploit unique opportunities. ‘Necessity entrepreneurs’ are those who form businesses out of a necessity for income, that is, to survive poverty and/or unemployment (Cheung, 2014; Desai, 2011; Reynolds, Camp, Bygrave, Autio & Hay, 2002). The distinction between opportunity and necessity entrepreneurs is important because opportunity firms are more efficient than necessity ones (i.e. they generate more sales per worker employed (Amin, 2009; Douglas, 2013)). Recently, Douglas (2013) developed a scale to discriminate between entrepreneurs who possess growth-oriented intentions (Opportunity entrepreneurs) and those who have independence-oriented intentions (Necessity entrepreneurs). Sampling from a group of 106 MBA students from Thailand, Douglas finds the antecedents of growth-oriented intentions differ from those that are independent-oriented. Entrepreneurs possessing the former traits are more likely to be male, bear a negative attitude towards work enjoyment, and have high expected self-efficacy. Entrepreneurs with

independent oriented intentions however, have lower risk tolerance, possess less expected self-efficacy, and prefer greater autonomy.

Against the previous review, we hypothesize that (H1a) entrepreneurial volitive *desire is the closest determinant of both intentions (growth and necessity). Logically, regardless of the type of intention, an individual must be aware of and accept his or her own desire to act before forming an intention* (Davis, 2011). The stronger the desire to start a business, the stronger the intention is towards that end objective.

However, H1(b) *posits that entrepreneurial volitive desire will have a greater impact on individuals who have an intention to start a business with an orientation for growth as compared to those who seek to start a business with an orientation to become independent.* The former requires greater sacrifice (e.g. work long hours or greater tolerance for work effort, an attitude to take higher risks) that justify a stronger desire to commit to forming a business.

Anticipated emotions

Another critique of the TPB is its emphasis on assuming rationality in the decision making process and ignoring affective processes that may exist (Sandberg & Conner, 2008). Specifically, this research includes the role of anticipated emotions. Anticipated emotions, as defined by Pfister and Bohm (2008, p. 6), are 'beliefs about one's future emotional states that might ensue when the outcomes are obtained'. That is, individuals engage in counterfactual thinking or 'pre-factual appraisals' (Gleicher, Boninger, Strathman, Armor, Hetts & Ahn, 1995), entertaining possible scenarios of what they would feel like if an outcome would not turn out as expected (Bagozzi & Dholakia, 2006). Anticipated emotions play a critical role in influencing desire since individuals have been found to consider the ramifications of achieving and not achieving a specific goal (Bagozzi et al., 1998). For instance, if an outcome of a goal is expected to be pleasant, desires form to exhort an individual to move towards that goal. If the outcome is anticipated to be unpleasant, emotions may arise to form a non-desire, that is, a desire to avoid moving in the direction of the goal. Increasingly, research shows that anticipated emotions affect decisions in various domains such as eating junk food, using drugs and alcohol (Nelissen, de Vet & Zeelenberg, 2011), gambling rather than saving money (Schlosser, Dunning & Fetchenhauer (2013)), dieting and exercising (Perugini & Bagozzi, 2001), and riding bikes (Bagozzi & Dholakia, 2006).

In the prevailing entrepreneurship literature, work by Shepherd, Wilklund & Haynie (2007) argues that anticipatory grief helps prepare entrepreneurs to cope with eventual business failure. Li (2011) found the interaction between

hope and regret accounted for 58% of the variation in the subjective value of forming a new venture. Wood and Williams (2014) found counterfactual thinking, in the form of ‘worst-case scenario considerations’, was the most important characteristic in predicting the attractiveness of an opportunity; the attractiveness of an opportunity significantly diminished if the worst-case scenario of the opportunity was severe as opposed to mild. Recently, anticipated emotions have been shown to moderate the effects of attitude and subjective norms on entrepreneurial intentions to start a business (Zampetakis, Lerakis, Kafetsios & Moustakis 2016). From the evidence described above, one may conclude that individuals take into consideration the anticipated emotional consequences of both positive and negative outcomes. These emotions will directly affect the desire to either start or not a new business venture. Consequently, this article posits that anticipating the positive and negative outcomes of starting a business is instrumental for the development of a desire towards starting a business. This hypothesis is formalized as follows: *(H2a) the more positive the anticipated emotions of the outcome of starting a business, the more the desire to start a business, conversely, (H2b) the more negative the anticipated emotions the less the desire to start a business.*

The attitude–desire relationship

Attitudes, as conceived in the TPB and similar cognitive models such as the SEE, are evaluative appraisals of an action and do not explain how evaluations translate into intentions. Consider for instance, an individual who has a positive attitude towards an object (e.g. a car) and has the resources to purchase it. This person may simply not want the object and an intention cannot be formed. In this example, desire acts as a mediator between attitude and intention. To explain this mechanism, Bagozzi (1992) refers to the work of Lazarus’s theory of emotion and adaptation. For example, experiencing an unpleasant event leads a person to sadness or disappointment, which in turn leads to an intention to obtain help or support. Attitude has been widely used to predict entrepreneurial intentions (Bird, 2015; Schlaegel & Koenig, 2014) but within the context of individual preferences. Shapero’s model is one of the first in incorporating the concept of perceived desirability. However, perceived desirability, a specific attitude, reflects the valence (positive or negative) of an action’s end state and is an inherent objective property of the end state itself and does not have the connotation of a personal motivation to achieve an end state. Krueger et al. (2000), for instance, used reflective measures of perceived desirability such as, “How tense would you be... [to start your business]”; “How enthusiastic would you be...” These statements reflect

the valence of an attitude but lack the element of conation of the construct desire. Moreover, the authors measure the 'Global Perceived Desirability' which is analogous to the concept of desire, namely, "How desirable is it for you to start your own business?" Even in this case, the measure appears to capture more of the personal *value* that is attached to starting a business, than a personal *motivation*. Some empirical evidence illustrates that attitudes influence childbearing desires (Miller, 1994), desires to exercise, diet, study, participate in online communities (Bagozzi & Dholakia, 2006; Perugini & Bagozzi, 2001; Perugini & Conner, 2000), and participate in electronic word of mouth (Okasaki, 2009). In the context of entrepreneurship, we speculate that *(H3) the more individuals find entrepreneurship rewarding, enjoyable (positive attitudes), that is they appraise starting a new business as valued activity, the more they will desire to pursue entrepreneurial activities.*

Subjective norms

Subjective norms have been posited to influence intention directly in the TPB. Individuals are more likely to form an intention insofar as perceived norms encourage or promote decision making. Empirically however, the extant literature on entrepreneurial intentions has found mixed evidence to support the subjective norms-intentions relationship (Bird, 2015).

In our model, subjective norms do not necessarily imply a commitment to an intention as they are not clearly connected (Bagozzi, 1992). It is the feelings or sentiments people develop within oneself and the perceived feelings from others (in a self-regulatory process similar to the appraisal process), that develop the motivation and in turn, the desire to form an intention. We suggest that individuals who intend to start a business will appraise the perception of significant others' expectations and feelings (whether favorable or unfavorable), and integrate these with their own perceptions to conform, thus, culminating certain feelings that will then feed into a desire. This suggests desire mediates the relationship between subjective norms and intentions. As a consequence of normative actions, a person may confront and integrate four situations: negative feelings toward a deviant significant other, negative feelings toward a deviant-self, positive feelings toward a significant other, and positive feelings toward a conforming self. For instance, individuals are highly influenced by their families' opinions in relation to starting a business. If their families believe they should not start a business (contrary to what they want), these would-be entrepreneurs may feel pressured to conform with their families' beliefs, engendering negative emotions (e.g. contempt, resentment, and reproach) and a negative desire to start a business. In their integrated model, Schlaegel and Koening (2014)

reveal subjective norms have a direct effect on both perceived desirability and intentions. Consequently, we posit that *the more individuals perceive their significant others have a strong and positive attitude towards them starting a business, the stronger the desire to start a business (H4)*.

Perceived behavioral control

Individuals will develop stronger intentions to perform an activity to the extent they perceive the action is under their volitional control, or they perceive themselves as competent to perform an action, that is, self-efficacy. Bandura (1997) suggested that self-efficacy beliefs regulate human functioning through cognitive, motivational, affective, and decisional processes, and the strongest factors that serve as motivators are “rooted in the core belief that one has the power to produce desired effects, otherwise one has little incentive to act or to persevere in the face of difficulties (Bandura & Locke, 2003, p. 87)”. Ajzen and Madden (1986) also recognize that predicting the behaviour of individuals who do not have control is problematic. Individuals must at least perceive they have some degree of control over their actions otherwise they will not follow through on their actions. For this reason, perceived behavioral control (PBC) was added to the Theory of Reasoned Action to improve predictions of intentions in situations where the action is only partially under a person’s volitional control. Perceived behavioral control, Ajzen (1991) asserts, is similar to the concept of self-efficacy developed by Bandura (1997). However, this similitude has been questioned (Armitage & Conner, 1999; Rodgers, Conner, & Murray, 2008) and is beyond the scope of this study. Both constructs have been employed successfully in numerous research studies, including in the field of entrepreneurship, as predictors of intention (Krueger et al., 2000; Sitkin & Weingart, 1995; Clore et al., 2001; Slovic, Finucane, Peters & MacGregor, 2002; Kautonen, van Gelderen & Fink, 2015). The self-efficacy concept has also been incorporated into Shapero’s model under the label ‘perceived feasibility’ and was defined as the “degree to which one feels personally capable of starting a business” (Krueger et al., 2000, p. 419). However, there is little evidence regarding the influence of self-efficacy in predicting the intentions of entrepreneurs with an orientation for growth and entrepreneurs for necessity. In the study conducted by Baum and Bird (2010), self-efficacy was an important moderator of successful entrepreneurial intelligence in CEOs and founders of high growth printing and graphic firms. The authors note: “HGEs (High Growth Entrepreneurs) must also be confident about their ability to apply their intelligence (Baum and Bird, 2010, p. 401)”. Other empirical evidence finds high-growth businesses are formed by people who have high perceptions of self-efficacy (Baum &

Locke, 2004), and that individuals with increased levels of self-efficacy set higher goals (Franken, 1997). In an empirical study, Douglas (2013) suggests that individuals with lesser-expected self-efficacy will avoid growth-oriented firms and will be more associated with independence-oriented new ventures. He also expected that self-efficacy would be more associated with entrepreneurial intentions for growth. Growth-oriented firms require greater skills and resources to manage than independence-oriented businesses. Further, starting a new venture with the aim of growing exponentially likely requires much greater ambition from the entrepreneur's viewpoint. The results from Douglas (2013) indicate self-efficacy is not significantly related to intentions with an orientation for independence but is significant to intentions with an orientation for growth.

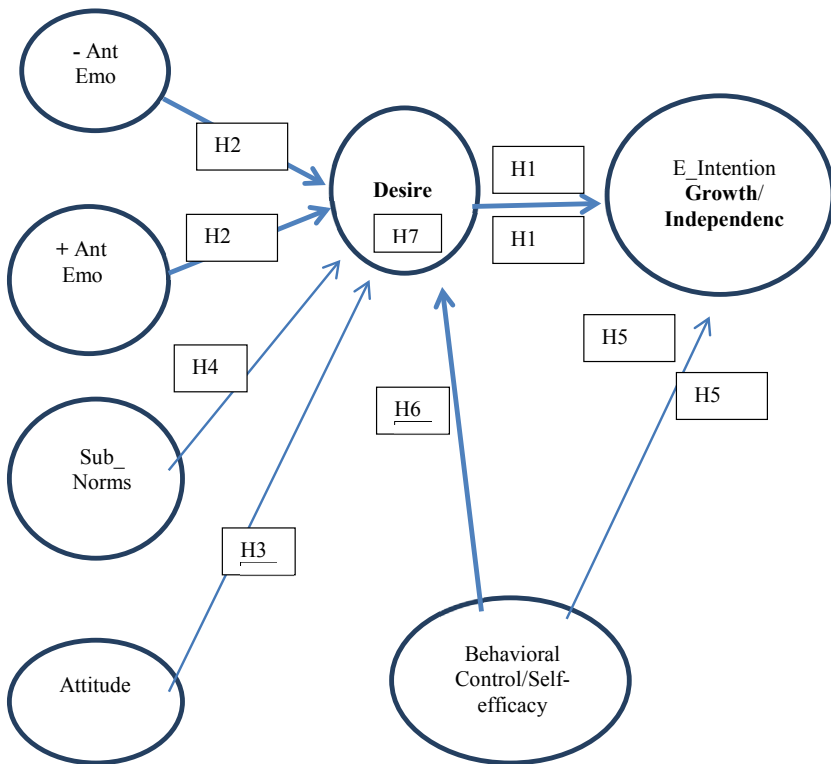
Taking this previous evidence, it is hypothesized that: *(H5a) perceived behavioral control/self-efficacy will be positively associated with growth-oriented intentions and (H5b) with independence-oriented intentions. But (H5c) perceived behavioral control/self-efficacy will be more associated with growth-oriented intentions than with independence-oriented intentions.*

Our model also proposes perceived behavioral control/self-efficacy directly influences desire. We support this relationship by using the rationale and evidence from the model of goal-directed behavior (Bagozzi et al., 1998), and the Interactive Cognitive Subsystems Conceptual Framework (Teasdale & Barnard, 1993). The latter suggests the perception of personal inadequacy or incompetency is represented (stored as a schematic mental mode of a particular experience) as qualitatively different kinds of information. These patterns of sensory inputs, propositional, and implicational knowledge determines high-level meaning and emotional response that leads to a desire or avoidance. In the entrepreneurial context, different individuals will have stored experiences in their minds reflecting whether they have succeeded recently or failed at tasks, whether one's performance has been criticized by significant others, and from more directly censored-derived sources. For example, whether one's bodily arousal is high, or one's posture was erect or stooped, together, create an implicit schema of self-efficacy. This general self-reflection, as competent or incompetent at starting a new venture, will influence his or her sense of desire (or avoidance) to starting a new venture.

Hence: *(H6) the more individuals perceive starting a business is under their control, the more they desire it.*

Finally, and as per the previous description of the relationships in the model, we expect the influence of attitudes (perceived favorability of starting a business); belief (perceived behavioral control/self-efficacy, subjective norms) and affect (anticipated emotions) will be mediated by the desire to start a business (H7).

Figure 1 illustrates our hypothesized relationships. The framework accounts for variables used in the TPB, namely, subjective norms, attitude, and perceived behavioral control, with the caveat that these do not have a direct influence on intention but are mediated by desire. Thus, desire, drawing from the Model of Goal-Directed Behavior, has an integrative function of the variables mentioned above. Perceived behavioral control is retained as in the TPB (i.e. a direct link to intention), and is based on the premise that an intention is expected to form if the person believes s/he has the means and resources to perform the behavior or action (Ajzen, 1985). The addition to the TPB model is highlighted in shaded boxes and with a thicker solid arrow.



Legend: -Ant Emo = Negative Anticipated Emotion, +Ant Emo = Positive Anticipated Emotion, Sub_Norms = Subjective Norms, E_Intention = Entrepreneurial intention

Figure 1. Theoretical framework of entrepreneurial desire and intentions for growth or independence

RESEARCH METHODS

Participants and procedure

Our sample consists of 214 respondents living in Kuwait who reported having intentions to start a business. Questionnaires, 600, were distributed to employees in banks and ministries, and another 450 questionnaires were emailed to alumni of a university. We assume that the aforementioned individuals are more likely to have intentions to start businesses since they are more exposed to business experiences, such as in banks, universities, or in ministries (note, ministries in Kuwait are open until 1:30 PM which provides employees with opportunities to start other initiatives if they so desire).

The response rate for this study was 20% with 211 cases used in the data analysis because three questionnaires were incomplete. The sampling method followed a non-probabilistic procedure and the sample self-selected. The characteristics of our sample are depicted in the Appendix. The majority of respondents was between 20 and 49 years old, male, married, and works within the private sector with several years of experience. All respondents have at least an undergraduate degree. The sample was divided into two groups based on individual responses to our entrepreneurial intention scale. Individuals who marked a preference of above 4 for all the independence-oriented items were considered to be entrepreneurs with independence-oriented intentions. Alternatively, individuals who marked above 4 for all the growth-oriented items were allocated into the growth oriented intentions group. The group containing individuals with independence and growth oriented intentions comprised of 90 and 108 subjects respectively. We analyzed both groups separately using our proposed model. We acknowledge the sample size maybe rather small, however, similar studies have used similar sample sizes, for example, Krueger et al. (2000) in their model comparison used 97 senior university students, and Douglas' (2013) sample comprised 106 second-year MBA students. Bird (2015) finds, in her review of studies of entrepreneurial intentions, that more than 80% of the studies used students. We note the post-hoc statistical power for a multiple regression given five predictors, and sample of 90 and 108 provide a power of 0.9999 and 0.998 respectively.

The data were analyzed using SmartPLS version 2.0. The technique has been widely used because of its flexibility in terms of the assumptions, for example, it can deal with both reflective and formative measures and it is robust when data moderately deviate from normality.

MEASURES

Respondents were asked to respond to a number of interspersed items. For the sake of space, all measures, scale values, and sources can be requested from the author. To measure intentions with a growth or independent orientation, we used a scale adapted from Douglas (2013). An example of items in the scale is worded as follows: 'how likely [1= very unlikely to 7= very likely] is it that you would want to start a new business venture that exploits a new technology that promises to have very good prospects for long term growth and eventual profitability? Attitude was measured on a seven-point interval scale using statements such as, 'starting a business is (1) punishing (7) rewarding' and 'starting a business is (1) disadvantageous (7) advantageous'. Respondents were asked to express their positive and negative anticipated emotions on statements such as: 'how do you expect (anticipate) to feel if you succeed in starting your own business: not at all (1) [happy] to (7) = very much so, [satisfied], [glad], [proud], [frustrated], [disappointed], [sad], [guilty], [worried]. Two items were used to measure self-efficacy and another two measure behavioral control such as, 'How much control would you have over starting your own business in the near future?' (1) No control to (7) Full control. The subjective norms variable was measured in two steps. First, subjects were asked to identify the significant others. Second, subjects reported the perception their significant others had about them starting a business, from (1) extremely unfavorable to (7) extremely favorable. Lastly, desire was measured using four items or statements on a seven-point interval scale between (1) very strongly disagree and (7) very strongly agree. One of these statements is for example: 'Starting up my own business is my strong desire.'

Reliability and discriminant validity

Tables 1 (a) and (b) provide statistics relating to reliability and discriminant validity for each construct in our model for each group of individuals namely, with growth-oriented or independence-oriented intentions.

Discriminant validity, or the degree to which items differentiate between constructs, can be assessed by comparing the Average variance Extracted (AVE) with the corresponding correlation.

Table 1 (a). Correlations, AVE, and Composite Reliabilities for the growth oriented subsample.

	Attitude	Beh_control	Desire	I_Growth	Neg_A Emo	Pos_A_Emo	Sub_Norms
Attitude	0.60						
Beh_control	0.227	0.62					
Desire	0.478	0.271	0.64				
I_Growth	0.236	0.323	0.453	0.58			
Neg_A Emo	0.032	0.271	0.254	0.309	0.69		
Pos_A_Emo	0.435	0.081	0.416	0.115	0.244	0.65	
Sub_Norms	0.200	0.200	0.381	0.347	0.277	-0.031	0.52
Composite Reliability	0.81	0.83	0.90	0.73	0.91	0.89	0.80
Cronbach Alpha	0.79	0.73	0.87	0.70	0.90	0.84	0.70

Diagonal bold = AVE; correlations > 0.20 Sign. = 0.00; correlations > 0.25 Sig. 0.000; correlations 0.15 < NS.

For every construct, AVE should exceed the construct’s correlation (Fornell & Larcker, 1981). Also note from the correlations, attitude is not highly correlated with anticipated emotions despite the fact the attitude measures included items related to affect.

The results from this comparison support the discriminant validity for all ten constructs. AVE measures are above the recommended threshold of 0.50.

Note that PLS-SEM emphasizes the use of Composite Reliability (CR) rather than Cronbach alpha since it is generally regarded as a more appropriate criterion of internal consistency reliability (Hair, Ringle & Sarstedt, 2012).

Table 1 (b). Correlations, AVE, and Composite Reliabilities for the independence oriented subsample.

	Attitude	Beh_control	Desire	I_Indepen	Neg_A Emo	Pos_A_Emo	Sub_Norms
Attitude	0.75						
Beh_control	0.223	0.80					
Desire	0.481	0.261	0.80				
I_Indepen	0.119	-0.190	0.29	0.75			
Neg_A Emo	0.021	0.214	0.193	0.103	0.83		
Pos_A_Emo	0.451	0.097	0.412	0.140	0.230	0.81	
Sub_Norms	0.206	0.249	0.322	0.027	0.225	-0.039	0.71
Composite Reliability	0.83	0.85	0.90	0.83	0.92	0.89	0.81
Cronbach Alpha	0.74	0.74	0.86	0.74	0.90	0.84	0.69

diagonal bold = AVE; Correlations > 0.20 and 0.24< Sign. = 0.01; correlations > 0.25 Sig. 0.001; correlations 0.15 < No Significant.

All composite reliabilities are high except for intention with growth orientation, 0.73, but this is still within the minimum acceptable cut off.

The correlations in Tables 1 (a) and (b) reveal that attitude and anticipated emotions have discriminant validity, given the reasonably low correlations. The association is also in the expected direction. There is a positive correlation, as expected, between negative anticipated emotions and desire. Note, statements measuring the former are rated with high values (7 = very much so) but are written in the negative, e.g. "If you did not start your own business, you will feel frustrated".

ANALYSIS AND STUDY

Table 2 presents the findings for the path least squares model for our two subsamples. Since SmartPLS does not provide goodness of fit measures, we have generated statistical values by bootstrapping (2,000 samples; sign changes = individual changes).

Column three reveals that desire to start a business with a growth orientation is significantly predicted by positive anticipated emotions, attitude, subjective norms, and perceived behavioral control/self-efficacy. Thus, hypotheses H2(a), H3, H4, and H6, are supported by the data. The independent variables explain 40% (R^2) of the variance of desire. Intention to become an entrepreneur with an orientation for growth is significantly explained by desire and perceived behavioral control ($R^2 = 0.41$). Hence, H1(a) and H5(a) are both supported by the data.

The second column in Table 2 presents the results for the independence-oriented subsample. Two hypothesized paths failed to reach statistical significance, namely, negative anticipated emotions, H2(b), and perceived behavioral control/self-efficacy, (H6). The latter does not have a statistically significant effect in predicting either desire or intention.

Attitude, positive anticipated emotions, and subjective norms explain 36% of the variance (R^2) of the construct desire. Intention to start a business with an orientation for independence is explained marginally ($R^2 = 0.08$) by desire only.

Tests of differences in slopes were conducted (Paternoster, Brame, Mazerolle & Piquero, 1998) to determine if the models for the two groups differed in any paths. The fourth column in Table 2 presents our results. The hypothesized model appears to work well for both groups except for one path. Behavioral control is negatively associated with independence-oriented intentions (although not statistically significant), whereas it is positively, and statistically significant related to growth-oriented intentions. Desire had a stronger influence on intention to become an entrepreneur for growth

(B =0.40) than for independence (B= 0.28), albeit the differences are not statistically significant. Both values have also the correct sign.

Table 2. Path coefficients and test of differences

	(Gamma/ Beta) Intention for Independence (n= 108)	(Gamma/ Beta) Intention for Growth (n=90)	Z-value test; Statistical Significance
Desire → Intention	$\beta = 0.28$ (t= 4.64) ** (SE=0.06)	$\beta = 0.40$ (t=5.74) ** (SE =0.07)	Z = 1.30; n/s
Beh. Control / self-efficacy → Intention	$\beta = -0.19$ (t= 1.41) (SE= 0.15)	$\beta = 0.23$ (t=3.30)** (SE=0.07)	Z = 4.24; p< 0.001
(DV = Intention)	R² = 0.08	R² = 0.41	
Attitude → Desire	$\gamma = 0.30$ (t= 5.02) ** (SE=0.06)	$\gamma = 0.27$ (t= 4.12) ** (SE=0.06)	Z = 0.35; n/s
Beh. Control/self- efficacy →Desire	$\gamma = 0.10$ (t= 1.26)n/s (SE= 0.08)	$\gamma = 0.12$ (t= 1.93)* (SE=0.06)	Z = 0.25; n/s
Pos_A_Emo → Desire	$\gamma = 0.26$ (t= 3.2) ** (SE=0.08)	$\gamma = 0.29$ (t= 3.37) ** (SE=0.08)	Z = 0.26; n/s
Neg_A_E → Desire	$\gamma = 0.05$ (t= 1.05)n/s (SE= 0.04)	$\gamma = 0.04$ (t= 0.88)n/s (SE=0.04)	Z = 0.0; n/s
Subj_N →Desire	$\gamma = 0.21$ (t= 3.70) ** (SE = 0.05)	$\gamma = 0.29$ (t= 4.40) ** (SE=0.06)	Z = 1.02; n/s
(DV = Desire)	R² = 0.36	R² = 0.40	

Beh. Control. = Behavioural control; Pos_A_Emo = Positive Anticipated Emotions; Subj N = Subjective Norms, DV =Dependent Variable. T= T value, SE=Standard Error. n/s = no significant at 0.05; * two-tailed p-value = 0.05;** two-tailed p-value <0.001.

Test of mediation

Test of mediation followed the procedure in Baron and Kenny (Kenny, 2013) and by applying the Sobel test (Soper, 2013; Warner, 2012). The direct effects (β) of attitude on intentions is 0.11 (2-tailed significance = 0.005; Sobel test statistic=2.77) meaning that for a one-standard deviation increase in z attitude, a .11 increase in z intention is predicted through the mediating variable z desire. Positive anticipated emotions ($\beta = 0.11$; 2-tailed significance = 0.02; Sobel test statistic = 2.28), subjective norms ($\beta = 0.12$; 2-tailed significance = 0.02; Sobel test statistic = 2.26), and perceived behavioral control (B= -.19; t= 2.68) all have significant direct effects on intentions to start a business with a growth orientation. Desire appears to only partially mediate the effect of the aforementioned constructs, thus, H7 is only partially supported by the data.

The procedure carried out to determine the mediating effect of desire on the independence- oriented subsample is the same as above. Desire carries statistically significant mediating effects for attitude ($\beta = 0.08$; t -value = 3.59), and subjective norms ($\beta = 0.07$; t -value = 3.43) only. Lastly, we omit the mediating variable altogether from our proposed model to determine whether or not desire adds any explanatory power. When desire is dropped from the model, the direct effects of beliefs, anticipated emotions, and attitudes explain (R^2) only 24 percent of the variation in intentions for growth, and (R^2) only 10 percent of the variation in intentions for independence versus $R^2 = 0.41$ and 0.08 respectively, when desire is included. We thus conclude that desire explains more of the variation in intentions of individuals with well-defined intentions, such as entrepreneurs with an orientation for growth.

DISCUSSION

In this study, respondents were presented with affective attitude (e.g. starting a business is punishing/ rewarding) and instrumental attitude scales (e.g. starting a business is advantageous/ disadvantageous). Our results reveal that in both cases, attitude contributed directly and indirectly to predicting entrepreneurial intentions for independence and for growth. Affective attitude however was a stronger predictor than instrumental attitude, suggesting perhaps that the affective component of attitude is more salient in people's minds, a finding that is consistent with several studies that have distinguished between the two dimensions (Lowe et al., 2002; French et al., 2005). Interestingly, we find little evidence to suggest that desire completely mediates the impact of beliefs and attitude on intentions. One should consider however the size of the mediation effect and the statistical significance (Hair, Ringle, & Sarstedt, 2013) when evaluating our results. It appears as though mediation through desire explains only a small part of the total effect of the independent variables on intentions. Unlike previous studies by Bagozzi and colleagues (Bagozzi & Dholakia, 2006; Perugini & Bagozzi, 2001), our research shows, attitude influences intention directly, even after controlling for the mediation of desire. One explanation for this may relate to the low reliability or convergent validity of the mediator. Measurement error may also explain our results, but this is not uncommon in the psychology literature (Rucker, Preacher, Tormala & Petty, 2011). It may also be the case that desires are not well formed in our subsamples preventing us from capturing the full effect of our proposed predictors (Bagozzi & Yi, 1989). Subjective norms refer to the social pressures entrepreneurs face when starting a new business. Comparing the two samples, the effect of subjective norms on intentions was not significantly different. In relative terms, subjective norms are just

as important as attitude and positive -anticipated emotions in predicting intentions. In this study, social norms include the influence of colleagues or co-workers, friends and family. Both groups ascribed the highest weight to family member approval, followed by approval from friends. These findings reveal that potential entrepreneurs are influenced by the opinions of these two significant others, and play an important role in raising sentiments that infuse or diffuse desire. Importantly, these results are in support of hypothesis 4. Our proposed model includes the psychological concept of anticipated emotions, that is, the expected feelings or sentiments towards succeeding or failing in starting a business. Positive but not *negative anticipated emotions* had a direct and indirect effect on intentions for both groups. The fact that positive anticipated emotions have a direct influence on intentions implies that, in addition to inducing an intention to act through desire, it also has an automatic effect. It is surprising that negative anticipated emotions had no significant effect on either group. One explanation for this may be that negative anticipated emotions are not strong enough to impact desire. A second reason may relate to the concept of self-regulation. Regulatory focus is defined as a person's orientation towards future goals and consists of two types of orientations: promotion focus and prevention focus (Bryant, 2007). Because promotion focus is closely related to positive effects and highlights positive gains more than negative aspects, it is possible that positive anticipated emotions are driving eagerness (desire) which eventually translates into an intention to act. Negative anticipated emotions are presumably more related to a prevention focus – an orientation that seeks avoidance of potential losses - far removed in time since respondents do not see consequences of losing anything in the short term if they did not engage in the act of entrepreneurship. The effect of positive anticipated emotions is consistent with other studies that have included this variable as a predictor of intentions to improve the Theory of Planned Behaviour (French et al., 2005).

As posited in hypothesis 5 and 6, perceived behavioral control (similar to perceived feasibility or self-efficacy in the SEE model) is an important antecedent of desire and intention only for the group with a growth orientation. That is, the more participants perceive the act of entrepreneurship is under their control, the greater is the intention to become an entrepreneur for growth. Note that perceived behavioral control had a negative sign for individuals wanting to start a business for independence. This suggests that these respondents perceived themselves as having less control over the act of starting a business. These findings are concordant with results from Douglas (2013) who finds Expected Self-Efficacy predicts growth but not independence-oriented intentions. The same negative association between independence oriented intentions and self-efficacy was also found. Perhaps

these individuals do not need to have strong belief in their entrepreneurial capability, since starting a business with the intention to become independent may reflect a life-style decision. Further, these entrepreneurs do not seek profit maximization but work enjoyment (Douglas, 2013). In relation to perceived behavioral control and its influence on desire, the former influences the latter implying that when people judge themselves or appraise themselves as having the competency to perform entrepreneurial activities, the more they are infused with the desire to start a business. This result is understandable since a desire will lead to an intention to the extent that people perceive they can perform the entrepreneurial act. Fitzsimmons and Douglas (2011) call entrepreneurs who perceive themselves with high self-efficacy and high desirability 'natural entrepreneurs'.

Following the advice of previous studies to improve the theory of planned behavior (Perugini and Bagozzi, 2001; Slovic et al., 2002; Bagozzi and Dholakia, 2006), and considering the importance of the 'desire intention for profit', this research integrates the desire construct, which activates the intention to act, in our proposed model. Why do attitude, subjective norms, positive anticipated emotions and behavioral control have direct effects? One explanation suggests that respondents' desires are not self-motivating on their own, hence the need for antecedents such as behavioral control, attitude, and subjective norms. A second explanation relates to volitive desires as a manifestation of the will of people. Perhaps respondents do not have the will or a well formed desire to start a business, even though they have indicated an intention to do so. The goal to start a business may be perceived in a too distant future, which may have repercussions for desire. It is also possible that intentions, unlike desires, entail beliefs, thus, variables proposed in our model that reflect beliefs (e.g. subjective norms, behavioral control) are likely to have a direct effect on intentions. Lastly, the results of this study suggest that attitude may not be a suitable proxy for 'perceived desirability' as suggested elsewhere (Slovic et al., 2002), since it has a greater far reaching effect than desire on the prediction of intentions.

We expected potential entrepreneurs with an orientation for growth to be more influenced by desire, since growing a business requires much greater dedication and little time for work enjoyment (Douglas, 2013). Our results do appear to suggest this, as desire has greater explanatory power for the growth oriented group ($R^2 = 0.41$) compared to the independence oriented group ($R^2 = 0.08$). The explained variation for the latter group is quite low however, which may indicate that the intentions of these individuals in particular are not well formed.

CONCLUSIONS

The formation of entrepreneurial intentions has followed two theoretical models, namely, the Theory of Planned Behavior (TPB) and the Shapero Entrepreneurial Event (SEE). Both models assume attitude provides a reason for forming an intention, but note that the SEE model substitutes attitude, as found in the TPB, for perceived desirability. More recently, the entrepreneurship literature has highlighted the fact that the TPB and the SEE are not motivational models (Bird, 2015; Schlaegel & Koenig, 2014). Thus, our contribution to the extant literature in this regard is to demonstrate and test how 'desire' (a construct different from 'perceived desirability') activates or propels intentions in the context of new business formation. Bird (2015, p.158) has called for studies to move beyond basic or non-specific predictions of entrepreneurial intentions by applying existing models to "other entrepreneurial actions, including growth intentions". In that spirit, our study uses a sample of non-students to predict intentions to start a business with an orientation for growth and an orientation for independence. Our final contribution to the entrepreneurship literature is the inclusion of anticipated emotions in our proposed cognitive model. The data appear to be in support of our proposed modification. In particular, positive anticipated emotions were found to contribute significantly to predictions of desire, attitude, and subjective norms. We find partial support for our contention that desire fully mediates the effect of attitudes, anticipated emotions, subjective norms and behavioral control on intentions to start a business. Desire accounts for only eight percent of the variance in independence-oriented intentions, whereas it accounts for 41% of the variation in growth-oriented intentions. It may well be the case that desire is more associated with intentions when they are well formed and challenging.

One key point of difference between the two groups studied relates to the weak statistical significance of perceived behavioral control (self-efficacy) in predicting desire or intentions to start a business with an orientation for independence. This is probably the result of the lack of stability or an ill-formed independence-oriented intention.

Implications

The findings from this study may benefit entrepreneurs, investors and educators of entrepreneurship by providing a clearer understanding of how entrepreneurial intentions become energized. The concept of entrepreneurial desire provides this rationale. Practitioners may also be interested in understanding how entrepreneurial desire is formed. This study shows that attitudes (both instrumental and affective), positive anticipated

emotions, subjective norms and perceived behavioral control coalesce into the entrepreneurial desire to start a business.

The desire for entrepreneurship can be ignited by making individuals think (or visualize) about the positive aspects of starting a business (of having achieved the goal of starting a business). This will elicit positive anticipated emotions or feelings that will serve as catalyst of desires.

Individuals must also be taught the skills required to be an entrepreneur. Desires may be unjustifiable if they are not accompanied by the perception of behavioral control.

The sample of entrepreneurs in this study acknowledges the influence of significant others, namely, friends and family in their decision to start a business. In many cases these individuals are likely to be the least critical of potential entrepreneurs. Aspiring entrepreneurs must be cautious of the opinions of relevant others. Although their comments and opinions may be encouraging, they are unlikely to constitute sound objective advice.

Limitations

This research study is not without its limitations. First, the sample studied is small and respondents were grouped on the basis of averages (a score of 4.5 or above) to answers to various statement items designed to measure intentions to start a business for growth or for independence. An individual may have agreed with one or more items for both growth-oriented and independence-oriented intention measures. To mitigate this issue, respondents were classified in one group over the other if their ratings were higher on one scale over the other. Future studies may strive to distinguish the two categories of intentions in a different manner to improve the robustness of our results in this study. Note however that the methodology employed in this study still reveals significant differences between the groups. Further, the variables used to measure intention, as adapted from Douglas (2013), may reflect behavioral expectations more so than behavioral intentions. Perhaps our results may change markedly if behavioral intention measures were used. Lastly, this study utilizes cross-sectional data, yet the constructs in our proposed model are likely to be time dependent. For instance, desires and intentions may vary over time. This study does not capture these dynamics in the data.

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Appendix

Sample demographic characteristics

Demographic	Categories	Frequency	Percent
Gender	Male	140	66.4%
	Female	71	33.6%
	Total	211	100
Age	less than 20	6	2.8%
	21-29	82	38.9%
	30-39	76	36.0%
	40-49	29	13.7%
	50+	18	8.5%
	Total	211	100
Marital status	Single	77	36.5%
	Married	121	57.3%
	Others	13	6.2%
	Total	211	100

Demographic	Categories	Frequency	Percent
In which business sector are you working?	Private Sector	148	70.1%
	Public Sector	47	22.3%
	Not Working / Retired	16	7.6%
	Total	211	100
How many years of work experience do you have?	Less than 3 years	43	20.4%
	3-6 years	50	23.7%
	7-10 years	51	24.2%
	More than 10 years	67	31.8%
Education	Total	211	100
	High school	15	7.1%
	Two years college (Diploma)	31	14.7%
	Undergraduate Degree (Bachelors)	131	62.1%
	Postgraduate (Master & PhD)	34	16.1%

Abstrakt (in Polish)

Celem niniejszej pracy jest integracja koncepcyjnego i empirycznego podejścia do przewidywania i wyjaśnienia intencji przedsiębiorczych. Szczególnie, testowanie modelu, który odpowiada za motywację przedsiębiorcy, jako istotnego czynnika powszechnie pominiętego w aktualnych teoriach z zakresu intencji przedsiębiorczych. Badamy rolę chęci przedsiębiorców (odrębną od koncepcji zamiaru) jako wyznacznika dwóch wyróżniających intencji przedsiębiorczych. Badania te potwierdzają najnowsze wyniki badań, które podkreślają znaczenie identyfikacji intencji w rozpoczęciu działalności gospodarczej o orientacji na rzecz wzrostu w przeciwieństwie do substytucji dochodów. Ponadto, podczas gdy rola emocji stała się ważnym czynnikiem w przedsiębiorczości, przewidywane emocje zyskały bardzo niewiele uwagi w bieżącej literaturze. Wykorzystując próbę badawczą z Kuwejtu, artykuł ten stwierdza, że pragnienie jest silniejszym predyktorem intencji zorientowanych na wzrost dochodów niż intencje zorientowane na substytucję dochodów. Również chęci przedsiębiorcze częściowo i pośrednio wpływają na postawę, spodziewane emocje i intencje przedsiębiorcze.

Słowa kluczowe: przedsiębiorczość, intencje, pragnienia, postawy, oczekiwane emocje.

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Influence of Creativity and Social Capital on the Entrepreneurial Intention of Tourism Students

Chien-Ching Chia¹ and Chaoyun Liang²

Abstract

Regional knowledge coordination and the systematic promotion of rural culture using a combination of ecological advantages and environmental education are emerging topics in discussions on entrepreneurship. Considering that both creativity and social capital are critical factors for developing touristic activities, this study investigated their influences on the entrepreneurial intentions of tourism students in a metropolitan area, with the objective of contributing towards talent development in touristic entrepreneurship. A survey was administered at one university in Taiwan, and 213 valid subjects were analysed. The results first revealed that tourism students' creativity was divided into two dimensions, namely originality and usefulness; that social capital could be categorised as being either bridging or bonding; and that entrepreneurial intention was divided into conviction and preparation. The results indicated that tourism students with higher levels of creativity showed stronger entrepreneurial intentions. The usefulness of creativity had a stronger influence on entrepreneurial conviction than on entrepreneurial preparation. In addition, bridging-based social capital had a significant influence on the entrepreneurial conviction of tourism students. The results of this study may serve as a reference for tourism administrators in the development of strategies for human resources management, particularly in personnel selection and training.

Keywords: *creativity, entrepreneurial intention, social capital, tourism students.*

INTRODUCTION

Over the past three decades, climate change has changed global society and natural systems. Wilson and Morren (1990) asserted that people must seriously consider the ecological, ethical, and social concerns emerging from the use of resources in rural areas. Furthermore, Orr (1994) stated that global

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warming damages ecologies and biochemical cycles; however, it is rooted in the inherent awareness, prioritisation, and loyalty towards industrialisation. Because people have been involved in excessive consumption, social injustice, and ethnic conflicts worldwide, younger generations from rural areas continue to migrate to metropolises and eventually become detached and competitive (Ellyard, 2011). Therefore, the simultaneous balancing of rural development promotion and quality of life maintenance has become a topic of interest in recent years (Flora et al., 2002; Freibauer et al., 2011). Such a balance can be achieved through tourism, thereby rendering entrepreneurship for rural tourism a central topic.

Numerous studies have documented critical antecedents of entrepreneurial intention, including exposure to entrepreneurial role models (Austin & Nauta, 2016; Van Auken, Fry, & Stephens, 2006), disposure of intellectual capital (Alcaniz, Gomez-Bezares, & Roslender, 2010; Razmi & Firoozabadi, 2016), and previous entrepreneurial experience (Hockerts, 2015; Ozaralli & Rivenburgh, 2016). In addition, creative leveraging of social capital to achieve high performance has also been identified as a central strategy in the tourism business (Richards & Wilson, 2007; Zhao, Ritchie, & Echtner, 2011). That is, the creativity and social capital of entrepreneurs must be taken into account in discussing their behaviours, particularly in the tourism business.

Entrepreneurs in a knowledge-based economy must be capable of excellent creativity (Carayannis, Popescu, Sipp, & Stewart, 2006), particularly at the stages of identifying and evaluating business opportunities and launching a business (Doboli, Kamberova, Impagliazzo, Fu, & Currie, 2010). Moreover, creativity is a primary element of entrepreneurial intention (Olufunso, 2010), and people with strong creativity often demonstrate outstanding entrepreneurial intentions (Balachandran & Sakthivelan, 2013; Zampetakis, 2008). In addition, social capital has a major influence on entrepreneurial intention (Liñán & Santos, 2007), especially for young people, and social capital strongly affects the entrepreneurial intentions and career choices of younger generations (Sharma, 2014). However, integrated studies on the influence of creativity and social capital on entrepreneurial intention are scant, and the literary focus on entrepreneurs of rural tourism is even less developed.

Because of the global trend towards lifestyles of health and sustainability, regional knowledge coordination and the systematic promotion of rural cultures with a combination of ecological advantages and environmental education have emerged as topics in entrepreneurship. To reduce the shortage of professional manpower in the service industry, universities and vocational senior high schools have established related departments over the

past two decades to provide talent resources for the tourism industry. The tourism industry is highly labour intensive, and the shortage of manpower in rural areas is a major obstacle to the promotion of local tourism. Therefore, the current study investigated (1) the influence of creativity and social capital on the entrepreneurial intention of tourism students in metropolitan areas and (2) the influence of tourism students' creativity and social capital on the intention to establish an enterprise in a rural area

LITERATURE REVIEW

Entrepreneurial intention

Thompson (2009) defined entrepreneurial intention as the conviction, preparation, and commitment to continual planning for the establishment of a new enterprise or the creation of additional value. Among the diverse approaches to entrepreneurial intentions, the entrepreneurial event theory (Shapero & Sokol, 1982) and the theory of planned behavior (Ajzen, 1991) are the most popular models. Shapero and Sokol (1982) indicated that entrepreneurial intention is influenced by perceptions of desirability and feasibility. Ajzen (1991) suggested that the antecedents of entrepreneurial intention should include three aspects, namely the attitude towards entrepreneurship, the subjective norms, and the perceived control over the entrepreneurial behaviour.

However, numerous scholars have referred to difficulties related to differences in the measures used, because there are no standard measurement instruments for entrepreneurial intention and its antecedents (Armitage & Conner, 2001; Liñán & Chen, 2009). For example, Cooper and Dunkelberg (1986) asserted that entrepreneurs are different from enterprisers who are employed and gradually promoted by enterprises. Certain enterprisers inherit or acquire enterprises and demonstrate relatively different motives and attitudes towards the operation of their enterprises. Pittaway and Cope (2007) emphasised that the entrepreneurial intention of small and medium-sized enterprises and non-profit organisations differs from that of general profit-seeking enterprises; hence, the viewpoints, arguments, practices, and measurements must also differ.

According to these differences, Lans, Gulikers, and Batterink (2010) divided entrepreneurial intention into three categories: classical (entrepreneurs), alternative (enterprisers through inheritance or acquisition), and intrapreneurial (enterprisers through internal promotion). These three types of entrepreneurial intention have different learning objectives and professional requirements. Entrepreneurial intention plays a crucial

mediating role in the stimulation of entrepreneurial behaviour (Fayolle, Gailly, & Lassas-Clerc, 2006). Therefore, Wang, Peng, and Liang (2014) summarised the results obtained by Liñán and Chen (2009) and Lans et al. (2010) and developed a reliable and valid scale of entrepreneurial intention, in which they proposed that entrepreneurial intention should take two dimensions of 'conviction' and 'preparation' into account. Accordingly, this study adopted this scale for use in a survey instrument.

Creativity and entrepreneurial intention

'Creativity' can be defined in two ways (Barron & Harrington, 1981): (1) creativity means a novel product accepted by society—also known as the product view—(Baer, Kaufman, & Gentile, 2004; Hennessey & Amabile, 2010), and (2) creativity is the capability of performing a certain task—also known as the capability view—(Fryer, 2006; Silvia, 2008). In the product view, creativity comprises two major concepts: originality and usefulness (Mayer, 1999; Runco & Jaeger, 2012). Many scholars have considered originality to be the expression of novelty, uncommonness, and surprise (Barron, 1955; Sternberg, 1999), and usefulness to be that of appropriateness, effectiveness, utility, adaptation, value, and flexibility (Barron, 1988; Hutchinson, 1931; Stein, 1953).

Runco and Jaeger (2012) concluded that the definitions of creativity proposed by Barron (1955) and Stein (1953) would continue to be referred to in future studies, because those two studies mentioned the core of creativity: originality and usefulness. Lin, Hsu, and Liang (2014) summarised various theories and concluded that the originality of creativity implies the ability to produce a novel or uncommon idea, behaviour, or work, and that the usefulness of creativity implies the ability to produce an appropriate, effective, or valuable idea, behaviour, or work. Both must be accepted in the specific societal context. In *Transferable Criteria of Creativity*, Copley (2015) proposed that creativity must contain 'elegance' and 'genesis'. Accordingly, the current study developed a survey tool by adopting the discourses of Lin et al. (2014) and Copley (2015).

Colleges and universities are considered the source of new knowledge and technological innovation benefitting the establishment of enterprises. These entrepreneurial activities emerge from the transfer of research from research and development teams to student 'garage ventures' (Shane, 2004). In recent years, schools, industries, and policymakers have emphasised and recognised the importance of campus ventures in the development of national economies because of the advent of innovative ideas and technologies and the increase in economic value and job opportunities (Prodan & Drnovsek,

2010). The climate for innovation on campus can increase the entrepreneurial intentions of teachers and students through job satisfaction and self-efficacy, which improve the relationship between job satisfaction and entrepreneurial intentions (Lee, Wong, Foo, & Leung, 2011). In addition, student imagination has a considerable influence on ventures and rural service (Chang, Yao, Chen, King, & Liang, 2016; Yao, Peng, Lee, & Liang, 2016).

Social capital and entrepreneurial intention

Social capital refers to the scale of an available social network and the aggregate quality of resources owned by all members in the social network (Bourdieu, 1986). Social capital can be briefly divided into individuals and organisations. This study focused on individual social capital. The position in a group can be decided by the social capital owned by individuals, which affects not only the quality and quantity of social resources available for individuals but also the opportunities to obtain and use such resources (Lin, 2002). Nahapiet and Ghoshal (1998) analysed social capital in three dimensions: structural (including networking, network configuration, and schedulable organisation), relational (including trust, recognition, standards, obligations, and expectations), and cognitive (including shared codes, languages, and discourses). Moreover, scholars have analysed social capital through composition: amount of contact time (interaction), emotional intensity and closeness (emotion), and reciprocity (activity) (Astone, Nathanson, Schoen, & Kim, 1999). Williams (2006) divided the concept of social capital into two types of cognitive networks—namely, bridging and bonding—and developed a scale of social capital containing 20 questions.

Social capital is beneficial for entrepreneurial activities, particularly in the acquisition of knowledge, identification of business opportunities, networking, establishment of reputation, and improvement in performance (Honig, 1998; Lechner & Dowling, 2003; Moller, Partanen, Westerlund, Rajala, & Rajala, 2005; Shaw, Lam, & Carter, 2008). Accordingly, social capital and entrepreneurship are positively related. Residents in cities apply social capital more flexibly than those in the countryside do and are more determined in perceiving opportunities (Arenius & Clercq, 2005). In addition, social capital has a strong effect on career choices and can promote the entrepreneurial intention of younger generations (Liñán & Santos, 2007; Sharma, 2014; Walker, Kogut & Shan, 1997).

Social capital is not only a critical capacity for improving poor communities (Middleton, Murie, & Groves, 2005) but also an essential factor in strengthening quality of life and sustainable development (Kay, 2006; Newman & Dale, 2005). According to Mel and Jenny (2007), when

community development is threatened, social capital is fundamental in establishing interpersonal connections, promoting communication, and bonding, thereby enabling the protection of sustainable cultures. The recent emergence of the Internet has also contributed to the establishment of a new pattern of communication. Internet users often form groups on the basis of common benefits or interests. Therefore, an exchange of experience in, and information on, social capital can strengthen social connections and expand external relations (Joinson, 2003).

On the basis of the aforementioned studies, four hypotheses were proposed as follows:

H1: Creativity positively influences entrepreneurial intention;

H2: Social capital positively influences entrepreneurial intention;

H3: Creativity positively influences entrepreneurial intention in rural areas;

H4: Social capital positively influences entrepreneurial intention in rural areas.

METHOD

This study administered a questionnaire to tourism students from one university in Taipei, Taiwan. The questionnaire comprised a total of 33 questions, and was divided into four parts. The first part (12 questions) divided creativity into originality and usefulness according to the studies of Lin (2014) and Cropley (2015), the second part (10 questions with higher factor loadings) divided social capital into bridging and bonding according to the scale developed by Williams (2006), and the third part (10 questions) divided entrepreneurial intention into conviction and preparation according to the scale developed by Wang et al. (2014). Finally, one question was designed about entrepreneurial intention in rural areas specifically for this study.

The respondents answered on a 6-point Likert-type scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Unanswered questions were set as missing values. Because the scales were adopted from renowned international journal papers, the questionnaire has high reliability and validity. The questionnaire was distributed during a weekly meeting of the department in April 2016. A total of 257 questionnaires were retrieved and 44 incomplete questionnaires were excluded. The number of valid questionnaires was 213; a valid response rate of 83%.

Among the respondents with valid questionnaires, 97.65% were Taiwanese; 18.8% were male and 81.2% were female, which corresponds with the national statistics of tourism student enrolment (Ministry of Education, 2015). Moreover, respondents with parents engaged in the service industry

constituted the highest proportion of the participants (36.2%), followed by those with parents in business (26.8%), industry (15.5%), public sectors, education, and the police (12.7%), and agriculture (2.3%). In addition, respondents residing in New Taipei constituted the highest proportion of the participants (31.9%), Taipei (21.6%), Taoyuan (11.7%), and Keelung (4.7%).

To investigate the influence of creativity and social capital on entrepreneurial intention, this study first adopted factor analysis with varimax rotation to select and factor structure (eigenvalues greater than 1), and then performed multiple regression analysis to determine the possible causal relationship.

ANALYSIS AND DISCUSSION

Regarding creativity, the Kaiser–Meyer–Olkin (KMO) value was 0.92. Bartlett’s sphericity test reached a level of significance ($\chi^2 = 2202.61$, $df = 66$, $p < .001$) that was suitable for factor analysis. Two factors were screened for: originality and usefulness. The total variance explained reached 68.778%, indicating adequate validity. According to Table 1, cross factor loading was observed in questions 11 and 12; nevertheless, considering the numerical comparison, these two questions belonged to the ‘usefulness’ factor. On the basis of the discourses of Lin et al. (2014) and Cropley (2015), the current study developed a survey tool and verified that the creativity of tourism students comprised two major factors: originality and usefulness.

Table 1. Factor analysis, mean, and standard deviation of creativity ($N = 213$)

Question No.	Originality	Usefulness	M	SD
I can plan innovative leisure activities.	.777		3.84	.737
I can plan leisure activities with my own characteristics.	.670		4.02	.771
I can plan inspiring leisure activities.	.912		3.74	.723
Leisure activities that I plan are ingenious.	.853		3.87	.806
Leisure activities that I plan are unique.	.897		3.70	.891
Leisure activities that I plan guide the market.	.554		3.51	.856
I understand customers’ needs.		.872	3.89	.828
I adapt practises flexibly to the changes.		.750	4.03	.662
I consider preferences in the consumer market.		.964	3.96	.735
Leisure activities that I plan meet customers’ goals.		.659	3.78	.735
Leisure activities that I plan can be adapted to different situations.	.333	.543	3.86	.724
Leisure activities that I plan are recognised in the consumer market.	.444	.455	3.67	.781

Note: A blank represents a factor loading of less than .3.

Regarding social capital, the KMO value was 0.875. Bartlett’s sphericity test reached a level of significance ($\chi^2 = 1743.82, df = 45, p < .001$) that was suitable for factor analysis. Two factors were screened for: bridging and bonding. The total variance explained reached 68.435%, indicating adequate validity. According to Table 2, cross factor loading was observed in questions 1 and 2; nevertheless, considering the numerical comparison, these two questions belonged to the ‘bonding’ factor. On the basis of the scale proposed by Williams (2006), the current study adopted questions with higher factor loadings and verified that the social capital of tourism students involved two major factors: bridging and bonding.

Table 2. Factor analysis, mean, and standard deviation of social capital (*N* = 213)

Question No.	Bridging	Bonding	M	SD
There are several people online/offline I trust to help solve my problems.	.410	.462	4.57	.907
There is someone online/offline I can turn to for advice about making very important decisions.	.439	.482	4.58	.879
If I needed an emergency loan of \$500, I know someone online/offline I can turn to.		.774	3.73	1.028
The people I interact with online/offline would put their reputation on the line for me.		.987	4.03	1.041
The people I interact with online/offline would help me fight an injustice.		.719	4.38	.886
Interacting with people online/offline makes me interested in things that happen outside of my town.	.885		4.51	.799
Interacting with people online/offline makes me want to try new things.	.915		4.56	.784
Talking with people online/offline makes me curious about other places in the world.	.896		4.63	.823
Interacting with people online/offline makes me feel like I am part of a larger community.	.669		4.37	.910
Interacting with people online/offline makes me feel connected to the bigger picture.	.926		4.54	.815

Note: A blank represents a factor loading of less than .3.

For entrepreneurial intention, the KMO value was 0.898. Bartlett’s sphericity test reached a level of significance ($\chi^2 = 1899.99, df = 45, p < .001$) that was suitable for factor analysis. Two factors were screened for: conviction and preparation. The total variance explained reached 69.459%, indicating adequate validity. According to Table 3, cross factor loading was observed in questions 4, 5, and 6; nevertheless, considering the numerical comparison, questions 4 and 5 belonged to the ‘conviction’ factor and

question 6 belonged to the 'preparation' factor. On the basis of the scale proposed by Wang et al. (2014), the current study adjusted the questions and verified that the social capital of tourism students involved two major factors: conviction and preparation.

Table 3. Factor analysis, mean, and standard deviation of entrepreneurial intention ($N = 213$)

Question No.	Conviction	Preparation	M	SD
My professional goal is to become an entrepreneur.	.844		4.57	.907
I am going to do anything to become an entrepreneur.	.977		4.58	.879
I have seriously considered starting a business.	.852		3.73	1.028
I intend to start my own business within 5 years.	.596	.311	4.03	1.041
I will make every effort to establish and operate my own business.	.478	.383	4.38	.886
I am determined to develop my business into a high-growth enterprise.	.424	.505	4.51	.799
I am determined to become a profession business manager.		.632	4.56	.784
I am going to inherit my family's business in the future.		.621	4.63	.823
I am going to establish a company that promotes environmental protection.		.927	4.37	.910
I am going to establish a company that provides assistance for disadvantaged groups.		.906	4.54	.815

Note: A blank represents a factor loading of less than .3.

This study conducted a multiple regression analysis to assess the influence of creativity and social capital on entrepreneurial intention. According to Table 4, the standardised regression coefficient of 'usefulness' to 'conviction' reached .367 ($p < .01$), with a coefficient of multiple determination (R^2) of 13.47%, and the standardised regression coefficient of 'usefulness' to 'preparation' reached .248 ($p < .05$), with an R^2 of 6.1%, whereas those of 'originality' to both 'conviction' and 'preparation' did not reach significance levels. Therefore, H1 was partially supported. Moreover, the standardised regression coefficient of 'bridging' to 'conviction' reached .181 ($p < .05$), with an R^2 of 3.28%, whereas that of 'bridging' to 'preparation' and those of 'bonding' to both 'conviction' and 'preparation' did not reach significance levels. Therefore, H2 was also partially supported. In the overall model, the R^2 of the independent variable to 'conviction' and 'preparation' reached 20.4% and 19.8%, respectively. The result of an F test revealed a level of significance ($p < .001$), which indicated that the regression model was appropriate.

The study results revealed that tourism students with higher creativity demonstrated stronger entrepreneurial intentions; this result is consistent

with those of previous studies (Balachandran & Sakthivelan, 2013; Carayannis et al., 2006; Olufunso, 2010; Zampetakis, 2008). In addition, this study determined that the usefulness of creativity had a significant effect on both aspects of entrepreneurial intention; in particular, usefulness had a stronger influence on entrepreneurial conviction than on entrepreneurial preparation. However, the originality of creativity had no significant effect on entrepreneurial intention, which is a new observation in academia.

The results also indicated that tourism students with higher levels of social capital demonstrated stronger entrepreneurial intentions, which is consistent with the results of previous studies (Liñán & Santos, 2007; Moller et al., 2005; Sharma, 2014; Shaw et al., 2008). Furthermore, this study determined that bridging-based social capital had a significant effect on entrepreneurial conviction, although it had no significant influence on entrepreneurial preparation. In addition, bonding-based social capital had no significant influence on either type of entrepreneurial intention. According to Williams (2006), bridging-based social capital can expand the social extent and worldview, and benefit the acquisition of new knowledge and resources. The results of the current study revealed that bridging-based social capital equipped with heterogeneity inclusion consolidated the entrepreneurial conviction of the tourism students. Furthermore, bonding-based social capital with high homogeneity had no significant influence on entrepreneurial intention, which proposed a new perspective for academia.

Table 4. Regression analysis of the influence of creativity and social capital on entrepreneurial intention (N = 213)

Variables	Conviction			Preparation			
	Beta	t	p	Beta	t	p	
(Constant)		1.672	.096		1.975	.050	
Independent variable	Originality	.011	.103	.918	.184	1.731	.085
	Usefulness	.367	3.370	.001**	.248	2.268	.024*
	Bonding	-.053	-.673	.502	-.004	-.053	.958
	Bridging	.181	2.233	.027*	.083	1.014	.312
Model summary	R ²	.204		.198			
	F	13.295		12.857			
	p	.000***		.000***			

Note: * $p < .05$, ** $p < .01$, *** $p < .001$.

This study also conducted a multiple regression analysis to assess the influence of creativity and social capital on entrepreneurial intention in rural areas. According to Table 5, the standardised regression coefficient of

'originality' to entrepreneurial intention in rural areas reached .293 ($p < .05$), with an R^2 of 8.59%, whereas those of 'usefulness,' 'bonding,' and 'bridging' to entrepreneurial intention in rural areas did not reach significance levels. Therefore, H3 was partially supported, and H4 was not supported. The R^2 of the independent variable to entrepreneurial intention in rural areas reached 4.6%. The result of an F test presented a level of significance ($p < .05$), indicating that the regression model was appropriate.

According to the results, entrepreneurial intention in rural areas was not influenced by usefulness or social capital, whereas it was significantly influenced by originality. This implies that the originality of tourism students benefits the engagement in rural service and ventures, and promotes environmental sustainability, echoing the contemporary literature (Chang et al., 2016; Yao et al., 2016). As such, to enhance student intention towards rural entrepreneurship and stimulate entrepreneurial intention in rural areas, tourism educators need to embed originality-promotion activities into curriculum and placement planning, and foster creative cognition and culture among students and educational institutions.

Table 5. Regression analysis of the influence of creativity and social capital on entrepreneurial intention in rural areas ($N = 213$)

Variables	Entrepreneurial intention in rural areas		
	Beta	t	p
	(constant)	5.223	.000
Independent variable	Originality	.293	.012*
	Usefulness	-.126	.291
	Bonding	-.089	.301
	Bridging	-.033	.709
	R^2	.046	
Model summary	F	2.523	
	p	.042*	

Note: * $p < .05$, * $p < .01$, *** $p < .001$.

CONCLUSION AND LIMITATIONS

Entrepreneurship is a major source of economic growth that creates business opportunities and reduces unemployment. Entrepreneurial intention is central to explaining entrepreneurship and conducive to influencing entrepreneurial action. Numerous entrepreneurial studies have focused on exposure to entrepreneurial role models, disposure of intellectual capital, and previous entrepreneurial experience, but have rarely looked favourably

on the integrated effects of creativity and social capital that are particularly crucial in the tourism business and for younger generations. The present study addressed this oft-neglected topic and considered both creativity and social capital as resources for fostering sustainable practices and systems. This study also sought to further our understanding of the successes or failures of potential rural entrepreneurship.

Our results revealed that tourism students with higher levels of creativity demonstrated stronger entrepreneurial intentions. The usefulness aspect of creativity had a significant effect on entrepreneurial intention; in particular, it had a stronger influence on entrepreneurial conviction than on entrepreneurial preparation. In addition, this study determined that bridging-based social capital had a significant effect on entrepreneurial conviction. Accordingly, the usefulness of creativity and bridging-based social capital can be seen as promising antecedents of entrepreneurial intention. Furthermore, the results showed that the originality of creativity had a significant effect on entrepreneurial intention in rural areas. Accordingly, tourism educators can develop instructional methods and guiding strategies that inspire entrepreneurship among tourism students; and to leverage the creativity and social capital of workforces, tourism administrators may need to reconsider their strategies of human resources management, particularly in personnel selection and training and in incentive system design.

Certain research limitations that were encountered while conducting this study should be acknowledged. First, the research tools used in this study may limit the outcomes. Other creativity scales (e.g., the Torrance Tests of Creative Thinking; Torrance, 1998) and social-capital scales (e.g., Van der Gaag & Webber, 2008) may be considered as adjusted research tools for further investigation. Second, the quantitative method adopted in this study was limited by its nature. In the future, a qualitative approach may be designed and performed for detailed inquiries and in-depth outcomes. Third, the study targeted only students from one university, and therefore the results cannot be generalised extensively. Finally, this study included only one question about entrepreneurial intention in rural areas. In the future, researchers can develop a thorough survey tool based on this study or other relevant theories.

Hill (2013) argued that the rules of innovation were made to be broken, and added that flexibility achieves more than process and structure. Young generations are typically faced with unpredictable challenges during the initiation of new ventures, particularly in resource-lacking rural areas. Creativity can help these young entrepreneurs survive and succeed, while social capital can add flexibility into this cycle and help leverage the final achievement.

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Abstract (in Polish)

Koordynacja regionalnej wiedzy i systematyczne promowanie kultury wiejskiej, przy wykorzystaniu kombinacji ekologicznych przewag i edukacji ekologicznej, pojawiają się w dyskusjach na temat przedsiębiorczości. Biorąc pod uwagę, że zarówno kreatywność jak i kapitał społeczny są kluczowymi czynnikami dla rozwoju działalności turystycznych, w tym badaniu sprawdzano ich wpływ na przedsiębiorcze intencje studentów turystyki w obszarze metropolitalnym, mając na celu przyczynienie się do rozwoju talentów w turystycznej przedsiębiorczości. Badanie przeprowadzono w jednej z uczelni na Tajwanie, na próbie 213 studentów. Wyniki wykazały, że kreatywność studentów turystyki została podzielona na dwie płaszczyzny, a mianowicie oryginalności i użyteczności; kapitał społeczny może być zakwalifikowany jako pomostowy lub spajający; a intencje przedsiębiorcze zostały podzielone na przekonanie i przygotowanie. Wyniki wskazują, że studenci turystyki z wyższym poziomem kreatywności wykazują silniejsze intencje przedsiębiorcze. Użyteczność kreatywności miała większy wpływ na przedsiębiorcze przekonania niż na przedsiębiorcze przygotowania. Ponadto, pomostowy kapitał społeczny miał istotny wpływ na przedsiębiorcze przekonania studentów turystyki. Wyniki tego badania mogą służyć jako punkt odniesienia dla administratorów turystyki w rozwoju strategii zarządzania zasobami ludzkimi, szczególnie w selekcji i szkoleniu personelu.

Słowa kluczowe: *kreatywność, intencje przedsiębiorcze, kapitał społeczny, studenci turystyki.*

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