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Exploring barriers to innovation in tourism industry – the case of southern region of Poland

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Abstract

This paper provides evidence for different factors hampering the innovative activity of micro, small and medium-sized tourist enterprises (MSMTEs). Innovation barriers are identified and explored within the framework of innovative chain of the regional tourism along its three main dimensions: organisational, environmental and innovation-process specifics. Empirical evidence is obtained through surveys conducted in 2012 in the southern region of Poland. The questionnaires were administered to representative samples of local tourist business stakeholders (MSMTEs, local governments, economic self-governments, tourists, local communities). The main conclusion is that the organisational, environmental and innovation-process related barriers to innovation in tourist sector appear to be closely and mutually interrelated. Furthermore, most of identified barriers emerge or tend to aggravate at the interfaces between local tourist business stakeholders.

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Keywords: barriers; innovation; tourism industry; SMEs; regional tourism.

1. Introduction

Due to an impressive growth of tourism industry reflected in a systematic increase in the share of global GDP (WTTC 2011) tourism is commonly recognized as a key driver for socio-economic progress (<http://www2.unwto.org/en/content/why-tourism>). However, this highly dynamic growth rate is accompanied by an exceptionally intense competition (Ottenbacher & Gnoth, 2005; Pivcevic & Petric, 2011; Keller, 2006) that generate a high pressure on tourist enterprises to continuously innovate in order to survive and grow (Bednarczyk, 2011;

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Hjalager, 2002; Sundbo, Orfila-Sintes & Sørensen, 2007; Weiermair, 2006). Surprisingly, the empirical studies and official statistics indicate a rather modest level of innovation in tourism sector (Hjalager, 2002; Pivcevic & Petric 2011; Camison & Monfort-Mir, 2012) and provide to a large extend a hazy picture of the potential reasons for that tendency (Hjalager, 2010). An emerging literature on tourism innovation management reflects a fragmentary knowledge on the subject with numerous undeveloped areas not covered by a thorough empirical investigation (Hjalager, 2010). One of those areas often mentioned on a conceptual level but rarely explored empirically concerns barriers to innovation in tourism (Hjalager, 2010). Therefore, the aim of the article is to fill the cognitive gap by providing evidence for different factors hampering the innovative activity of micro, small and medium-sized tourist enterprises (MSMTEs) identified and explored within the framework of innovative chain of the regional tourism. Barriers are investigated at the initial stage of the innovation process since according to Community Innovation Survey 2006 a large proportion of tourist enterprises abandons its innovative activity at the concept stage. The empirical evidence was collected through surveys conducted in 2012 among local tourism business stakeholders in the southern region of Poland.

This paper is structured as follows: Section 2 introduces a theoretical background; Section 3 describes data and methodology of the research; Section 4 presents results; Section 5 discusses conclusions and implications.

2. Theoretical background

2.1. Environment related barriers

The majority of authors underline that structural and behavioural peculiarities of tourism sector can generate substantial barriers to innovations. Discussions concern more or less a common list of industry features inducing innovation barriers, yet not often supported by a comprehensive empirical investigation (Table 1).

Table 1. Specific features of tourism industry inducing barriers to innovation

Feature	Induced barrier to innovation	Authors
Heterogeneity of business models	Low market transparency and difficulties in concept testing;	(Ottenbacher & Harrington, 2010; Camison & Monfort-Mir, 2012)
Industry dominated by MSMTEs	Low absorptive capacity for innovation; insufficient tacit knowledge for know-how driven innovations; change inertia; low awareness about importance of innovation; undeveloped innovation systems in tourism industry; high transaction costs for setting collaborative structures	(Pivcevic & Petric, 2011; Hjalager, 2002; Camison & Monfort-Mir, 2012; Weiermair, 2006; Beritelli & Rome, 2006; Pompl & Buer, 2006; Nordin, 2003; ECORYS, 2009; Keller, 2006)
Volatile developmental dynamics	High rate of closure of tourist SMEs and volatility of ownership of tourism businesses deters development of trust-based collaborative relations and knowledge accumulation; contribute to a negative image of the industry on the labor market; difficulties in attracting highly skilled human resources	(Pechlaner, Fischer & Hammann, 2009; Hjalager, 2002; Camison & Monfort-Mir, 2012; Nordin, 2003; Jacob & Groizard, 2007; Decelle, 2006)
Vulnerability to demand fluctuations	Highly income elastic, seasonal and volatile demand raises the risk of unstable and uncertain market for innovations, induces strategic incrementalism; high rate of human capital renewal that hampers accumulation of new knowledge and deters attracting highly skilled human resources	(Tisdell, 2002; du Cluzeau, 2006; Dwyer & Edwards, 2009; Hjalager, 2002; Sundbo et al., 2007; Decelle, 2006; Camison & Monfort-Mir, 2012)
Culture of little trust	Inefficient knowledge transfer; weak propensity toward collaboration in innovation	(Hjalager, 2002; Pechlaner et al., 2009; Najda-Janoszka, 2013,
Undeveloped tourism policy	Institutional inertia; mismatch between needs of tourism business and the institutional offers; weak support structure for tourist business; administrative burden;	(Hjalager, 2010; Keller, 2006; Weiermair, 2006; ECORYS, 2009)
Limited legal protection of innovations	Dominance of imitators and adopters over genuine innovators; weak disposition toward cooperation in innovation; free-rider attitude	(Hjalager, 2002; Najda-Janoszka, 2013; Decelle, 2006; Sundbo et al., 2007; Nordin, 2003)

Generally, the rather modest innovativeness of tourism businesses is commonly associated with fragmented nature of tourism industry dominated by very small entities managed by one person or families (Hjalager, 2002; Pivcevic & Petric, 2011). Problems of risk aversion, resistance to change, low awareness about importance of innovations, resource limitations that are common among small-scale businesses become the whole industry struggle. However, some studies have evidenced the existence of highly innovative small tourist enterprises and the fact that in small tourist firms innovation is positively correlated with entrepreneurship inclination (Sundbo et al., 2007; Ateljevic & Doorne, 2000 after: Pivcevic & Petric, 2011). It supports the arguments to investigate propensity to innovate of tourist micro and small enterprises including to a larger extend the entrepreneurial orientation perspective. Undoubtedly, unstable, volatile environmental conditions experienced in tourism industry aggravate the level of risk associated with innovation development (du Cluzeau, 2006; Dwyer & Edwards, 2009). The modest empirical findings presented in the literature in general confirm that advantages of being a pioneer diminish with increasing turbulence of the environment (Schnaars, 1994; Kerin, Varadarajan & Peterson, 1992). Thus, the tendency of tourist enterprises to implement incremental, imitative changes should not be discussed only in terms of a negative, adverse phenomena since from a strategic point of view it reflects an alternative and potentially more effective in given conditions approach to value appropriation (Shenkar, 2010; Najda-Janoszka, 2012).

Table 2. Applicability of IPR to innovations in tourism industry

IPR	Main characteristics	Applicability to tourism sector specificity
Patent	Applicable to useful technical inventions, original industrial designs. Confer to the patent holder the exclusive right of exploitation. Protection is limited geographically and temporarily. Patents are granted through formal registration and application procedures involving disclosure of invention.	Limited applicability. In tourism sector dominate non-technological thus non-patentable innovations.
Copyright	Protection of original ways of expressing ideas. Protection is immediate and no formal procedure is required.	Broad scope of application. It concerns codified knowledge contained in visible innovations that may serve as an easily accessible source of inspiration for alike solutions. Rather limited effectiveness in protecting against inspiredimitation.
Trademark	A trademark provides exclusivity over a particular sign that distinguishes its owner from other firms. Protection through a trademark requires a formal registration procedure. It is temporal but can be renewed indefinitely.	Broad scope of application. It concerns highly observable innovations susceptible to inspired imitations. Thus, appropriating value from registered trademark require further investments in building a strong brand.
Geographical indication	Protected names and signs denoting the geographical origin of natural, agricultural or manufactured products and their quality, reputation or other characteristics derived from that place.	Protection provided not for individual producers but for all products complying with the conditions of particular geographical indication. Particularly useful while developing regional tourist products.
Trade secrets	Protection of undisclosed information. There is no formal registration procedure for trade secrets.	Broad scope of application. It may concern codified and tacit knowledge. In order to be effective trade secrets require implementing comprehensive information policy supported by confidentiality agreements. Ineffective for observable innovations. Improper usage of trade secrets significantly hampers inter-organizational cooperation.

As delivering tourist products is getting more about providing experiences than particular services the weak disposition of tourist enterprises toward cooperation is somehow paradoxical. Further, it has been evidenced that cooperative activity is positively correlated with innovativeness (Sundbo et al., 2007; Trigo & Vence, 2012). As presented on Table 1 this reluctant attitude toward collaboration is rooted in different structural features and behavioural patterns of tourism industry, thus overcoming such a barrier to innovation appears challenging. The paucity of collaborative relationships among tourist firms is most often discussed in relation to the scarce possibilities to protect innovations (Hjalager, 2002; Sundbo et al., 2007). According to the literature the limited opportunities for appropriating value from implemented innovations discourage firms from engaging in the innovative activity (Tecece, 2002). Meanwhile, the issue concerning effective protection of innovations introduced in tourism industry from imitative practices performed by competitors lacks not only empirical but also a thorough

theoretical investigation (Hjalager, 2010). Most authors pointing at the limited applicability of intellectual property rights narrow discussions to patents and non-patentable character of innovations introduced by tourist enterprises, leaving the whole spectrum of other legal and managerial protection modes out of sight. Even though the literature provides evidence for rather questionable effectiveness of patent protection in most industries (Mansfield, 1985).

For highly observable, visible innovations that dominate in tourism industry the effectiveness of available legal measures appears to be rather limited (Table 2). According to Teece (2002) it indicates a weak appropriability regime that encourages imitative practices but also searching for complementary, managerial modes of protection such as causal ambiguity, advantageous position in access to complementary assets, lead-time advantage. It is evidenced that business entities perceive those managerial modes as highly effective even more than legal protection mechanisms (Fischer, 2011; Jennewein, 2005). Thus, the exploration of the issue of effective protection of innovations in tourism should be focused not only on legal measures but most importantly on managerial modes that correspond with peculiar features of the value creation process in tourism (Najda-Janoszka, 2013).

2.2. Organization related barriers

The two main characteristics of tourism industry – small size of enterprises (European Commission, 2006) and high personnel turnover (Hjalager 2002), constitute the most important sources of internal innovation barriers in tourism enterprises (Table 3).

Table 3. Specific organizational features of tourism enterprises inducing barriers to innovation

Feature	Induced barrier to innovation	Authors
Low innovation and knowledge management culture	Lack of flexibility, dysfunctional knowledge sharing and networking, weak learning environment, lack of need to innovate, limited knowledge on innovation, lack of pressure to innovate, culture of low risk, lack of understanding of the role of innovation in building competitiveness	(Cordeiro & Vieira, 2012), (Howells & Tether, 2004), (Cooper, 2006), (Mistilis & Gretzel, 2013), (ECORYS, 2009), (M. C. Ottenbacher, 2007), (M. Ottenbacher, Shaw, & Lockwood, 2006)
High personnel turnover rate	Human resource problems, insufficient training, low formal qualifications, problems with company's knowledge protection, limited significance of traditional career paths, lack of motivation to learn and innovate, low absorptive capacity, lack of technical expertise, adequate training, motivation to progress, lack of key staff and skills	(Howells & Tether, 2004), (Cooper, 2006), (Orfila-Sintes & Mattsson, 2009), (OECD, 2010), (Hjalager, 2002), (Cooper, 2006), (Mistilis & Gretzel, 2013), (Scott et al., 2008), (ECORYS, 2009), (Shaw & Williams, 2009),
Low innovation and knowledge management culture	Lack of flexibility, dysfunctional knowledge sharing and networking, weak learning environment, lack of need to innovate, limited knowledge on innovation, lack of pressure to innovate, culture of low risk, lack of understanding of the role of innovation in building competitiveness	(Cordeiro & Vieira, 2012), (Howells & Tether, 2004), (Cooper, 2006), (Mistilis & Gretzel, 2013), (ECORYS, 2009), (M. C. Ottenbacher, 2007), (M. Ottenbacher, Shaw, & Lockwood, 2006)
Weak change management	Managers' attitudes, unsupporting organizational structure, lack of change leadership, employee resistance to change	(Brentani, 2001), (Orfila-Sintes & Mattsson, 2009), (Cordeiro & Vieira, 2012), (Howells & Tether, 2004), (Gretzel & Fesenmaier, 2001)
Small size	Small size (together with HR issues) induces low absorptive capacity for external knowledge and innovations, limited capability to provide continuance of innovative activity and achieve an optimum rate of innovation; limited resources increasing risk of innovation and limiting access to technology, which is too expensive for MSMTes, focus on daily operations	(European Commission, 2006), (Orfila-Sintes & Mattsson, 2009), (Cordeiro & Vieira, 2012), (Mistilis & Gretzel, 2013), (Hjalager, 2002), (Shaw & Williams, 2009), (OECD, 2010), (Howells & Tether, 2004), (M. Ottenbacher et al., 2006), (Camison & Monfort-Mir, 2012)
Insufficient IT competencies and resources	Technical limitations, lack of compatibility among technologies, security risk and privacy issues, legal issues, lack of technology, limited IT skills with relation to technology complexity	(Mistilis & Gretzel, 2013), (European Commission, 2006), (Howells & Tether, 2004)

Small size of tourism enterprises is related to significant resource shortages. They have no resources to create innovative knowledge on their own or to buy it from commercial entities (Hjalager, 2002, 2010). They are forced to acquire knowledge and information to fuel innovation processes, or ready-to-use innovation ideas mostly from open external sources, however this process can also be hampered by limited absorptive capacity of SMEs (Scott, Baggio, & Cooper, 2008). Limited resources induce relatively high risk for innovative activities (Howells & Tether, 2004), and lack of time for innovation activities (Howells & Tether, 2004), (Mistilis & Gretzel, 2013); it also hampers the access to innovative technologies which are too expensive for tourist enterprises (Mistilis & Gretzel, 2013), (European Commission, 2006).

The other issue of key importance for innovation is human resources practices in MSMTEs. Although importance of highly skilled and motivated personnel is often referred to as critical success factor for innovation (Orfila-Sintes & Mattsson, 2009), (Grissmann, Pikkemaat, & Weger, 2013), (Brentani 2001), demand fluctuations caused by seasonality and relatively low wages result in many human capital related problems. Low level of formal education (Hjalager 2002), lack of skills and key personnel (Howells & Tether, 2004), are the causes of low absorptive capacity. Absorptive capacity is a factor that describes the enterprise's ability to source and utilize external knowledge (Scott et al., 2008), encompassing also the ability to recognize the importance of information (Cohen & Levinthal, 1990), together with the awareness of internal knowledge deficiency. Its importance appears particularly in the context of open innovation models (West & Gallagher, 2006), which are typical for tourism industry. The high personnel turnover rate contributes also to the problem of accumulation and protecting company's knowledge (Howells & Tether, 2004) as well as building innovation culture – another key important factor for innovation success (Brentani, 2001), (Cordeiro & Vieira, 2012).

2.3. Innovation process related barriers

Despite the fact that the empirical research on tourism innovation has a relatively short history (Hjalager, 2010) the research material collected so far enables identifying some specific features of innovations introduced in tourism industry that support arguments for developing distinct approach to study tourism innovation (Table 4).

Table 4. Specific features of innovation process in tourism industry

Feature	Authors
Dominance of non-technological innovations	(Camison & Monfort-Mir, 2012; Pivčević & Petric, 2011)
Hybrid innovations	(Camison & Monfort-Mir, 2012)
Innovations highly susceptible to imitation	(Hjalager, 2002; Camison & Monfort-Mir, 2012; Sundbo et al., 2007)
Focus on incremental innovations, often imitations	(Camison & Monfort-Mir, 2012; Beritelli & Romer, 2006; Weiermair, 2006; Sundbo et al., 2007)
Supply-driven technological changes	(Hjalager, 2002; Camison & Monfort-Mir, 2012; Peters & Pikkemaat, 2006)
High customer involvement	(Pechlaner et al., 2009; Ottenbacher & Gnoth, 2005; Sorensen, 2011)
Weak linkages to R&D. Innovative activities performed by various functional units	(Hjalager 2002; Camison & Monfort-Mir 2012; Pompl & Buer 2006; Nordin 2003)
Lack of innovation management procedures, broken internal knowledge chains	(Pompl & Buer 2006; Sorensen & Jensen 2012; Sorensen 2011)

Innovation process in tourism unlike in other industries is highly informal, not standardised through procedures and routines, most often consists of ad-hoc individual activities while certain elements of the process are missing e.g. R&D, pilot market study (Pechlaner et al., 2009). The lack of comprehensive approach to innovation management raises important inefficiencies concerning knowledge absorption, accumulation, transfer and integration (Sorensen, 2011). Therefore, although tourism is recognised as an industry of a high level of customer intensity the actual customer involvement in innovation processes is far from the level of user-driven innovations (Sorensen, 2011).

Tourist enterprises exhibit limited interest and engagement in R&D activity since most of developed innovations have not technological but intangible nature consisting of behavioural changes (Sundbo et al., 2007). As mentioned in previous section intangible, easily observable and decipherable innovations that dominate in tourism industry are subjects to a fast diffusion that contribute greatly to a rapid erosion of competitive advantages of innovators (Nordin, 2003). Thus in order to maintain or improve their current strategic position tourist enterprises experience increasing pressure to continuous innovation (Hjalager, 2002, Hjalager, 2010). Adapting to such conditions by keeping the fast pace of innovation corresponds with the reorientation towards managerial protection modes of the value generated from innovations, in particular with a lead-time advantage.

Considering the distinct character of innovation process in tourism it is worth mentioning that a rather unfavourable picture of tourism industry reflected in official cross-industry statistics of innovation can be to a certain extent misleading (Camison & Monfort-Mir, 2012). A considerable proportion of tourism business innovations are hardly indivisible or not included in definitions formulated according to Schumpeterian approaches (Camison & Monfort-Mir, 2012). Furthermore, standard indicators used in those statistics such as number of patents and R&D investments are not suitable to tourism innovation patterns, hence obtained scores may undervalue the actual innovative activity of tourist enterprises.

3. Data and methodology

The study of barriers to innovations in tourism industry is an integral part of a larger research project carried out in years 2010–2013 by the research team of Department of Management in Tourism at the Jagiellonian University (DMT UJ) lead by Professor M. Bednarczyk and aiming at developing conceptual and methodological foundations for the integrated management of the innovative value chain at the regional level (Bednarczyk, 2013). The core of the research model developed for the project is the overlap of three dimensions, namely “the efficient management of tourist enterprises, the quality of the local business environment (institutional and social) and the local platform for cooperation in order to make the best use of emerging synergies” (Bednarczyk, 2013). Consequently, the target population according to the formulated research model was formed by five categories of stakeholders of the local tourism business environment: micro, small and medium-sized tourist enterprises (MSMTEs); local governments; economic self-governments; tourists; local communities.

Empirical research was carried out in period between July 2012 and November 2012 in the southern region of Poland (NUTS 1). The region was selected on the basis of two main criteria, namely tourist attractiveness index and the development status of a regional innovation strategy. In order to collect information a diagnostic survey method was applied. Structured questionnaires were directed to sampled objects by using three procedures: postal mail survey (MSMTEs); electronic mail survey (MSMTEs; local governments; economic-self governments); direct survey (tourists; local communities). The lists of objects – MSMTEs, local governments, economic self-governments, were taken from the Regional Statistical Office in Krakow (Division of Central Statistical Office in Poland). However, in order to maintain continuity of the long-term monitoring of the competitive potential of tourism business in Poland conducted by the research team of DMT UJ lead by M. Bednarczyk, the MSMTEs category included enterprises performing business activities identified in the HORECA. The study sample of 1069 MSMTEs was chosen by stratified sampling scheme. In case of local governments and tourism organisations questionnaires were sent to all units operating in the study region, i.e. 384 local government units and 170 tourist organizations. 389 residents and 300 tourists were surveyed directly by trained pollsters in places recognized as tourist attractions. The returned and verified questionnaires formed the final study sample consisting of: 55 MSMTEs; 275 local government units; 11 units of economic self-government; 300 tourists; 389 community residents. The resulting frequencies were sufficient for carrying out analysis and reasoning in line with methodological assumptions of the research project, yet were not satisfactory to formulate generalizations. Consequently, for evaluating interrelations between variables qualitative methods of analysis were applied (Pearson’s Chi-Square test, Spearman correlation coefficient). The approach to measure barriers at the initial stage of the innovation process, i.e. was developed on the basis of findings obtained in Community Innovation Survey 2006 that indicated a large proportion of tourist enterprises with innovation activity abandoned at the concept stage. The reliability of the scale provided for measuring factors hampering effective translation of new ideas into innovations has been verified as satisfactory (Cronbach alpha = 0.6927).

4. Results

The results indicate that moving further from the concept stage to the next phases of the innovation process is noticeably hindered by several factors (Fig 1). Overwhelming majority of surveyed MSMTEs most often experience shortages of financial capital that hamper their ability to further develop new ideas. Besides financial limitations a considerable negative impact has an insufficient determination of employees to develop and implement new concepts as well as perceived weak ability to protect new solutions from competitors. Only slightly better is the situation regarding employee skills and knowledge necessary to develop new ideas and technological solutions supporting this process. At the same time surveyed enterprises quite rarely experience problems with acceptance from local community and lack of ideas for new products. In both cases only 25% of the group faces problems with those barriers often or always, and over 50% rarely or never. Considering the significance of both barriers (and particularly the skills and knowledge-related one) this result shed some positive light on the internal and relational aspects of innovation potential of tourist enterprises.

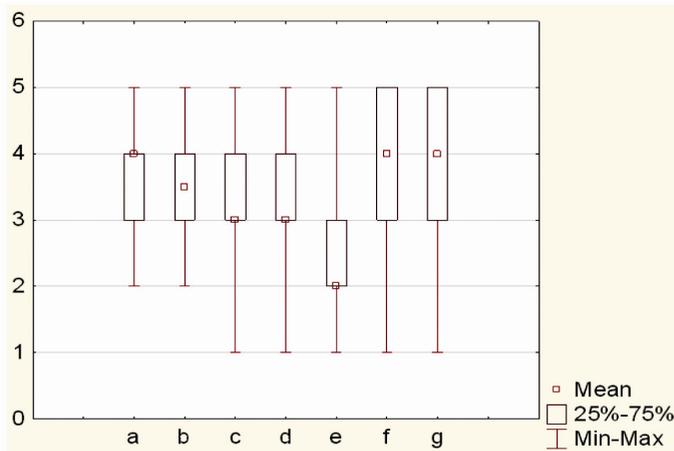


Fig. 1. Factors hampering translating ideas into innovations

Scale: 1 – always; 2 – often; 3 – sometimes; 4 – rarely; 5 – never

- a – Lack of sufficient skills, knowledge to develop and implement new ideas
- b – Lack of technical equipment and technological solutions to support developing and implementing new ideas
- c – Weak ability to protect new products / services / processes from competitors
- d – Lack of determination of the employees to develop and implement new ideas
- e – Lack of financial resources for developing and implementing new ideas
- f – Lack of acceptance by the local community
- g – Lack of new ideas for new projects

The impact of identified barriers on the innovation processes performed by the surveyed MSMTEs is presented on Table 5. Although the shortages of financial capital are the most severely experienced barrier to successful transformation of new concepts into comprehensive innovations there are no statistically significant interrelations between limited funds and implemented innovations regardless of their type. Thus it raises the question of the real costs of introduced innovations and the actual financial needs concerned with conducted innovation processes since the majority of implemented innovations are incremental and represent a firm-level novelty. Further, obtained results indicate that only three of identified barriers to innovation at the concept stage show statistically significant relationships with different types of implemented innovations. The problem of generating ideas for innovations correlates with product innovations. As presented on the Figure 1 the lack of ideas is not a commonly experienced barrier, it occurs rather occasionally and when it does it concerns product type innovations. It is interesting that the

lack of ideas for new products is less severely experienced when tourist enterprises maintain close and stable relations with local communities ($\chi^2 = 5.37$, $p = 0.02048$). An insufficient determination of employees to develop new projects correlates with marketing innovations. The problem of maintaining a high level of engagement at all stages of innovative process is recognized by surveyed firm as one of the most important factors hampering the innovative activity. The negative impact of this barrier is most evident in relation to the sphere of marketing innovation, the dominating type in the tourism industry according to Community Innovation Surveys. Further, while both marketing and organisational innovation have an intangible nature which hinders their effective protection against imitation only organisational changes are affected by the weak ability to protect them against competitors.

Table 5. Interrelations between barriers and elements of the innovation process examined through chi-square independence test (p-value)

Feature /Barriers	a	b	c	d	e	f	g
Implemented innovations							
Product innovations	4.39	0.50	3.49	7.72	6.25	2.72	10.77**
Process innovations	4.30	1.64	3.14	6.15	3.05	1.15	2.30
Marketing innovations	2.70	1.01	2.66	10.60**	1.59	4.28	4.81
Organisational innovations	2.58	4.70	9.96**	5.64	4.22	4.03	1.03
Human capital							
Engagement – phase 1	11.07**	0.75	6.29	6.50	7.44	2.14	6.26
Engagement – phase 2	0.64	5.80	9.37*	14.43***	3.46	1.76	7.38
Engagement – phase 3	6.09	2.91	7.51	19.81***	8.65*	1.94	7.54
Qualifications	2.72	4.49	4.15	13.83***	11.21**	2.42	6.57
Creativity	5.25	3.86	5.94	20.34***	2.96	2.86	8.48*
Knowledge transfer	3.05*	0.92	2.83*	0.05	0.48	1.27	0.15
Financial resources							
Financial institutions	1.90	6.64	0.43	0.49	3.79	3.74	2.69
Local/regional governments	5.95	7.06	12.85**	2.29	2.32	9.33*	3.93
EU funds	7.35	10.38**	4.10	1.39	0.50	9.16*	1.86
Own creditworthiness	6.26	0.88	2.04	4.22	8.43*	2.89	7.17
Cooperation in innovation							
Customers – phase 1	0.08	0.31	0.57	3.71*	0.43	0.02	0.31
Customers – phase 2	0.38	0.10	0.05	0.01	2.09	4.68**	0.11
Customers – phase 3	1.85	0.01	5.43**	0.05	0.16	1.38	0.02
Competitors – phase 1	3.56*	0.12	0.56	0.01	0.13	0.02	0.77
Competitors – phase 2	0.36	1.49	5.51**	1.01	2.30	0.72	2.81
Competitors – phase 3	1.26	0.13	0.35	1.84	3.09*	0.00	1.80
Suppliers – phase 1	0.20	3.90**	3.41*	0.09	1.10	7.76***	4.20**
Suppliers – phase 2	2.42	0.00	0.44	0.08	1.99	0.00	1.72
Suppliers – phase 3	0.02	0.08	0.01	0.02	0.96	0.03	0.37
Protection mode application							
Patent	0.61	4.75*	1.80	2.07	1.25	0.13	0.87
Copyright	2.45	7.29**	5.35*	3.15	3.42	3.09	8.81**
Trademarks	4.83*	8.54**	2.17	0.05	0.81	0.51	4.41
Geographical indication	0.65	0.80	0.77	4.03	1.87	2.43	4.22
Time-lead advantage	0.20	4.09	4.89*	2.95	2.68	1.23	0.20
Trade secrets	3.82	3.44	0.75	1.19	6.12**	3.58	0.43

Innovation complexity	2.57	0.38	3.29	1.21	1.83	3.40	0.81
Complementary assets control	1.05	0.34	1.18	1.63	5.34*	0.51	4.12
Conf. agreements	0.48	0.69	2.37	0.70	6.99**	0.83	0.35
Long-term employment	1.78	4.94*	0.47	0.11	7.50**	2.41	1.47
Feature /Barriers	a	b	c	d	e	f	g

*significant at 10%; **significant at 5%; ***significant at 1%

The collected results show that in the surveyed enterprises staff engagement in creation of ideas for innovations is significantly hampered by the lack of sufficient skills and knowledge of employees. The same barrier limits knowledge transfer (however this correlation appears at $p < 0.1$) what confirms earlier studies regarding absorptive capacity, and knowledge management barriers (Table 3). While the engagement at the first stage of innovation process is related to qualifications of employees, engagement in the remaining two is correlated with determination of employees to innovate. Employees who do not feel determined to innovate, at the same time do not engage in development of new ideas and their commercialization, even if those ideas are already in place. Nevertheless, the lack of determination to innovate is correlated with personnel qualification level in the way that higher qualified personnel is more determined to innovate. Moreover, people who are less creative also do not feel the motivation to develop and implement new ideas.

Analyzing the financial sphere it is worth mentioning that half of surveyed firms evaluated own creditworthiness at above average level. Obtained results indicate a correlation between experienced lack of financial capital for innovative activity and the level of exhibited creditworthiness, however it should be further verified since the statistical significance is not satisfactory ($p < 0.1$). According to the literature, due to reduced dimension MSMTEs need a strong support from external sources of financial capital to carry out innovative processes (Weiermair, 2006; Klausegger&Salzberger, 2006). Findings confirm that financial support provided by local and regional governments may substantially reduce the barrier concerned with inability of surveyed firms to protect innovations against competitors. Infostructural barrier to innovation is interrelated with utilization of EU funds for innovation, which in case of MSMTEs in Poland are also provided generally on the regional level. Companies exhibiting higher efficiency in acquisition of this kind of funding experience less problems with the innovation info structure. Considering the significance of the regional level of financial support it is important to mention that the access to such support is correlated with the attitude of local community toward innovative initiatives undertaken by MSMTEs.

The impact of identified barriers to innovation is evidenced also in relation to the intensity of cooperative activity exhibited by surveyed MSMTEs. Based on the obtained results it can be concluded that MSMTEs with a weak disposition toward cooperation in innovation with suppliers experience more severely the lack of ideas for innovations as well as shortages of technical support for developing new solutions. Cooperation with suppliers at the concept stage broadens the spectrum of feasible opportunities since generated ideas undergo simultaneous conceptualization of possible execution paths. The cooperative activity of surveyed MSMTEs depends also on their capacity to retain value streams generated from innovation. A little scope for effective protection of innovation against competitors correlates with a weak propensity to cooperate with rivals in the development phase, when a new concept is translated into a complex innovative solution by the process of knowledge codification. A weak ability to protect innovations against competitors is also correlated with a weak disposition toward cooperation with customers at the implementation stage. The surveyed MSMTEs fear of the key information leakage prior to full commercialization of developed innovations. Further, the unsupportive attitude exhibited by local communities toward innovative activity of surveyed firms impedes establishing cooperative relations with suppliers (stage 1) and customers (stage 2).

The protection mode pattern implemented by surveyed MSMTEs is most significantly affected by financial shortages. Usage of trade secrets is most common among enterprises suffering from the lack of financial resources for developing new ideas, even though the proper implementation of trade secrets is not costless and require complex organisational changes. Conversely, the lack of financial resources discourages firms from the increased use of confidentiality agreements and long-term employment contracts. Thus, it sheds a different light on the fact

that over 80 per cent of surveyed firms use trade secrets to protect innovations against competitors and at the same time the majority of them indicate limited efficiency of applied protection solutions. A negligible usage of copyrights and trademarks is correlated with the lack of ideas for new projects and the lack of technological support for developing new solutions.

4. Discussion and conclusions

The results provide evidence that most of surveyed MSMTEs do not suffer from the lack of new ideas but experience complex problems that hamper effective translating those ideas into comprehensive innovations. The scale of experienced barriers often results from internal inefficiencies, e.g. inability to protect innovations against competitors is raised not only by the nature of introduced innovations but more importantly by inconsistencies in selecting, implementing and operating protection modes. Interestingly, the impact of the most often reported barrier, namely the lack of financial capital, is not more pervasive than other key obstacles concerned with staff determination, protection of innovations or technical support. Thus, it suggests a need for a more balanced view of sources of inefficiencies in innovation management of MSMTEs and a more cautious development of content of support provided by institutional bodies. Moreover, interrelations between defined barriers and selected features of innovative activity of surveyed firms confirm the importance of relational embeddedness in the local environment for the successful innovation process, since most of identified barriers emerge or tend to aggravate at the interfaces between local tourist business stakeholders.

The deficiencies regarding technical and technological issues have been reported to hamper innovation activities of tourism enterprises. It is worth noticing that in the context of innovations ICT (because this group of technologies is probably the most important for innovations in tourism) should be understood twofold: as info space for running innovation processes or the innovation per se (or its element). This distinction is visible – although not explicitly – in the work of D. Buhalis and R. Law (Buhalis & Law, 2008). In the presented survey the first aspect has been targeted as a barrier to innovation that particularly affects cooperation with external partners e.g. suppliers. However, a single tourism enterprise is usually not capable of building info structure supporting innovation processes due to barriers described in the previous sections. For this reason local and regional administration should actively engage in creation of digital environment for networking (Kopera, 2011), what will stimulate innovativeness of local tourism businesses.

The research has confirmed that also in Polish enterprises to the key innovation barriers belong human resources issues, particularly: insufficient skills, competencies and low formal qualifications, as well as motivation to engage in innovation processes. They are mostly derivatives of structural and behavioral characteristics (and limitations) of tourism industry, but it is necessary to address them on different levels of the industry; policy making level should provide better coherence between changing market needs and the structure of education system as well as the whole tourism industry; education system should address the issue of low level of knowledge transfer to the industry in form of formal education, vocational training, etc.; important consideration in this context should be application of new media for education and knowledge transfer, which – presently – are used in a very limited scope. Finally it is necessary to educate business managers and owners on the importance of innovation for competitiveness as well as on the role of high quality human resources in this process.

There are some limitations in presented empirical analysis, mainly related with the sample size not satisfactory to formulate generalizations. Nevertheless, obtained findings provide direction for future studies focused on exploring factors and conditions necessary for enhancing innovativeness of enterprises operating in tourism industry.

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